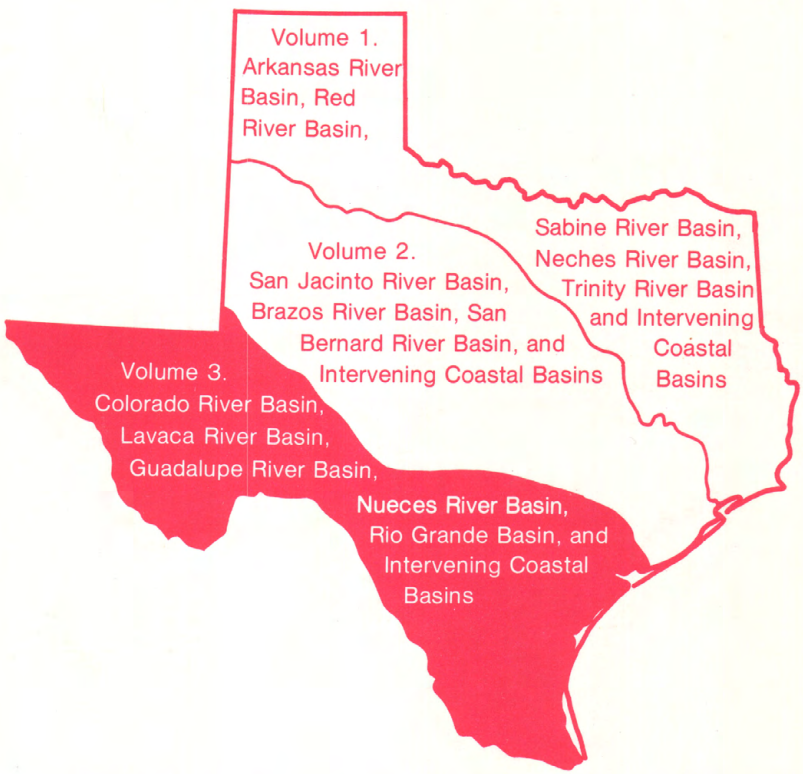
Water Resources Data Texas Water Year 1987

Volume 3. Colorado River Basin, Lavaca River Basin, Guadalupe River Basin, Nueces River Basin, Rio Grande Basin, and Intervening Coastal Bas



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-87-3
Prepared in cooperation with the State of Texas
and with other agencies

October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

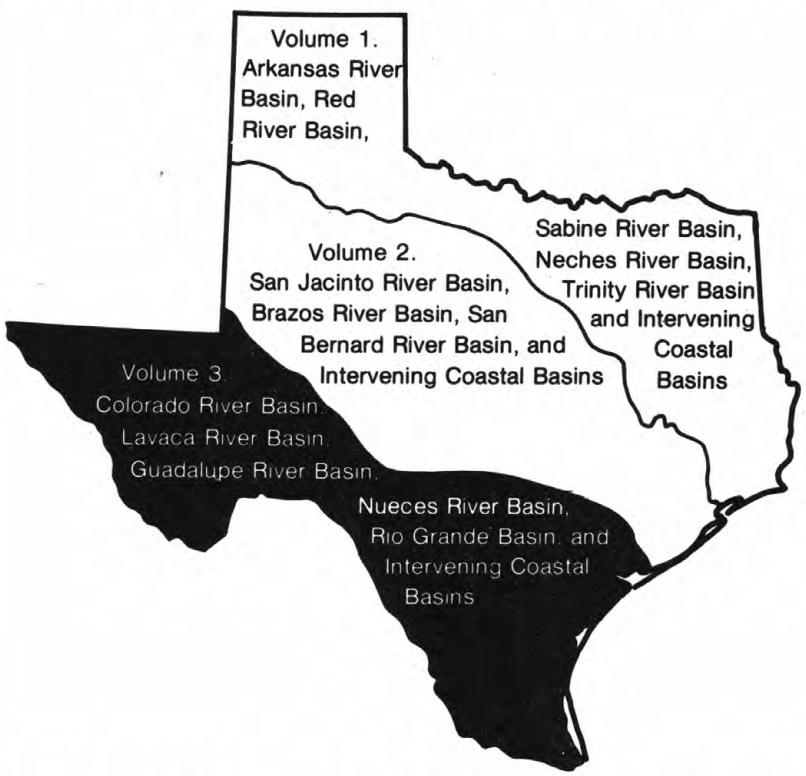
The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

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

Water Resources Data
Texas
Water Year 1987

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

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-87-3
Prepared in cooperation with the State of Texas
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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

1988

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,

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

16. Abstract (Limit: 200 words)

Surface-water data for the 1987 water year for Texas are presented in three volumes, appropriately identified as to content by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Also included are crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Texas.

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CONTENTS

ILLUSTRATION

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

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

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WATER RESOURCES DATA - TEXAS, 1987

VOLUME 3
COLORADO RIVER BASIN, LAVACA RIVER BASIN, GUADALUPE RIVER BASIN, NUECES RIVER BASIN, RIO GRANDE BASIN, AND INTERVENING COASTAL BASINS

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with Federal, State, and City agencies, obtains a large amount of data pertaining to the water resources of Texas each water year. Such data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in 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 3 contains records for water discharge at 152 gaging stations; stage only at 1 gaging station; stage and contents at 19 lakes and reservoirs; and water quality at 91 gaging stations. Also included are data for 28 partial-record stations. Additional water data were collected at 4 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 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-87-3." 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) 482-5571.

COOPERATION

Federal agencies that assisted the Geological Survey in the collection of data in this report in the form of funds or services in 1987 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 Department of Water Resources or through direct joint-funding agreements with the Geological Survey are:

Texas Water Development Board, C. E. Nemir, Executive Administrator; the cities of Abilene, Alice, Arlington, Austin, Carrollton, Corpus Christi, Dallas, Gainesville, Garland, Georgetown, 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 County; Dallas Public Works Department; Dallas/Fort Worth Airport; 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; Lower Colorado River Authority; Lower Neches Valley Authority; North Central Texas Municipal Water Authority; Northeast Texas Municipal Water District; Pecos River Commission; Red Bluff Water Power Control District; Sabine River Authority of Texas; Sabine River Compact Administration; San Antonio City Public Service Board; San Antonio City Water Board; San Antonio River Authority; San Jacinto River Authority; Tarrant County Water Control and Improvement District No. 1; Titus County Fresh Water Supply District No. 1; Trinity River Authority; Upper Guadalupe River Authority; Upper Neches River Municipal Water Authority; Upper Trinity Basin Water Quality Compact; West Central Texas Municipal Water District; 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 generally are deep with wide alluvial flood plains, and streamflow is perennial. In the western part of the State, streams generally flow through arroyos, and streamflow principally is ephemeral.

Precipitation for the first half of the 1987 water year was generally above normal over the entire State. For the second half of the year, the western two-thirds of the State received normal to above-normal precipitation, with an extremely wet period occurring during May and June. For eastern Texas, precipitation during the latter half of the 1987 water year ranged from normal to below normal.

As a result of the above-normal precipitation which occurred during the year, record or near-record runoff volumes were recorded at a number of gaging sites. Streamflow stations on the Guadalupe River near Spring Branch and at Victoria and on the Red River near Burkburnett had the largest yearly runoff totals since those stations were established. The lower station on the Colorado, which was established in 1948, had the second highest recorded runoff total while the lower station on the Brazos River experienced the third largest runoff total since that station was established in 1922. Although runoff in Texas streams was extremely large during the year, no outstanding floods occurred except for the upper Guadalupe River basin where severe flooding occurred during July.

Conservation storage in 71 selected reservoirs throughout the State, with a combined conservation capacity of 31,903,700 acre-feet, increased from 85 percent at the end of September 1986, to 88 percent at the end of September 1987. Records from these 71 reservoirs indicate that contents increased in 28, decreased in 36, and remained the same in 7.

The area for which water-resources data are presented in volume 3 covers the entire southwestern one-half of the State and extends from the western tip of the State to the central and lower Texas Gulf Coast. Normal annual precipitation ranges from less than 8 inches in parts of west Texas to more than 40 inches along the middle Texas coast. Average annual runoff ranges from less than 0.1 inch in parts of western Texas to more than 10 inches in some places along the central Gulf Coast. A map of Texas indicating the area covered by volume 3 and the location of selected streamflow and water-quality stations in the area is shown in figure 1.

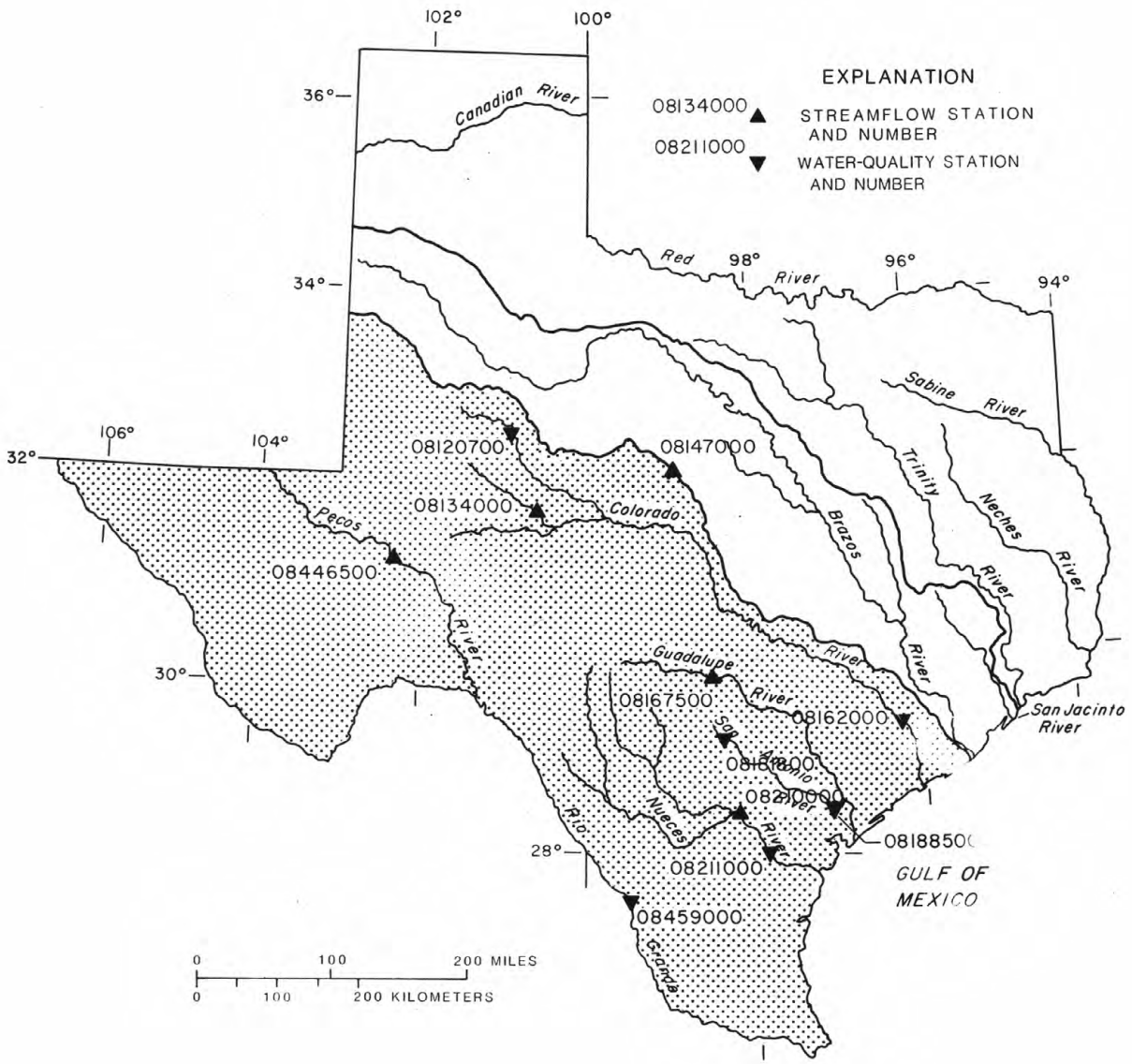

Figure 1.--Area of Texas covered by volume 3 (shaded) and location of selected streamflow and water-quality stations in volume 3.

Streamflow

Above-normal rainfall during October through December, February, and June produced greater-than-normal streamflow throughout the area during the 1987 water year. Runoff rates were above normal at all five selected stations for the year covered by volume 3. The Colorado River near Bay City (08162500) had the second highest yearly runoff total on record since the station was established in April 1948. Total runoff on the Guadalupe River near Spring Branch (08167500) and the Guadalupe River at Victoria (08176500) was the highest of record since these stations were established in 1922 and 1934, respectively. These records were established even though no outstanding flood occurred during the water year, except on the upper Guadalupe River basin, where severe flooding occurred in July.

Streamflow at the hydrologic index station North Concho River near Carlsbad was excessive (within the highest 25 percent of record) from October through April, and in July, and normal for the remaining four months. The hydrologic index station Guadalupe River near Spring Branch had excessive streamflow for the entire water year. A comparison of streamflow for the 1987 water year with streamflow for the period of record at five selected stations for which data are included in volume 3 is presented in the following table:

Station no.	and name	Discharge during 1987 water year (cubic feet per second) Max.	Min.	Avg.	Discharge during period of record (cubic feet per second) Max.	Min.	Avg.
08134000	North Concho River near Carlsbad, Tex. 1/ 2/	10,100	1.2	44.9	94,600	0	33.1 (1925-87)
08147000	Colorado River near San Saba, Tex.	18,600	263	1,553	224,000	0	664
08167500	Guadalupe River near Spring Branch, Tex. 2/	76,500	249	1,570	160,000	0	333 (1923-87)
08210000	Nueces River near Three Rivers, Tex. 2/	13,900	12.0	1,244	141,000	0	833 (1916-87)
08446500	Pecos River near Girvin, Tex.	975	20.0	170	20,000	1.9	82.1 (1940-87)

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

Streamflow was variable at the other two hydrologic index stations in the State. Monthly mean discharges for the four hydrologic index stations in the State are plotted against the median of the long-term monthly means in figure 2. Streamflow during the 1987 water year at Neches River near Rockland was excessive during November, December, and March, deficient (within the lowest 25 percent of record) during May, and normal for the remainder of the year. Streamflow during the 1987 water year at North Bosque River near Clifton was excessive during the periods December through March and June and July, and normal for the remainder of the year.

Conservation storage in 19 selected reservoirs in the area (volume 3) of the State, with a total combined conservation capacity of 8,872,580 acre-feet, increased from 66 percent at the end of September 1986 to 92 percent at the end of September 1987. Records from the 19 reservoirs indicate that contents increased in 14 and decreased in 5.

Water Quality

Dissolved-solids concentrations in most streams in the State are inversely related to water discharge. During years when rainfall and runoff are deficient, streamflow commonly is much more mineralized than in years when rainfall 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 rainfall and runoff.

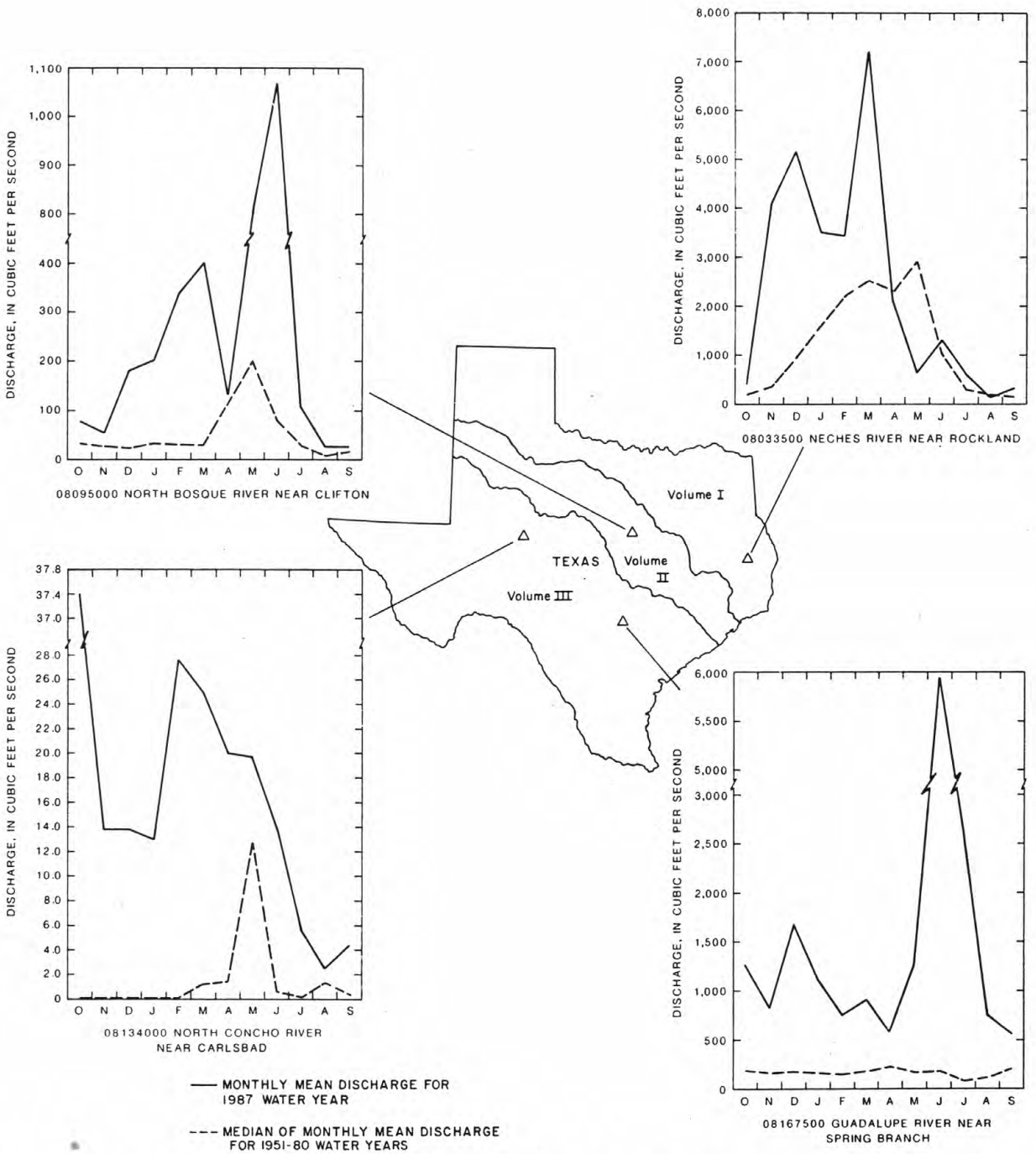

Figure 2.--Comparison of monthly mean discharges at four long-term hydrologic index gaging stations during the 1987 water year with median of the monthly mean discharges for 1951-80 water years.

Records of discharge-weighted-average concentrations of dissolved solids for the 1987 water year are compared with those for the 1983-87 water years for selected long-term daily or continuous-record stations in the Colorado River, Guadalupe River, Nueces River, and Rio Grande basins in the following table:

Station no.	and name	Mean discharge (cubic feet per second) 1987	Mean discharge (cubic feet per second) 1983-87	Discharge-weighted-average concentration of dissolved solids (milligrams per liter) 1987	Discharge-weighted-average concentration of dissolved solids (milligrams per liter) 1983-87
Colorado River Basin					
08120700	Colorado River near Cuthbert, Tex.	69	35	1,100	1,090
08162000	Colorado River at Wharton, Tex.	7,026	2,673	250	252
Guadalupe River basin					
08181800	San Antonio River near Elmendorf, Tex.	*2,062	**646	*323	*368
08188500	San Antonio River at Goliad, Tex.	2,431	915	324	387
Nueces River basin					
08211000	Nueces River near Mathis, Tex.	1,078	428	279	326
Rio Grande basin					
08459000	Rio Grande at Laredo, Tex.	5,101	3,164	574	606

* Covers period Feb. 1 to Sept. 30, 1987.
** Covers water years 1983-86 and February through September 1987.

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.

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.

EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 1987 water year that began October 1, 1986, and ended September 30, 1987. 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 otherwise qualified, and was determined and is reported in the same manner as the maximum.

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

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

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error. Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station 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, radiochemical 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. The 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 quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

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

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

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

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

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

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

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

Milligrams of oxygen per area or volume per unit time [mg 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 hierarchial 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, 1987, is called the "1987 water year."

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

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

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

PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

1-D1. "Water temperature-influential factors, field measurement, and data presentation," by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 p.
3-A1. "General field and office procedures for indirect measurements," by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 p.
3-A2. "Measurement of peak discharge by the slope-area method," by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 p.
3-A3. "Measurement of peak discharge at culverts by indirect methods," by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 p.
3-A4. "Measurement of peak discharge at width contractions by indirect methods," by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 p.
3-A5. "Measurement of peak discharge at dams by indirect methods," by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p.
3-A6. "General procedure for gaging streams," by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 p.
3-A7. "Stage measurements at gaging stations," by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p.
3-A8. "Discharge measurements at gaging stations," by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 p.
3-A9. "Measurement of time of travel and dispersion in streams by dye tracing," by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 p.
3-A10. "Discharge ratings at gaging stations," by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 p.
3-A11. "Measurement of discharge by moving-boat method," by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 p.
3-A13. "Computations of continuous records of streamflow," by E. J. Kennedy: USGS-TWRI Book 3, Chapter A13, 1983. 53 p.
3-A14. "Use of flumes in measuring discharge," by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 p.
3-A15. "Computation of water-surface profiles in open channels," by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 p.
3-C1. "Fluvial sediment concepts," by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p.
3-C2. "Field methods for measurement of fluvial sediment," by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 p.
3-C3. "Computation of fluvial-sediment discharge," by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 p.
4-A1. "Some statistical tools in hydrology," by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p.
4-A2. "Frequency curves," by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 p.
4-B1. "Low-flow investigations," by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 p.
4-B2. "Storage analyses for water supply," by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 p.
4-B3. "Regional analyses of streamflow characteristics," by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 p.
5-A1. "Methods for determination of inorganic substances in water and fluvial sediments," by M. W. Skougstad and others: USGS--TWRI Book 5, Chapter A1. 1979. 626 p.
5-A2. "Determination of minor elements in water by emission spectroscopy," by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 p.
5-A3. "Methods for analysis of organic substances in water," by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 p.
5-A4. "Methods for collection and analysis of aquatic biological and microbiological samples," edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 p.

5-A5. "Methods for determination of radioactive substances in water and fluvial sediments," by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 p.
5-A6. "Quality assurance practices for the chemical and biological analyses of water and fluvial sediments," by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 p.
5-C1. "Laboratory theory and methods for sediment analysis," by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 p.
7-C3. "A model for simulation of flow in singular and interconnected channels," by R. W. Schaffrannek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1983. 110 p.
8-A2. "Installation and service manual for U.S. Geological Survey manometers," by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 p.
8-B2. "Calibration and maintenance of vertical-axis type current meters," by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 p.

COLORADO RIVER MAIN STEM

08119500 COLORADO RIVER NEAR IRA, TX

LOCATION.--Lat 32°32'18", long 101°03'12", Scurry County, Hydrologic Unit 12080002, on right bank 530 ft downstream from bridge on State Highway 350, 3.8 mi downstream from Bluff Creek, 4 mi upstream from Willow Creek, 4.5 mi southwest of Ira, and at mile 826.3.

DRAINAGE AREA.--3,483 mi², of which 2,371 mi² probably is noncontributing.

PERIOD OF RECORD.--October 1947 to September 1952 (monthly records only 1950-52), October 1958 to current year. Water-quality records: Chemical analyses: November 1958 to September 1970, November 1974 to September 1982.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,134.15 ft above National Geodetic Vertical Datum of 1929. Oct. 1-30, 1947, nonrecording gage at site 75 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Since July 1952, flow has been largely regulated by Lake J. B. Thomas (station 08118000) 11 mi upstream.

AVERAGE DISCHARGE.--5 years (water years 1948-52) prior to completion of Colorado River Dam, 50.5 ft³/s (36,590 acre-ft/yr); 29 years (water years 1959-87) regulated, 9.73 ft³/s (7,050 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,500 ft³/s July 6, 1948 (gage height, 21.35 ft), from rating curve extended above 9,600 ft³/s by slope-conveyance method; maximum gage height, 22.84 ft May 15, 1980 (from shift in rating); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 16, 1913 (gage height, 32 ft), was the greatest since at least that date, from information by local resident. Flood in May 1947 reached a stage of 25.1 ft, from floodmark at site of former bridge 269 ft upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 973 ft³/s May 28 at 1800 hours (gage height, 10.95 ft); minimum daily, 0.24 ft³/s Sept. 26.

DISCHARGE, IN 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	1.4	2.1	1.9	2.8	2.8	12	2.4	1.8	26	46	.69	1.0
2	48	2.1	1.9	2.7	2.4	6.9	2.2	1.6	9.8	6.0	.66	.92
3	43	2.1	1.9	2.7	2.5	5.0	2.1	1.6	5.2	2.3	.62	.73
4	157	2.6	1.9	2.5	2.7	4.1	2.1	1.5	3.2	1.7	.61	.67
5	202	2.5	1.9	2.5	82	3.7	2.1	1.5	2.2	1.5	.59	.66
6	198	2.2	1.9	2.5	29	3.3	2.3	1.5	2.0	1.3	.54	1.7
7	46	2.2	1.9	2.5	10	3.1	2.2	1.5	1.8	1.2	.47	.78
8	17	2.1	1.9	2.5	5.8	3.0	2.2	1.5	1.7	1.1	.44	.79
9	8.3	2.0	1.9	2.5	4.3	3.0	2.1	1.4	1.8	1.1	.41	.73
10	24	2.0	1.9	2.5	3.5	2.9	2.1	1.4	2.0	1.0	.41	.71
11	218	1.9	1.9	2.5	3.1	2.8	2.1	1.4	12	.98	.41	.62
12	75	1.9	1.9	2.2	2.8	2.7	2.1	1.4	20	.92	.38	.61
13	28	1.8	1.9	2.2	2.7	2.7	1.9	3.0	2.3	3.0	.36	.59
14	14	1.8	1.9	2.2	2.7	2.7	1.9	4.3	2.0	1.3	.73	.61
15	8.3	1.9	1.9	2.2	2.6	2.7	1.8	1.8	1.7	48	.74	.55
16	6.0	1.9	1.9	2.4	2.5	2.8	1.8	1.6	1.5	41	.61	.52
17	4.9	2.0	3.0	2.4	2.5	2.7	1.9	1.8	1.4	11	.56	.50
18	4.1	2.0	8.6	3.1	2.5	2.6	1.8	1.6	1.3	8.5	.50	.50
19	3.5	2.0	5.6	3.5	3.4	2.5	1.8	4.5	1.2	2.9	.45	.43
20	3.1	2.0	5.1	2.6	5.5	2.5	1.8	2.3	1.2	1.9	.42	.41
21	3.6	1.9	5.7	2.5	6.7	2.5	1.9	1.8	1.2	1.6	.35	.40
22	3.6	2.0	13	2.5	8.3	2.4	2.0	1.6	1.2	1.4	.34	.34
23	3.4	2.0	24	2.5	6.4	2.3	1.9	160	1.2	1.3	.44	.30
24	3.1	1.9	17	2.5	9.4	2.1	1.9	154	1.2	1.2	.39	.30
25	2.7	1.9	8.8	2.4	9.7	2.1	1.8	48	1.1	1.1	7.4	.29
26	2.4	1.9	5.8	2.2	9.5	4.0	1.7	14	1.1	1.0	15	.24
27	2.2	1.9	4.6	2.2	20	4.3	1.7	7.3	1.1	.95	7.3	.31
28	2.2	1.9	3.8	2.2	35	6.0	1.7	363	1.1	.93	1.9	.38
29	2.1	1.9	3.6	2.1	---	3.9	1.6	425	3.9	.86	1.4	.40
30	2.1	1.9	3.1	2.1	---	2.9	1.7	516	80	.84	1.2	.27
31	2.1	---	3.1	2.1	---	2.6	---	102	---	.76	1.0	---
TOTAL	1139.1	60.3	145.2	76.3	280.3	108.8	58.6	1831.7	193.4	194.64	47.32	17.26
MEAN	36.7	2.01	4.68	2.46	10.0	3.51	1.95	59.1	6.45	6.28	1.53	.58
MAX	218	2.6	24	3.5	82	12	2.4	516	80	48	15	1.7
MIN	1.4	1.8	1.9	2.1	2.4	2.1	1.6	1.4	1.1	.76	.34	.24
AC-FT	2260	120	288	151	556	216	116	3630	384	386	94	34

CAL YR 1986 TOTAL 4106.68 MEAN 11.3 MAX 551 MIN .00 AC-FT 8150
WTR YR 1987 TOTAL 4152.87 MEAN 11.4 MAX 516 MIN .24 AC-FT 8240

08120700 COLORADO RIVER NEAR CUTHBERT, TX

LOCATION.--Lat 32°28'38", long 100°56'58", Mitchell County, Hydrologic Unit 12080002, on left bank at downstream side of bridge on Farm Road 1808, 4.0 mi downstream from Deep Creek, 4.8 mi east of Cuthbert, 8.0 mi northwest of Colorado City, and at mile 810.0.

DRAINAGE AREA.--3,912 mi², of which 2,381 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1965 to current year.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,073.49 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharge. Records good. Flow is regulated by Lake J. B. Thomas (station 08118000) 27 mi upstream.

AVERAGE DISCHARGE.--22 years (water years 1966-87), 37.9 ft³/s (27,460 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft³/s Aug. 14, 1972 (gage height, 25.99 ft); maximum gage height, 27.18 ft Sept. 29, 1980; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1941 and 1946 reached a stage of 36.1 ft, from State Department of Highways and Public Transportation bridge plans.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,330 ft³/s May 29 at 1930 hours (gage height, 17.26 ft); minimum, 1.0 ft³/s Aug. 25.

DISCHARGE, IN 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	7.0	21	16	24	21	49	17	7.8	757	233	3.8	5.9
2	193	20	16	22	25	33	15	7.8	190	98	3.5	5.0
3	518	20	16	23	19	28	15	7.4	83	30	3.8	4.6
4	809	22	15	21	17	25	15	6.7	54	19	3.8	4.3
5	1050	24	16	20	98	23	15	6.3	39	14	3.5	3.8
6	1690	22	16	20	168	22	16	7.2	29	11	3.5	3.8
7	1140	21	17	19	72	21	16	7.6	24	9.3	3.7	5.1
8	538	21	17	18	42	21	16	7.4	21	7.9	2.9	5.9
9	139	19	18	22	33	21	15	7.2	28	7.1	2.9	4.9
10	85	17	17	22	28	20	16	6.9	25	6.4	3.4	4.6
11	671	17	16	18	26	19	15	6.3	42	6.3	2.8	5.1
12	991	17	16	17	26	19	14	6.6	159	5.9	2.5	4.6
13	745	17	16	17	24	19	13	8.8	54	5.7	2.6	4.3
14	182	16	16	19	23	18	12	20	26	8.1	88	4.7
15	94	17	17	18	23	19	12	21	18	36	137	7.7
16	69	17	17	17	21	19	11	10	14	62	12	6.6
17	55	17	18	17	20	24	12	7.9	12	42	5.7	5.2
18	50	17	65	18	20	21	12	8.7	10	21	4.1	4.6
19	41	17	55	18	22	18	12	6.9	9.4	17	3.3	4.9
20	38	17	33	20	33	17	13	25	8.7	12	2.4	4.5
21	34	16	30	21	40	17	14	15	8.6	9.9	1.9	4.1
22	36	16	47	19	35	17	15	7.1	8.9	8.1	1.7	4.0
23	38	16	62	18	33	18	15	264	8.2	7.0	1.4	3.8
24	39	16	70	18	36	17	14	701	7.7	6.3	1.3	3.5
25	38	16	51	18	40	15	12	398	6.8	5.8	1.5	3.0
26	31	17	38	17	40	20	12	187	6.1	5.6	251	2.6
27	27	17	32	16	48	34	11	54	5.6	4.7	151	2.8
28	25	16	28	16	57	24	10	147	5.7	4.7	24	2.9
29	23	16	26	16	---	21	9.1	2590	9.3	4.6	13	3.2
30	21	16	25	16	---	18	8.2	2060	279	4.4	8.9	3.4
31	21	---	23	15	---	17	---	1360	---	4.1	6.7	---
TOTAL	9438.0	538	865	580	1090	674	402.3	7976.6	1949.0	716.9	757.6	133.4
MEAN	304	17.9	27.9	18.7	38.9	21.7	13.4	257	65.0	23.1	24.4	4.45
MAX	1690	24	70	24	168	49	17	2590	757	233	251	7.7
MIN	7.0	16	15	15	17	15	8.2	6.3	5.6	4.1	1.3	2.6
AC-FT	18720	1070	1720	1150	2160	1340	798	15820	3870	1420	1500	265

CAL YR 1986 TOTAL 28086.3 MEAN 76.9 MAX 1690 MIN .00 AC-FT 55710
WTR YR 1987 TOTAL 25120.6 MEAN 68.8 MAX 2590 MIN 1.3 AC-FT 49830

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1965 to current year.
WATER TEMPERATURE: March 1965 to May 1980, April 1983 to current year.

INSTRUMENTATION.--Since March 1965, specific conductance is recorded continuously at this station. Since April 1983, water temperature is recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 70,000 microsiemens Nov. 17, 1968; minimum, 102 microsiemens Sept. 28, 1980.
WATER TEMPERATURE: Maximum, 36.0°C Aug. 7, 1985; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 7,870 microsiemens May 15; minimum, 300 microsiemens Oct. 6.
WATER TEMPERATURE: Maximum, 33.0°C June 24; minimum, 0.0°C Jan. 18, 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 06...	1300	1610	458	19.0	120	44	36	7.1	41
DEC 16...	1615	17	4840	9.0	1100	820	250	120	720
FEB 11...	1520	22	3520	13.0	820	590	190	84	500
APR 07...	1420	16	4770	14.0	1100	800	250	110	670
JUN 02...	1445	148	1730	24.5	340	190	93	26	220
JUL 21...	1350	9.3	3280	28.0	640	420	160	58	470

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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 06...	2	5.5	75	64	47	0.20	9.7	260
DEC 16...	10	6.0	300	1000	990	1.3	7.2	3300
FEB 11...	8	7.6	231	660	680	0.90	8.1	2300
APR 07...	9	6.0	282	990	940	1.4	6.1	3100
JUN 02...	5	7.3	151	200	350	0.40	13	1000
JUL 21...	8	7.6	218	460	710	0.90	8.6	2000

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	9438.0	1080	677	17300	230	5860	170	4330	210
NOV.	1986	538	4820	3000	4360	1100	1620	690	996	870
DEC.	1986	865	4390	2730	6380	1000	2350	630	1480	800
JAN.	1987	580	4740	2950	4620	1100	1720	680	1060	860
FEB.	1987	1090	4010	2500	7360	910	2680	590	1720	740
MAR.	1987	674	4820	3000	5460	1100	2040	690	1250	870
APR.	1987	402.3	4950	3080	3350	1200	1250	700	762	890
MAY	1987	7976.6	933	584	12600	200	4220	150	3200	190
JUNE	1987	1949.0	2030	1270	6680	440	2320	310	1640	390
JULY	1987	716.9	2650	1660	3210	580	1120	410	787	510
AUG.	1987	757.6	2200	1370	2810	470	967	340	698	430
SEPT	1987	133.4	3370	2100	758	750	270	500	182	640
TOTAL		25120.8	**	**	74800	**	26400	**	18100	**
WTD.AVG.		69	1770	1100	**	390	**	270	**	340

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	4800	4700	4780	4820	4710	4730	4960	4760	4880	4560	4360	4430
2	5900	1200	3970	4820	4620	4730	4870	4770	4850	4560	4460	4540
3	2200	900	1410	4830	4720	4750	4880	4780	4870	4570	4460	4540
4	2400	400	973	4830	4630	4750	4980	4880	4890	4670	4570	4590
5	900	500	675	4830	4540	4710	4880	4690	4800	4670	4570	4650
6	500	300	419	4940	4740	4870	4890	4790	4810	4770	4670	4690
7	500	400	427	5150	4840	4990	4900	4690	4790	4770	4670	4710
8	1200	500	773	4950	4750	4880	4900	4800	4840	4770	4670	4720
9	2300	1300	1820	4850	4650	4730	4910	4800	4870	4770	4570	4700
10	3000	2400	2680	4860	4660	4770	4910	4710	4810	4670	4470	4580
11	2500	1000	1610	4770	4670	4760	5020	4810	4910	4780	4580	4680
12	1100	500	675	4770	4670	4750	5020	4720	4910	4880	4680	4780
13	900	500	648	4880	4670	4760	4930	4720	4820	4880	4680	4800
14	2100	900	1500	4980	4780	4900	4930	4830	4870	4780	4580	4690
15	2800	2100	2490	4980	4780	4880	4930	4740	4840	4780	4580	4690
16	3300	2800	3100	4990	4790	4850	4940	4740	4830	4880	4680	4800
17	3700	3300	3520	5000	4790	4880	4840	4640	4730	4880	4680	4810
18	4000	3600	3820	4900	4700	4840	4840	3840	4400	4890	4690	4830
19	4100	3900	4020	4910	4700	4820	4440	4040	4310	4990	4790	4850
20	4200	4100	4140	4910	4710	4830	4550	3740	4070	4990	4690	4840
21	4300	4200	4230	4920	4710	4850	4650	4250	4380	4890	4690	4790
22	4400	4200	4290	4920	4820	4910	4550	4350	4470	4890	4690	4820
23	4400	4300	4340	4930	4820	4850	5150	3850	4780	4990	4790	4920
24	4800	4300	4390	4830	4730	4800	4950	3150	3670	4990	4790	4910
25	5000	3800	4670	4940	4830	4840	3750	3450	3590	5000	4800	4860
26	3800	3500	3640	4840	4740	4790	3950	3750	3870	4900	4800	4840
27	4000	3700	3900	4850	4640	4740	4060	3950	3980	5000	4800	4880
28	4300	4100	4170	4950	4850	4910	4160	4060	4080	5000	4800	4890
29	4600	4200	4420	4960	4850	4870	4260	4060	4150	4900	4700	4830
30	4710	4500	4600	4960	4860	4890	4360	4160	4300	4800	4700	4760
31	4810	4710	4720	---	---	---	4460	4260	4370	4800	4600	4770
MONTH	5900	300	2930	5150	4540	4820	5150	3150	4540	5000	4360	4750
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	4900	4510	4710	4970	4170	4630	5250	5050	5210	5010	4810	4970
2	4510	4310	4400	4570	4370	4420	5160	4960	5100	5210	4810	4990
3	4810	4410	4610	4580	4470	4510	4960	4860	4900	5400	5200	5310
4	4810	4710	4780	4680	4580	4580	5060	4860	5000	5300	5200	5270
5	5010	3110	4230	4780	4580	4690	4870	4760	4830	5300	5100	5190
6	5210	2410	3800	4880	4680	4780	4870	4670	4770	5300	5100	5210
7	2510	2210	2340	4890	4780	4810	4870	4670	4770	5100	4690	4870
8	2720	2310	2510	4990	4790	4900	4970	4770	4860	4890	4690	4750
9	3120	2720	2890	5090	4890	4990	4970	4860	4930	4790	4690	4740
10	3320	3120	3210	5090	4890	4970	4960	4760	4890	4690	4590	4650
11	3620	3320	3510	5100	4900	5000	4960	4860	4910	4690	4480	4570
12	3920	3620	3770	5100	4900	4980	5060	4860	4980	4580	4280	4450
13	4030	3920	4000	5000	4900	4970	5050	4950	4990	4680	4280	4400
14	4230	4030	4170	5000	4900	4980	5050	4950	5020	4580	3180	3620
15	4430	4230	4290	5010	4910	4960	5050	4950	5020	7870	3080	6680
16	4530	4330	4400	5010	4810	4920	5250	4950	5080	7670	5670	6580
17	4640	4430	4500	5310	4610	4990	5250	5040	5140	5570	3170	4210
18	4640	4540	4590	4810	4220	4530	5240	5040	5120	3070	2870	2930
19	4840	4440	4590	4920	4520	4760	5240	5040	5170	2970	2760	2880
20	4540	4140	4400	4920	4820	4870	5540	4940	5090	5360	2860	3520
21	4350	4150	4230	4920	4820	4890	4940	4630	4780	3960	3760	3890
22	4850	4350	4580	5030	4830	4930	5030	4630	4840	3960	3660	3810
23	5050	4650	4940	4930	4730	4870	4930	4730	4890	4760	1350	2670
24	4750	4550	4650	5030	4830	4920	5130	4730	4910	1650	1050	1330
25	4660	4460	4560	4940	4830	4870	5220	5020	5110	1550	949	1300
26	4760	4260	4570	5140	4840	4930	5120	4920	5010	1650	948	1210
27	4260	4060	4140	4940	4140	4430	4920	4720	4830	2240	1750	2020
28	5070	4260	4530	4840	4440	4700	4920	4720	4820	2540	1040	2090
29	---	---	---	5250	4840	5110	4910	4810	4840	941	439	569
30	---	---	---	5550	5150	5380	5010	4810	4920	837	538	642
31	---	---	---	5550	5250	5450	---	---	---	736	535	633
MONTH	5210	2210	4140	5550	4140	4860	5540	4630	4960	7870	439	3680

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1130	732	833	2800	2200	2500	3400	3300	3380			3000
2	2000	1130	1590	2100	1800	1950	3500	3300	3400			3000
3	2700	2000	2380	2100	2000	2050	3500	3400	3440			3100
4	3100	2700	2930	2200	2000	2130	3500	3400	3440			3100
5	3500	3100	3320	2300	2100	2220	3500	3400	3420			3200
6	3700	3500	3640	2600	2200	2350	3400	3300	3360			3200
7	4000	3700	3850	2900	2600	2760	3400	3200	3320			3200
8	4100	4000	4060	3000	2900	2940	3300	3100	3210			3200
9	4100	2800	3890	3100	2900	3010	3200	3100	3160			3300
10	4000	2800	3660	3100	3000	3050	3100	2900	3010			3300
11	4600	3000	3900	3200	3000	3100	3100	2900	3000			3300
12	3400	1600	2530	3200	3100	3160	3000	2900	2920			3400
13	2600	2000	2340	3200	3100	3140	3000	2800	2900			3400
14	2500	2200	2370	3100	3000	3060	---	---	2210			3400
15	3000	2400	2660	3100	2900	3040	---	---	1250			3000
16	3300	2900	3100	3100	2900	2970	---	---	1800			3000
17	3500	3300	3390	3300	3100	3160	---	---	2500			3100
18	3800	3400	3580	3200	3100	3140	---	---	3200			3200
19	3900	3700	3800	3200	3100	3180	---	---	3500			3300
20	4100	3900	4010	3300	3100	3200	---	---	3800			3400
21	4100	3900	4020	3300	3100	3230	---	---	4200			3500
22	4000	3800	3900	3300	3200	3230	---	---	4500			3600
23	4000	3800	3920	3300	3200	3240	---	---	4500			3800
24	4200	3900	4040	3300	3200	3240	---	---	4700			4000
25	4200	4000	4090	3300	3200	3250	---	---	4700			4100
26	4300	4000	4140	3300	3200	3260	---	---	2500			4200
27	4400	4200	4270	3400	3200	3300	---	---	2000			4100
28	4500	4300	4380	3400	3200	3280	---	---	2200			4100
29	4300	2100	3980	3300	3200	3280	---	---	2400			4000
30	3800	2000	2850	3400	3300	3330	---	---	2600			4000
31	---	---	---	3400	3300	3350	---	---	2800			
MONTH	4600	732	3380	3400	1800	2970	3500	2800	3140			3450

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08120700 COLORADO RIVER NEAR CUTHBERT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	12.0	9.0	10.5	12.5	9.0	10.5	16.5	10.0	13.0	26.0	22.0	23.5
2	12.5	8.0	10.5	13.5	7.5	10.5	14.0	10.0	12.5	26.5	21.5	24.0
3	12.5	8.5	10.5	14.5	9.0	12.0	16.0	9.0	12.5	25.0	21.0	23.0
4	12.5	9.5	11.0	15.0	9.5	12.5	16.5	11.0	14.0	25.0	19.5	22.0
5	12.0	9.0	10.5	14.5	10.0	12.5	14.0	10.5	12.0	25.5	19.5	22.5
6	8.5	6.0	7.5	16.0	10.0	13.0	14.5	10.5	12.0	24.5	21.0	23.0
7	8.5	5.0	6.5	16.0	11.5	13.5	14.5	10.5	12.5	23.0	20.5	22.0
8	10.0	5.5	7.5	16.5	11.5	14.0	17.5	10.5	14.0	24.0	18.5	21.5
9	10.0	5.5	7.5	14.0	11.0	13.0	19.0	12.0	15.5	26.0	19.5	23.0
10	11.5	6.5	9.0	10.5	9.0	9.5	21.0	14.5	17.5	26.5	21.0	24.0
11	13.0	8.0	10.5	14.0	8.5	10.5	22.5	15.5	19.0	26.0	22.0	24.5
12	13.5	9.5	11.5	14.5	9.0	11.5	22.5	16.5	19.5	27.0	21.5	24.0
13	15.0	11.5	13.0	14.0	11.0	12.5	20.5	16.0	18.5	26.5	23.0	25.0
14	14.0	12.0	13.0	16.5	11.0	13.5	19.5	13.5	16.5	28.0	21.0	24.5
15	12.0	10.5	11.0	18.5	13.5	16.0	21.5	13.5	17.5	26.5	23.5	25.0
16	10.0	9.0	9.5	17.0	15.0	16.5	23.5	16.0	19.5	29.0	22.5	26.0
17	9.5	8.0	9.0	15.5	12.0	14.0	25.0	18.0	21.5	29.5	23.5	26.5
18	10.0	6.0	8.0	17.0	10.5	13.5	25.5	19.5	22.5	28.5	25.0	27.0
19	8.5	6.0	7.0	14.5	12.5	13.5	27.0	21.5	24.0	26.0	23.5	24.5
20	7.0	5.5	6.0	18.5	11.5	15.0	25.0	22.0	23.5	26.0	21.5	24.0
21	6.0	5.0	5.5	16.0	14.5	15.5	21.5	16.5	18.0	28.0	21.5	24.5
22	9.5	4.5	7.0	20.5	15.0	17.5	22.0	14.5	18.0	28.0	24.0	26.0
23	9.0	5.5	7.5	18.0	12.5	14.5	23.5	17.0	20.5	24.5	18.5	20.5
24	9.5	7.5	8.5	16.5	10.0	13.0	24.5	18.5	21.5	20.0	17.5	18.5
25	9.5	8.5	9.0	14.0	10.5	12.0	25.5	19.0	22.0	22.5	20.0	21.0
26	11.0	9.0	10.0	11.0	9.5	10.5	26.0	19.0	22.5	23.0	22.0	22.5
27	13.5	9.5	11.5	15.5	8.5	11.5	26.0	19.5	22.5	25.5	21.5	23.0
28	13.0	9.5	11.0	15.5	10.0	12.5	25.5	19.5	22.5	24.0	19.0	22.5
29	---	---	---	11.0	7.0	9.0	25.5	20.0	23.0	18.5	16.5	17.5
30	---	---	---	11.5	5.0	8.0	25.5	20.0	23.0	20.0	17.5	19.0
31	---	---	---	14.5	7.0	10.5	---	---	---	21.0	20.0	20.5
MONTH	15.0	4.5	9.5	20.5	5.0	12.5	27.0	9.0	18.5	29.5	16.5	23.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	23.5	20.5	22.0	28.0	24.0	25.5	30.0	26.5	28.0	24.0	23.0	23.5
2	25.5	23.0	24.0	30.0	27.0	28.5	30.5	26.5	28.5	24.0	23.5	23.5
3	25.0	23.0	24.5	31.0	27.0	29.0	30.5	26.5	28.5	24.5	23.5	24.0
4	25.0	21.0	23.0	30.5	27.0	29.0	31.0	26.5	29.0	24.5	24.0	24.0
5	26.5	20.5	23.0	31.5	27.0	29.0	31.0	27.0	29.0	24.5	24.0	24.0
6	27.0	21.0	24.0	31.0	27.0	29.0	31.0	26.5	28.5	24.5	24.0	24.0
7	27.0	22.5	24.5	31.0	27.0	29.0	30.5	27.0	28.5	25.0	24.0	24.5
8	26.5	23.5	25.0	30.0	27.5	29.0	30.5	26.0	28.0	25.0	24.5	24.5
9	25.5	23.5	24.5	30.0	27.5	29.0	31.0	26.5	28.5	25.0	24.0	24.5
10	26.5	23.5	24.5	30.0	27.0	28.0	31.5	27.5	29.0	24.5	24.0	24.0
11	28.5	24.0	26.0	30.0	26.5	28.0	30.0	27.0	28.5	24.0	23.5	24.0
12	27.0	24.0	25.5	30.0	27.5	29.0	30.5	26.5	28.5	24.5	23.5	24.0
13	29.5	25.0	27.0	29.5	25.0	26.5	31.5	27.0	29.0	25.0	24.0	24.5
14	31.5	25.0	28.0	28.5	24.0	25.5	31.0	26.5	28.0	25.0	24.0	24.5
15	31.5	26.0	29.0	29.0	24.5	27.0	26.5	26.0	26.5	24.5	23.5	24.0
16	31.0	26.5	28.5	27.5	26.0	26.5	26.5	26.5	26.5	24.5	23.0	24.0
17	32.0	26.5	29.0	29.0	25.0	26.5	26.5	26.0	26.0	24.0	23.0	23.5
18	31.5	26.5	29.0	31.0	26.0	28.0	26.0	25.5	26.0	23.5	22.0	23.0
19	30.5	26.5	28.5	31.0	27.5	29.0	25.5	25.0	25.5	22.0	20.5	21.0
20	31.5	26.5	29.0	31.5	27.0	29.0	25.5	25.0	25.0	21.5	20.5	21.0
21	31.0	27.0	29.0	30.5	26.5	28.5	25.0	24.5	24.5	21.5	21.0	21.0
22	30.0	24.0	27.0	29.5	26.0	28.0	24.5	24.5	24.5	21.0	20.5	20.5
23	32.0	26.0	29.0	29.5	26.5	28.0	25.0	24.5	24.5	21.0	20.0	20.5
24	33.0	27.5	30.0	30.0	26.5	28.5	24.5	24.0	24.0	20.5	19.5	20.0
25	31.5	26.5	29.5	30.0	26.5	28.5	24.0	24.0	24.0	20.5	19.5	20.0
26	29.5	26.0	27.5	29.5	26.0	28.0	24.0	24.0	24.0	21.0	20.0	20.5
27	28.5	24.5	26.5	30.0	26.5	28.0	24.0	23.5	23.5	22.0	21.0	21.0
28	29.5	25.5	27.5	30.0	26.5	28.0	24.0	23.5	24.0	22.0	21.5	22.0
29	29.5	25.5	27.0	29.5	26.0	28.0	23.5	23.5	23.5	22.0	21.0	21.5
30	26.5	23.0	24.0	29.0	25.5	27.5	24.0	23.5	24.0	21.0	20.0	20.5
31	---	---	---	30.0	26.0	28.0	24.0	23.5	24.0	---	---	---
MONTH	33.0	20.5	26.5	31.5	24.0	28.0	31.5	23.5	26.5	25.0	19.5	22.5

08121000 COLORADO RIVER AT COLORADO CITY, TX

LOCATION.--Lat 32°23'33", long 100°52'42", Mitchell County, Hydrologic Unit 12080002, on right bank at Colorado City, 3,517 ft upstream from bridge on State Highway 377, 4,100 ft upstream from the Texas and Pacific Railroad Co. bridge, 1.3 mi downstream from bridge on Interstate Highway 20 and U.S. Highway 80, 1.6 mi upstream from Lone Wolf Creek, and at mile 796.3.

DRAINAGE AREA.--3,966 mi², of which 2,381 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1923 to August 1925 (published as "at Colorado"), May 1946 to current year.

REVISED RECORDS.--WSP 1512: 1946(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,030.16 ft above National Geodetic Vertical Datum of 1929. Nov. 28, 1923, to Aug. 31, 1925, nonrecording gage at site 1.4 mi downstream at different datum. May 9 to Aug. 5, 1946, nonrecording gage at site 185 ft upstream at present datum.

REMARKS.--No estimated daily discharges. Records good. Since 1952, flow regulated by Lake J. B. Thomas (station 08118000) 31 mi upstream. The Colorado River Municipal Water District diverts low flow into an off channel reservoir mi upstream for brine disposal. There are numerous diversions from Lake J. B. Thomas for municipal use and oilfield operation.

AVERAGE DISCHARGE.--6 years (water years 1947-52) prior to completion of Lake J. B. Thomas, 85.4 ft³/s (61,870 acre-ft/yr); 35 years (water years 1953-87) regulated, 39.1 ft³/s (28,330 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft³/s July 6, 1948 (gage height, 22.37 ft, from floodmark); maximum gage height, 27.81 ft Sept. 29, 1980, backwater from salt cedar; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 35.9 ft June 20, 1939, present site and datum, based on floodmarks 1,000 ft upstream and 3,740 ft downstream from gage; discharge, 66,000 ft³/s, by slope-area measurement of peak flow at site 2.5 mi upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,400 ft³/s May 30 at 1030 hours (gage height, 17.82 ft); minimum daily, 0.08 ft³/s May 10.

DISCHARGE, IN 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	5.3	2.0	1.8	30	23	110	42	5.9	942	289	4.5	7.3
2	4.4	24	12	28	30	63	41	5.7	300	119	4.2	6.7
3	441	30	21	28	27	44	25	5.5	124	24	4.1	6.5
4	849	31	21	26	22	37	2.1	5.0	53	11	4.1	6.1
5	1480	31	21	24	95	34	2.2	4.6	27	8.4	4.1	4.8
6	1920	32	22	24	251	34	1.6	4.6	15	6.9	4.0	2.6
7	1250	30	23	24	188	33	1.4	4.7	11	5.1	3.9	.75
8	665	29	24	24	98	33	1.1	3.5	9.7	1.5	3.9	3.8
9	291	26	23	26	57	34	.77	.22	9.7	1.2	3.7	6.7
10	199	15	23	1.8	41	33	2.5	.08	14	1.2	3.9	6.7
11	489	1.7	22	1.4	35	33	22	.17	35	1.2	3.7	6.4
12	720	1.6	21	21	34	33	20	.17	168	1.1	.80	6.4
13	705	14	21	24	21	33	18	.31	74	1.1	.19	6.2
14	349	21	21	25	1.3	35	13	.28	18	1.3	.55	6.2
15	207	22	22	25	1.2	36	11	.09	9.9	2.4	197	6.7
16	157	24	22	22	.92	37	9.8	.09	7.9	9.7	30	7.6
17	119	22	27	22	.92	38	9.7	2.4	6.9	24	8.3	7.1
18	92	13	84	23	12	44	10	3.7	6.3	13	6.2	10
19	72	13	148	23	26	36	9.9	4.2	6.0	10	5.6	6.5
20	59	24	64	25	38	36	9.9	3.9	5.6	9.0	5.1	6.0
21	55	23	49	27	69	36	11	9.9	5.5	5.8	4.6	6.0
22	57	22	91	25	61	39	11	4.4	5.4	.61	4.5	6.0
23	63	22	121	24	53	42	11	135	5.2	.26	4.2	6.0
24	36	22	134	24	60	41	9.9	566	5.2	.18	4.1	5.2
25	21	23	107	23	72	40	8.6	374	4.7	.15	4.1	1.4
26	46	23	64	21	67	48	7.8	261	3.5	.15	106	.58
27	38	23	45	21	94	78	7.9	81	1.0	.15	234	.41
28	33	14	36	20	102	74	7.5	112	.84	.14	27	.41
29	33	2.1	33	21	---	52	7.2	1160	2.2	.14	12	.41
30	31	1.9	30	19	---	47	6.3	3050	187	.10	9.3	.41
31	20	---	30	19	---	43	---	1650	---	1.4	7.9	---
TOTAL	10506.7	582.3	1383.8	691.2	1580.34	1356	341.17	7458.41	2063.54	549.18	715.54	147.87
MEAN	339	19.4	44.6	22.3	56.4	43.7	11.4	241	68.8	17.7	23.1	4.93
MAX	1920	32	148	30	251	110	42	3050	942	289	234	10
MIN	4.4	1.6	1.8	1.4	.92	33	.77	.08	.84	.10	.19	.41
AC-FT	20840	1150	2740	1370	3130	2690	677	14790	4090	1090	1420	293

CAL YR 1986 TOTAL 28791.14 MEAN 78.9 MAX 1920 MIN .02 AC-FT 57110
WTR YR 1987 TOTAL 27375.84 MEAN 75.0 MAX 3050 MIN .08 AC-FT 54300

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1946 to September 1954, November 1956 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1946 to September 1954, November 1956 to current year.
WATER TEMPERATURE: November 1952 to September 1954, November 1956 to current year.

INSTRUMENTATION.--From 1969 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, 67,400 microsiemens May 14, 17, 1961; minimum daily, 240 microsiemens Sept. 29, 1980.
WATER TEMPERATURE: Maximum daily, 37.0°C July 29, 1960, July 9, 1965, July 1, 1973, and June 29, 1979; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily 8,010 microsiemens Aug. 3; minimum daily, 410 microsiemens May 30.
WATER TEMPERATURE: Maximum daily, 32.5°C Aug. 10; minimum daily, 1.0°C Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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									
06...	1540	1820	541	19.0	130	58	38	9.2	48
DEC									
15...	1550	22	6080	10.5	980	740	210	110	1100
FEB									
12...	0850	33	4050	11.0	770	560	180	78	620
APR									
07...	1630	1.3	5680	16.0	1100	900	240	130	860
JUN									
02...	1635	207	1510	25.0	290	120	77	24	200
JUL									
21...	1605	4.1	4310	30.0	710	550	170	69	670

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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								
06...	2	6.0	75	83	63	0.20	7.6	300
DEC								
15...	16	5.9	241	1100	1400	1.1	4.1	4100
FEB								
12...	10	6.7	208	670	850	0.90	4.1	2500
APR								
07...	11	5.5	230	1000	1200	1.2	5.0	3600
JUN								
02...	5	7.3	169	170	290	0.40	13	880
JUL								
21...	11	7.1	159	580	1000	0.70	6.5	2600

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	10514.7	1300	841	23900	350	9800	180	5110	170
NOV.	1986	582.7	5990	3880	6100	1600	2580	780	1230	730
DEC.	1986	1382.1	5280	3420	12800	1400	5360	700	2600	650
JAN.	1987	691.9	5700	3690	6900	1600	2910	750	1400	700
FEB.	1987	1578.01	4330	2810	12000	1200	4990	580	2470	540
MAR.	1987	1355	5710	3700	13500	1600	5710	750	2740	700
APR.	1987	341.24	6320	4100	3770	1700	1600	820	756	760
MAY	1987	7458.41	1030	664	13400	270	5460	140	2880	130
JUNE	1987	2063.54	1770	1140	6370	470	2620	240	1350	230
JULY	1987	549.18	2240	1450	2150	600	885	310	459	290
AUG.	1987	715.54	2970	1920	3710	800	1540	400	776	370
SEPT	1987	147.87	5980	3870	1550	1600	654	780	311	730
TOTAL		27380.46	**	**	106000	**	44100	**	22100	**
WTD.AVG.		75	2220	1430	**	600	**	300	**	280

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7220	5930	5600	5270	5940	4480	5780	6860	695	1550	1020	3820
2	7410	5790	5850	5310	5910	4950	6080	6890	1350	2240	3250	4240
3	1830	5770	6540	5410	5790	5280	6400	6910	2510	2690	8010	4690
4	1250	5830	6340	5500	5870	5360	6120	6890	3110	2730	7560	5130
5	685	5870	6200	5560	4870	5440	5990	6880	4000	3140	7480	5510
6	541	5860	6170	5610	4000	5540	5880	6920	4420	3470	7420	6770
7	630	5850	6110	5630	3070	5660	5760	6890	4740	3950	7410	7400
8	626	5790	6130	5650	2980	5730	5810	6930	5030	4220	7520	7190
9	1610	5840	6100	5520	3150	5810	5850	6870	5210	4500	7610	7400
10	2600	6010	6090	6750	3100	5880	5900	6730	5180	4720	7750	6880
11	1680	6250	6100	7780	3700	5900	6380	6780	5140	4850	7660	6390
12	1200	6480	6140	6040	4270	5930	6410	6630	2250	5010	7570	6360
13	920	5790	6170	5770	4460	6010	6240	6360	2630	5170	7500	6430
14	1040	6230	6190	5650	4580	6020	6400	6050	3010	5050	7390	6480
15	2050	6160	6110	5710	4740	6060	6420	6400	3400	4580	1450	6390
16	3290	5980	6050	5780	4840	6100	6430	6660	3850	4170	1850	6360
17	4000	6100	5990	5820	5000	6120	6410	6590	4170	3700	2880	6330
18	4320	5960	5900	5700	5230	6080	6480	6400	4400	4080	2890	5420
19	4680	6130	5150	5730	5570	6040	6560	6330	4650	4070	3260	5840
20	5010	6110	4570	5720	5340	5920	6670	5520	5050	4320	3630	6060
21	5280	6080	4850	5750	4220	6110	6690	6360	5310	4330	4040	6180
22	5350	6120	4880	5760	4470	5980	6680	7400	5550	4470	4350	6140
23	5270	6100	4840	5810	4780	5840	6600	4800	5580	4670	4690	6180
24	5360	6090	5230	5770	4910	6040	6530	2100	5720	4830	5020	6290
25	5870	6130	5250	5820	5190	6180	6520	1710	5890	4970	5380	6390
26	5390	6160	4090	5840	5130	6000	6480	1260	6020	5120	4420	6440
27	5570	6170	4350	5880	5020	6020	6510	2640	6250	5210	3040	6460
28	5800	6130	4610	5950	5000	5950	6470	2220	6470	5310	1660	6430
29	5560	6090	4860	5940	---	5900	6560	1450	6040	5420	2010	6490
30	5260	5860	5050	5920	---	5760	6650	410	2860	5570	3000	6560
31	5440	---	5000	5880	---	5340	---	600	---	3350	3360	---
MEAN	3640	6020	5560	5810	4680	5790	6320	5270	4350	4240	4910	6160

08121000 COLORADO RIVER AT COLORADO CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

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

08123000 LAKE COLORADO CITY NEAR COLORADO CITY, TX

LOCATION.--Lat 32°20'41", long 100°55'10", Mitchell County, Hydrologic Unit 12080002, on left bank at municipal water-intake structure, 1.7 mi upstream from Colorado City Dam on Morgan Creek, 2.2 mi downstream from the Texas and Pacific Railway Co. bridge, 2.5 mi upstream from mouth, and 4.0 mi southwest of Colorado City.

DRAINAGE AREA.--344.7 mi², of which 42.7 mi² probably is noncontributing.

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1950, non-recording gages at or near powerplant about 0.7 mi downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 4,800 ft long. Storage began in April 1949, and the dam was completed in September 1949. The dam and lake are owned by the Texas Electric Service Co. to operate their thermal electric powerplant. The uncontrolled spillway is an excavated cut channel through natural ground 1,200 ft wide located 600 ft upstream and to the left of left end of dam. The spillway is designed to discharge 150,000 ft³/s at the maximum design flood elevation. The service spillway is an uncontrolled rectangular drop inlet located 100 ft upstream from dam with two uncontrolled openings of 10.0 by 12.0 ft. The spillway is designed for a maximum discharge of 5,000 ft³/s. A service outlet is provided for small releases downstream through a 30-inch valve-controlled concrete pipe. Records furnished by the Texas Electric Service Co. will show pumpage from Champion Creek Reservoir (station 08123600) into Lake Colorado City. 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	2,090.0	-
Design flood	2,086.7	70,700
Crest of spillway	2,073.7	37,850
Crest of service spillway (top of conservation pool)	2,070.2	31,810
Lowest gated outlet (invert)	2,024.3	316

COOPERATION.--Capacity curve was furnished by the Texas Electric Service Co. Record of diversions for municipal use was furnished by the city of Colorado City.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 40,280 acre-ft Sept. 7, 1962 (elevation, 2,075.10 ft); minimum since first appreciable storage, 5,800 acre-ft Apr. 11-13, 1950 (elevation, 2,045.72 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 37,240 acre-ft Oct. 7 at 0300 hours (elevation, 2,073.37 ft); minimum, 28,340 acre-ft Sept. 30 (elevation, 2,067.96 ft).

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

2,067.0	26,930	2,072.0	34,810
2,069.0	29,910	2,074.0	38,410

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31360	31850	31250	31520	31310	31760	31210	30400	33100	31900	30550	29320
2	31470	31820	31250	31500	31310	31740	31150	30380	32830	31930	30490	29270
3	31640	31820	31230	31450	31290	31740	31120	30320	32620	31920	30440	29210
4	33160	31790	31210	31450	31310	31720	31070	30270	32410	31840	30380	29150
5	35240	31770	31200	31440	31550	31720	31100	30220	32280	31790	30330	29120
6	37190	31760	31200	31440	31600	31710	31090	30180	32180	31720	30270	29190
7	36050	31720	31210	31420	31660	31690	31070	30150	32110	31660	30190	29160
8	34520	31710	31180	31530	31690	31690	31060	30100	32060	31600	30130	29130
9	33620	31680	31170	31500	31710	31660	31040	30070	32060	31550	30080	29100
10	33230	31660	31140	31480	31720	31630	31020	30040	32030	31480	30040	29090
11	33800	31610	31120	31480	31720	31630	30990	30020	32050	31440	29990	29060
12	34690	31560	31120	31470	31720	31610	30960	29990	32180	31390	29930	29010
13	33990	31520	31100	31480	31740	31600	30900	30040	32150	31340	29940	28980
14	33370	31500	31100	31470	31760	31580	30830	30010	32100	31290	29940	28940
15	32950	31480	31100	31450	31680	31560	30820	29990	32030	31360	29880	28910
16	32690	31480	31100	31440	31660	31600	30800	29980	31980	31390	29850	28880
17	32510	31480	31210	31450	31640	31530	30790	29940	31920	31340	29780	28820
18	32360	31470	31280	31440	31630	31520	30760	29910	31850	31290	29710	28800
19	32260	31470	31280	31420	31640	31480	30740	29910	31810	31250	29670	28790
20	32190	31440	31280	31400	31680	31480	30710	29850	31760	31200	29590	28740
21	32150	31420	31310	31400	31690	31470	30690	29820	31760	31150	29530	28700
22	32100	31420	31440	31370	31690	31500	30680	29790	31690	31100	29470	28650
23	32080	31370	31470	31370	31710	31420	30660	30490	31660	31060	29410	28620
24	32030	31360	31500	31360	31720	31390	30630	31180	31610	30990	29360	28580
25	32000	31370	31520	31360	31720	31360	30600	31690	31560	30950	29320	28530
26	31970	31340	31530	31340	31760	31400	30570	31720	31500	30900	29470	28490
27	31950	31330	31530	31340	31810	31370	30540	31690	31440	30830	29480	28460
28	31930	31310	31530	31340	31760	31340	30520	31920	31390	30790	29450	28430
29	31920	31290	31530	31330	---	31280	30470	32280	31420	30710	29420	28380
30	31900	31290	31520	31310	---	31250	30440	33050	31690	30660	29390	28340
31	31870	---	31520	31290	---	31210	---	33420	---	30610	29350	---
MAX	37190	31850	31530	31530	31810	31760	31210	33420	33100	31930	30550	29320
MIN	31360	31290	31100	31290	31290	31210	29240	29790	31390	30610	29320	28340
(†)	2070.24	2069.88	2070.02	2069.88	2070.17	2069.83	2069.34	2071.18	2070.13	2069.45	2068.63	2067.96
(ϕ)	+480	-580	+230	-230	+470	-550	-770	+2980	-1730	-1080	-1260	-1010

CAL YR 1986 MAX 37190 MIN 17080 (ϕ) +12260
WTR YR 1987 MAX 37190 MIN 28340 (ϕ) -3050

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

08123600 CHAMPION CREEK RESERVOIR NEAR COLORADO CITY, TX

LOCATION.--Lat 32°16'53", long 100°51'30", Mitchell County, Hydrologic Unit 12080002, in service outlet structure at Champion Creek Dam on Champion Creek, 1.0 mi upstream from mouth, 4.8 mi downstream from State Highway 208, and 7.2 mi south of Colorado City.

DRAINAGE AREA.--206.8 mi², of which 20.8 mi² probably is noncontributing.

PERIOD OF RECORD.--October 1959 to September 1987 (discontinued).

REVISED RECORDS.--WRD TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 29, 1959, nonrecording gages at same site and datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam about 6,800 ft long. The dam was completed on Apr. 30, 1959 Closure and storage began in February 1959. The capacity curve is based on Geological Survey topographic map surveyed in 1950; excavation for borrow, estimated not to exceed 1,200 acre-ft, is not included. The dam and reservoir are owned and operated by the Texas Electric Service Company. Water may be pumped from the reservoir through a 24-inch pipeline to Lake Colorado City (station 08123000) for municipal use and for cooling operations of a steam generating powerplant. There are two spillways. The uncontrolled emergency spillway, 450 ft wide and 800 ft long, is located at the right end of dam. The controlled service spillway, is a cut channel 50 ft wide, about 1,800 ft long, and 8 ft deep, and cut into the emergency spillway at the extreme right end. There is a controlled drop-inlet structure, 4.0 by 5.0 ft, with a side opening of 1.5 by 3.0 ft. 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	2,109.0	-
Design flood	2,104.0	90,020
Crest of spillway	2,091.0	56,800
Crest of spillway (top of conservation pool)	2,083.0	42,500
Lowest gated outlet (invert)	2,020.0	800

COOPERATION.--Record of diversions into Lake Colorado City may be obtained from Texas Electric Service Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 47,060 acre-ft June 29, 1982 (elevation, 2,085.79 ft); minimum, 1,600 acre-ft Oct. 1, 1959 (elevation, 1,025.90 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 44,560 acre-ft June 2 (elevation, 2,084.29 ft); minimum, 28,890 acre-ft Oct. 1 (elevation, 2,072.85 ft).

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

2,072.0	27,930	2,080.0	38,040
2,076.0	32,690	2,085.0	45,720

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28890	40900	40990	41600	41960	42940	42830	42630	44520	43070	42390	41640
2	28910	40900	40970	41600	41960	42960	42820	42610	44560	43080	42360	41630
3	29010	40910	40970	41610	41980	42970	42800	42590	44540	43080	42330	41610
4	31490	40910	40990	41610	42010	42970	42780	42560	44470	43080	42300	41600
5	36150	40900	40990	41610	42190	42970	42770	42550	44340	43080	42270	41600
6	39660	40900	41020	41630	42350	42990	42770	42520	44230	43070	42240	41580
7	39880	40910	41050	41640	42440	42990	42770	42500	44100	43040	42210	41570
8	40000	40910	41050	41660	42500	42990	42770	42480	43990	43010	42190	41550
9	40060	40910	41060	41690	42530	42990	42770	42470	43910	42960	42150	41540
10	40200	40910	41050	41700	42560	42970	42770	42450	43840	42910	42120	41520
11	40550	40870	41030	41720	42590	42960	42780	42440	43810	42930	42090	41520
12	40610	40870	41030	41740	42630	42960	42780	42420	43840	42820	42060	41510
13	40640	40820	41050	41740	42660	42960	42770	42440	43860	42750	42040	41490
14	40690	40790	41060	41750	42670	42960	42750	42480	43860	42720	42010	41490
15	40720	40820	41060	41770	42690	42970	42740	42500	43860	42740	42000	41470
16	40750	40850	41090	41770	42690	42990	42720	42520	43830	42740	41980	41460
17	40760	40880	41170	41780	42690	42970	42710	42520	43760	42740	41960	41440
18	40780	40910	41260	41800	42690	42960	42710	42520	43690	42740	41930	41430
19	40780	40910	41290	41810	42690	42960	42710	42520	43610	42740	41920	41430
20	40790	40930	41320	41810	42740	42960	42710	42520	43530	42720	41900	41410
21	40820	40930	41380	41830	42750	42960	42690	42520	43460	42710	41890	41400
22	40850	40930	41440	41830	42770	42940	42690	42500	43400	42670	41860	41380
23	40870	40940	41470	41840	42800	42940	42690	42930	43340	42660	41840	41370
24	40870	40910	41510	41860	42820	42930	42690	43500	43270	42640	41810	41370
25	40870	40940	41520	41860	42850	42910	42690	43700	43210	42610	41780	41350
26	40870	40940	41540	41870	42900	42930	42690	43800	43150	42580	41750	41340
27	40870	40940	41540	41890	42930	42930	42670	43840	43080	42550	41740	41340
28	40870	40960	41550	41900	42940	42930	42660	43890	43040	42520	41720	41320
29	40870	40970	41570	41920	---	42880	42660	44020	43010	42480	41700	41310
30	40880	40990	41580	41920	---	42850	42640	44260	43040	42450	41670	41290
31	40900	---	41580	41930	---	42850	---	44420	---	42420	41660	---
MAX	40900	40990	41580	41930	42940	42990	42830	44420	44560	43080	42390	41640
MIN	28890	40790	40970	41600	41960	42850	42640	42420	43010	42420	41660	41290
(†)	2081.95	2082.01	2082.40	2082.63	2083.28	2083.22	2083.09	2084.21	2083.34	2082.95	2082.45	2082.21
(ϕ)	+12010	+90	+590	+350	+1010	-90	-210	+1780	-1380	-620	-760	-370

CAL YR 1986 MAX 41580 MIN 20740 (ϕ) +18380
WTR YR 1987 MAX 44560 MIN 28890 (ϕ) -12400

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

08123720 BEALS CREEK NEAR COAHOMA, TX

LOCATION.--Lat 32°14'56", long 101°21'42", Howard County, Hydrologic Unit 12080007, on left bank near left end of county road bridge, 1.9 mi south of Interstate Highway 20, at Midway, on Moss Creek Lake Road, and 4.7 mi southwest of Coahoma.

WATER-DISCHARGE RECORDS

DRAINAGE AREA.--1,569 mi².

PERIOD OF RECORD.--July 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,323 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for periods of estimated daily discharges, which are fair. Low flow is affected at times by diversions upstream from station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft³/s Aug. 31, 1986 (gage height, 12.17 ft); no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,150 ft³/s May 23 at 1145 hours (gage height, 10.43 ft); minimum daily, 0.01 ft³/s for several days.

DISCHARGE, IN 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	157	83	5.4	37	28	42	28	e1.5	117	141	e.05	.20
2	174	79	5.4	36	30	43	26	e1.0	125	135	e.03	.04
3	176	66	5.0	36	25	44	21	e.75	166	167	e.01	e.02
4	217	65	5.0	38	29	45	25	e.50	248	149	e.01	e.01
5	226	28	4.6	36	39	48	27	e.50	375	134	e.01	e.01
6	187	20	5.0	36	36	49	20	e.50	387	122	.14	36
7	119	14	4.2	36	31	47	28	e.25	358	87	.05	.31
8	91	7.8	3.2	35	30	48	28	e.25	319	61	e.03	.02
9	123	5.1	1.4	42	28	51	28	e.25	296	49	e.01	.41
10	204	3.0	.18	49	32	52	19	e.10	267	32	.13	177
11	291	1.9	.65	50	41	53	26	e.10	253	24	.08	29
12	222	1.2	.80	50	37	51	22	e.10	240	24	.06	.56
13	237	1.1	.36	50	38	47	16	e1.0	230	10	.16	.09
14	255	1.8	.13	50	37	54	16	16	211	.64	.05	.21
15	262	.85	.37	48	39	58	16	270	196	.47	e.03	.15
16	259	.66	.01	47	37	57	13	67	179	23	e.01	.14
17	251	.64	.37	43	38	52	8.7	30	168	6.4	.03	.18
18	242	.60	30	47	36	54	11	12	156	.59	.20	.16
19	233	.89	3.8	50	47	53	9.3	19	147	.49	.05	.08
20	223	.36	2.1	47	54	52	5.3	16	138	.21	e.03	.15
21	215	.34	5.8	46	42	41	17	6.1	130	.77	e.02	.05
22	205	.36	43	43	39	44	8.5	3.1	121	.15	e.01	e.03
23	196	.41	16	45	38	50	5.0	1120	107	.05	e.01	.12
24	189	.41	9.1	47	58	34	8.0	263	133	.13	.16	.09
25	181	.47	7.6	41	42	36	6.3	159	149	.16	.07	.10
26	174	.51	11	41	39	72	4.4	166	148	.04	7.5	e.05
27	166	.53	16	34	49	32	6.4	166	138	.17	.54	4.6
28	150	2.5	22	40	49	22	5.3	153	133	.18	e.10	6.1
29	130	3.8	30	37	---	30	3.2	139	129	.18	e.05	3.3
30	108	5.0	32	31	---	29	3.4	131	205	.34	e.03	2.5
31	91	---	36	34	---	21	---	131	---	.08	e.01	---
TOTAL	5954	395.23	306.47	1302	1068	1411	460.8	2874.00	5969	1169.05	9.67	261.61
MEAN	192	13.2	9.89	42.0	38.1	45.5	15.4	92.7	199	37.7	.31	8.72
MAX	291	83	43	50	58	72	28	1120	387	167	7.5	177
MIN	91	.34	.01	31	25	21	3.2	.10	107	.04	.01	.01
AC-FT	11810	784	608	2580	2120	2800	914	5700	11840	2320	19	519

CAL YR 1986	TOTAL	21761.52	MEAN	59.6	MAX	1370	MIN	.00	AC-FT 43160
WTR YR 1987	TOTAL	21180.03	MEAN	58.0	MAX	1120	MIN	.01	AC-FT 42010

e Estimated.

08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: June 1983 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUSTANCE: August 1983 to current year.
WATER TEMPERATURE: August 1983 to current year.

INSTRUMENTATION.--Beginning August 1983, 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, 20,700 microsiemens Apr. 30, 1987; minimum, 400 microsiemens June 6, 1985.
WATER TEMPERATURE: Maximum, 35.5°C May 24, 1986; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 20,700 microsiemens Apr. 30; minimum, 2,200 microsiemens May 15.
WATER TEMPERATURE: Maximum, 34.0°C June 23, 24, July 2, Aug. 5, 18; minimum, 0.0°C Nov. 12, 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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)
DEC									
09...	1035	4.0	14700	10.5	3300	3100	410	560	2400
FEB									
10...	1340	30	15400	10.0	3000	2800	310	540	2700
APR									
06...	1425	15	16400	11.0	3200	3000	360	560	2800
JUN									
01...	1330	118	15300	23.5	2800	2600	260	530	2700
JUL									
20...	1255	0.10	9010	29.0	1700	1600	200	290	1500

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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								
09...	18	82	207	3100	3900	1.3	7.2	11000
FEB								
10...	22	110	212	3400	4100	1.2	3.7	11000
APR								
06...	22	100	231	3700	4100	1.3	4.3	12000
JUN								
01...	22	120	194	3300	3700	1.2	2.9	11000
JUL								
20...	16	43	139	1700	2300	0.80	6.7	6100

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	5954	9630	6360	102000	2400	39300	1600	26400	2100
NOV.	1986	395.23	11700	7790	8310	3000	3250	2000	2130	*
DEC.	1986	306.47	14300	9750	8070	3900	3230	2500	2030	*
JAN.	1987	1302	14900	10100	35700	4100	14300	2600	8990	*
FEB.	1987	1068	15100	10300	29700	4100	12000	2600	7480	*
MAR.	1987	1411	16600	11500	43800	4700	17800	2900	10900	*
APR.	1987	460.8	18400	12900	16000	5300	6610	3200	3970	*
MAY	1987	2874.00	7600	4980	38600	1900	14700	1300	10000	1700
JUNE	1987	5969	15300	10500	168000	4200	68000	2600	42300	*
JULY	1987	1169.05	11100	7400	23400	2900	9080	1900	5990	*
AUG.	1987	9.67	13700	9300	243	3700	97	2400	61	*
SEPT	1987	261.61	12200	8200	5790	3200	2280	2100	1480	*
TOTAL		21180.83	**	**	480000	**	191000	**	122000	**
WTD.AVG.		58	12400	8400	**	3300	**	2100	**	**

08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	11900	11200	11700	11600	11300	11500	14500	14000	14300	15700	15300	15500
2	11900	5230	10300	11700	11500	11600	14500	14100	14300	15500	15400	15500
3	10600	8820	9670	11900	11600	11700	14500	14100	14300	15600	15300	15500
4	9320	5020	6770	11800	9000	11000	14600	14100	14300	15600	15300	15400
5	8310	4400	6240	12400	11700	12000	14800	14400	14500	15400	15100	15300
6	8490	4400	6660	---	---	12500	14900	14400	14600	15400	15200	15300
7	9380	8490	8990	---	---	12000	15000	14600	14800	15400	15100	15300
8	10300	9380	9950	---	---	12000	15100	14800	15000	15300	15000	15100
9	11000	10300	10700	---	---	12000	15500	14700	15000	15000	13500	14600
10	11100	4160	9770	---	---	12000	15100	14100	14400	15000	14800	15000
11	9650	5860	7130	---	---	12000	15000	13600	14600	15000	14900	14900
12	10300	9650	10200	---	---	12000	15300	14000	14600	14900	14800	14900
13	10300	10200	10300	---	---	12000	15300	14200	14800	14900	14700	14800
14	10300	9920	10200	12500	10700	11400	15000	13500	14100	14800	14600	14800
15	10000	9910	9940	10700	9800	10100	15000	13800	14300	15000	14700	14900
16	10100	9900	10000	10000	9700	9910	15200	14500	14800	15200	14700	14900
17	10000	9890	9940	10200	9800	9950	14900	3800	13500	15100	14800	15000
18	9890	9780	9840	11100	10000	10200	15700	8500	10800	15100	14600	14900
19	9880	9770	9800	12600	11800	12200	15300	11100	13400	15000	14000	14400
20	9870	9760	9810	11800	11400	11600	15700	15400	15500	14500	14000	14300
21	9960	9650	9840	11700	10900	11300	16200	15800	15900	14500	14300	14400
22	9950	9740	9850	11300	10700	11100	16100	7700	12000	14500	14300	14400
23	10100	9740	9930	11500	11200	11300	13600	8700	10900	14600	14400	14500
24	10200	9830	10100	11500	11200	11400	15200	13700	14700	14700	14400	14500
25	10300	9820	10100	11400	11000	11200	16100	15200	15600	14700	14400	14500
26	10400	9910	10200	11400	11100	11300	16200	15800	16000	14600	14300	14500
27	11000	10000	10500	11500	11000	11300	16400	15900	16100	15000	14600	14800
28	11100	11000	11000	13800	11300	13100	16400	15900	16100	15100	14800	14900
29	11200	11100	11200	13900	13500	13700	16200	15800	16000	15200	14800	15000
30	11400	11100	11200	14300	13800	14000	15900	15800	15800	15200	14900	15100
31	11500	11200	11400	---	---	---	15800	15500	15600	15300	14900	15000
MONTH	11900	4160	9780	14300	9000	11600	16400	3800	14500	15700	13500	14900

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	15300	14800	15000	16200	15700	15900	18200	17400	17800	---	---	20600
2	15300	15000	15200	16300	15800	16000	18300	17800	18000	---	---	20700
3	15300	15000	15100	16300	15800	16000	18300	17700	18100	---	---	20900
4	15300	15000	15200	16300	15900	16100	18400	17800	18100	---	---	21200
5	15200	13200	14700	16600	15900	16200	18700	18000	18300	---	---	21300
6	15300	11000	13900	16500	16000	16300	18700	16200	17700	---	---	21500
7	15500	15200	15400	16700	16100	16400	18600	17700	18100	---	---	21600
8	15600	15300	15400	16800	16100	16400	18400	17700	18000	---	---	21900
9	15600	15400	15500	16900	16500	16700	18300	17600	18000	---	---	22100
10	15800	15300	15500	16900	16400	16700	18600	17500	17900	---	---	22300
11	15800	15300	15500	16800	16500	16600	18800	18200	18400	---	---	22600
12	15800	15300	15500	16900	16500	16700	18800	18100	18400	---	---	22900
13	15900	15300	15500	17100	16600	16800	19000	18200	18500	---	---	22500
14	15800	15300	15600	17000	16600	16800	19100	18100	18600	17700	14400	16500
15	16100	15400	15700	16900	16300	16600	19000	18300	18600	17000	2200	6660
16	16100	15500	15700	16800	16300	16600	18900	18000	18500	---	---	8750
17	15900	15300	15600	17100	16500	16700	19000	17900	18500	---	---	10200
18	16000	15300	15600	16900	16400	16700	19100	18800	18900	---	---	11900
19	15600	12300	14600	16900	16400	16700	19500	19100	19400	---	---	12800
20	15000	11700	13700	16900	16100	16400	19500	19300	19400	---	---	13900
21	16000	13900	15200	17800	16900	17200	20000	19200	19500	---	---	15300
22	16000	15200	15600	17600	16900	17200	20100	19500	19800	---	---	16800
23	16100	15400	15700	17700	16200	17000	19600	19200	19400	7800	5710	6400
24	15400	10100	13600	17800	16900	17200	19500	19100	19300	7000	5600	6310
25	15900	15200	15500	17900	17500	17600	19600	19300	19400	5700	5500	5570
26	15900	15500	15600	17800	13600	16000	19800	19400	19600	6100	5700	5960
27	15600	12200	14500	17100	14000	15800	19800	19400	19600	6400	6000	6140
28	15900	12800	14800	17900	17100	17300	20100	19800	20000	8900	6300	7770
29	---	---	---	18400	17600	17800	20300	19900	20100	12200	9100	10900
30	---	---	---	18500	17700	18100	20700	19000	20400	14800	12100	13500
31	---	---	---	18300	17600	17900	---	---	---	15000	10800	13800
MONTH	16100	10100	15200	18500	13600	16700	20700	16200	18800	17700	2200	15200

08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	15900	14700	15300	11300	10800	11000	13000	12700	12800	---	---	12500
2	18100	15900	17100	11600	11000	11300	13400	12900	13100	---	---	13600
3	18800	18100	18500	11400	10600	11100	---	---	14400	---	---	14400
4	18300	17600	18000	10800	10300	10500	---	---	15300	---	---	15200
5	17600	17400	17600	11300	10600	10900	---	---	16200	---	---	16100
6	18200	17500	17900	11400	11100	11200	---	---	15000	---	---	10300
7	18100	17500	17800	11500	11200	11300	15300	14900	15000	10300	9740	10100
8	17600	16400	17100	11500	11200	11400	---	---	15700	---	---	12700
9	16400	15500	16000	11600	11400	11500	---	---	16300	14400	10100	11000
10	15600	15300	15500	11600	11400	11500	---	---	15200	14400	10500	12500
11	15600	15000	15400	11700	11400	11600	15200	14900	15100	10500	10100	10200
12	15600	15100	15500	11800	11500	11600	15200	14800	15000	10100	9870	9970
13	15400	15000	15300	11700	11600	11600	15100	14600	14900	9870	9650	9770
14	15000	14400	14800	11700	11400	11600	14900	14600	14800	9750	9440	9630
15	14600	14200	14400	11900	11200	11500	---	---	15200	9640	9130	9430
16	14400	13900	14100	11400	11100	11200	---	---	15600	9230	8920	9150
17	14200	13800	14000	11200	10800	11000	---	---	15900	9220	8910	9070
18	14200	13800	14000	10800	10100	10500	15300	14900	15000	9010	8800	8940
19	14300	13800	14000	10100	9290	9640	15000	14600	14900	8890	8490	8810
20	14100	13600	13900	9310	8810	9070	---	---	15300	8880	8480	8740
21	13500	12500	13100	13900	9500	11200	---	---	15700	9260	8870	9020
22	12300	11900	12200	13300	12100	12600	---	---	16200	9450	9150	9260
23	11800	11400	11600	13300	12300	12800	---	---	16800	9550	9340	9470
24	12100	11500	11700	13200	12900	13000	---	---	14500	10000	9430	9660
25	12200	11700	11900	13100	12700	13000	14700	14000	14300	10300	9820	10100
26	12400	12000	12100	12900	12700	12900	16200	10900	13700	10600	10200	10400
27	13000	12300	12600	13000	12700	12800	---	---	11500	18300	10500	16400
28	13300	12800	13000	12800	12500	12700	---	---	11300	18000	17500	17700
29	13700	13200	13300	12700	12400	12500	---	---	12200	17500	17300	17400
30	13600	11100	12300	12700	12400	12600	---	---	13000	17400	16900	17200
31	---	---	---	13000	12600	12700	---	---	13800	---	---	---
MONTH	18800	11100	14700	13900	8810	11600	16200	10900	14600	18300	8480	11600

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08123720 BEALS CREEK NEAR COAHOMA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	13.0	10.0	11.5	14.5	7.0	10.0	15.0	11.0	13.0	20.5	18.0	19.0
2	13.5	9.0	11.0	16.0	8.0	11.5	16.0	11.5	13.0	21.5	17.5	19.0
3	14.0	9.5	11.5	17.0	10.0	13.0	13.5	10.0	12.0	19.5	15.5	17.5
4	15.0	10.5	12.0	17.5	10.0	13.0	15.0	11.5	13.0	19.0	15.0	17.0
5	14.5	9.5	11.5	17.0	10.5	13.0	14.0	10.0	11.5	20.5	15.0	17.5
6	9.0	7.0	7.5	18.5	10.5	13.5	12.5	10.0	10.5	21.0	16.5	18.0
7	11.0	6.0	7.5	18.0	11.5	14.0	13.5	10.5	12.0	19.5	16.5	18.0
8	11.0	7.0	9.0	18.0	11.0	14.0	15.5	12.0	13.5	19.5	14.5	17.0
9	11.0	7.0	9.0	17.5	12.0	13.5	17.0	13.5	15.5	21.0	15.0	17.5
10	16.5	8.5	11.5	12.5	8.0	9.0	18.5	15.0	16.5	21.5	16.5	18.5
11	18.5	10.0	13.0	14.5	6.5	9.0	20.0	17.0	18.5	22.5	16.5	19.0
12	18.0	11.5	14.0	16.5	8.5	11.5	20.5	17.5	18.5	23.5	17.0	19.5
13	19.5	12.5	15.5	17.0	10.5	13.0	19.5	15.0	17.0	23.5	18.0	20.0
14	18.0	13.5	15.0	17.5	11.0	13.5	16.0	13.0	14.5	22.5	20.0	21.0
15	13.0	9.0	11.0	20.0	12.5	15.5	16.5	14.0	15.5	22.5	19.5	20.5
16	11.5	8.5	9.5	19.5	14.5	16.0	18.5	16.5	18.0	22.0	20.0	20.5
17	10.5	8.0	9.0	15.5	10.5	12.5	20.5	18.5	20.0	22.5	21.0	21.5
18	12.5	6.0	8.5	17.0	9.0	12.0	22.0	20.5	21.0	23.0	22.0	22.5
19	10.5	5.5	7.5	17.0	11.0	13.0	22.0	21.0	21.5	22.5	21.5	22.0
20	8.0	4.0	5.5	18.5	11.5	14.5	22.5	20.0	21.5	21.5	20.5	21.0
21	6.5	4.5	5.0	19.0	13.5	15.5	20.0	15.5	18.0	22.0	21.0	21.5
22	13.0	5.0	7.5	20.0	15.5	17.5	16.5	15.5	16.0	22.5	22.0	22.0
23	11.5	5.5	8.5	20.0	10.5	13.5	18.5	17.0	18.0	22.5	16.0	18.5
24	10.5	8.0	9.0	15.0	8.5	11.0	20.0	18.5	19.5	25.0	16.0	20.0
25	10.5	9.0	9.5	15.5	9.0	11.0	19.5	19.0	19.5	27.0	19.5	22.5
26	14.0	9.5	10.5	10.0	8.0	9.0	20.5	20.0	20.5	23.5	21.5	22.0
27	15.0	10.0	12.5	14.5	7.5	10.0	21.0	20.5	21.0	29.5	21.0	24.0
28	13.5	8.0	10.0	15.0	10.5	12.5	21.5	20.5	21.0	24.5	21.0	22.5
29	---	---	---	14.0	6.5	9.0	21.0	20.5	20.5	28.0	20.0	23.0
30	---	---	---	9.5	4.0	6.0	21.5	19.0	20.5	25.0	20.0	22.0
31	---	---	---	13.0	7.5	9.5	---	---	---	25.0	19.5	21.5
MONTH	19.5	4.0	10.0	20.0	4.0	12.0	22.5	10.0	17.0	29.5	14.5	20.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	30.5	19.5	24.0	33.5	24.0	28.0	31.0	25.5	28.0	30.0	19.5	24.5
2	30.5	21.5	25.0	34.0	25.5	29.0	31.0	26.0	28.5	30.5	22.5	26.5
3	27.0	23.0	24.0	33.5	24.0	28.0	31.5	25.5	28.5	30.0	23.0	26.5
4	26.5	20.5	22.5	31.5	23.5	27.0	31.0	24.0	27.5	29.0	22.5	25.5
5	27.5	20.5	23.5	32.5	23.0	27.0	34.0	23.5	27.5	27.0	22.5	24.5
6	28.0	21.5	24.5	31.0	24.0	27.0	33.0	24.5	28.5	26.5	21.5	24.0
7	28.0	22.5	25.0	31.5	23.5	27.5	30.5	26.5	28.5	28.5	24.0	26.0
8	27.0	23.0	25.0	30.5	24.5	27.0	31.5	25.0	28.0	28.5	23.5	26.0
9	26.0	23.0	24.0	29.5	25.0	27.5	32.5	25.0	28.0	28.5	23.0	25.5
10	28.5	23.0	25.5	29.5	25.0	27.0	32.5	25.0	28.5	25.5	13.0	20.5
11	31.0	23.5	26.5	29.0	25.5	27.5	32.0	26.0	29.0	24.5	19.5	22.0
12	30.5	23.5	26.5	29.5	27.5	28.5	31.5	26.5	29.0	27.0	22.5	24.5
13	32.5	24.0	27.5	28.0	25.5	27.0	32.0	26.5	29.0	30.0	23.5	26.0
14	33.5	25.0	28.5	30.0	22.5	26.0	31.5	26.5	29.0	27.0	23.5	25.0
15	33.5	24.5	28.5	32.5	24.0	28.0	32.0	26.0	28.5	26.5	22.0	24.0
16	32.5	24.5	28.0	28.0	25.0	26.0	33.0	26.0	29.0	26.5	21.0	24.0
17	33.0	24.5	28.0	28.5	23.5	26.0	33.0	24.5	29.0	26.5	22.0	24.5
18	32.5	25.5	28.5	31.0	24.5	27.5	34.0	26.5	30.0	24.5	20.5	22.5
19	32.5	25.0	28.0	31.5	26.0	28.5	33.0	26.5	29.5	25.0	18.5	21.5
20	32.5	25.0	28.0	31.0	25.5	28.0	31.5	25.5	28.5	25.5	19.5	22.5
21	31.0	25.0	27.5	29.5	25.0	27.5	31.0	24.5	27.5	25.0	20.0	22.5
22	32.0	22.5	26.5	30.5	26.0	28.0	28.5	23.0	25.0	25.0	19.0	22.0
23	34.0	24.0	28.5	31.0	25.5	28.0	26.5	22.0	24.0	25.5	19.0	22.0
24	34.0	26.0	29.5	31.5	25.0	28.0	30.0	19.5	25.5	24.5	20.5	22.5
25	33.0	25.0	28.5	31.0	25.5	28.0	30.0	24.5	27.0	24.5	20.5	22.0
26	28.0	24.0	25.5	28.0	25.0	27.0	26.5	23.5	25.0	24.0	21.0	22.5
27	30.0	23.0	25.5	29.5	24.5	27.0	27.0	23.0	24.5	26.0	22.0	23.5
28	30.0	23.5	26.5	29.5	25.5	27.5	24.0	21.5	23.0	25.5	23.0	24.0
29	31.0	24.0	27.0	30.0	25.0	27.5	26.0	20.5	23.5	24.5	21.5	23.0
30	30.5	21.0	25.5	30.5	25.0	28.0	29.5	22.0	25.0	25.5	19.5	22.0
31	---	---	---	30.5	25.5	28.0	25.5	21.5	23.5	---	---	---
MONTH	34.0	19.5	26.5	34.0	22.5	27.5	34.0	19.5	27.5	30.5	13.0	23.5

08123800 BEALS CREEK NEAR WESTBROOK, TX

LOCATION.--Lat 32°11'57", long 101°00'49", Mitchell County, Hydrologic Unit 12080007, on left bank at downstream side of bridge on State Highway 163, 2.1 mi downstream from Hackberry Creek, 10.8 mi south of Westbrook, 15.7 mi southwest of Colorado City, and 19.1 mi upstream from mouth.

DRAINAGE AREA.--9,802 mi², of which 7,814 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1958 to current year.

REVISED RECORDS.--WDR TX-72-1: 1971. WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,048.74 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharge. Records good. Low flow is affected by diversion upstream from station.

AVERAGE DISCHARGE.--29 years, 27.5 ft³/s (19,920 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,780 ft³/s May 19, 1961 (gage height, 21.65 ft); maximum gage height, 21.94 ft Sept. 29, 1980; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1908, about 24.5 ft in 1922, from information by local resident.

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)
Oct. 5	2300	*7,070	*21.61	May 24	2200	2,170	14.95
Oct. 11	2015	1,330	11.73				

Minimum daily discharge, 1.0 ft³/s Sept. 5.

DISCHARGE, IN 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	110	118	9.4	39	61	42	32	14	242	395	3.1	1.6
2	106	108	10	40	60	36	28	14	139	118	2.9	1.3
3	148	98	11	40	56	35	31	9.1	132	80	2.8	1.2
4	723	84	10	39	59	35	30	6.2	193	114	2.6	1.2
5	4820	81	10	40	106	35	26	5.1	286	91	2.4	1.0
6	4020	56	10	40	146	37	31	4.2	387	71	2.3	45
7	907	43	10	39	60	38	32	3.5	467	56	2.2	41
8	246	34	10	39	39	38	30	3.2	466	41	2.0	14
9	173	27	9.6	57	35	36	31	3.4	445	31	1.8	7.8
10	162	22	8.8	48	33	38	32	3.2	427	26	1.7	11
11	768	19	8.2	49	30	40	31	2.8	402	22	1.8	108
12	846	16	7.6	50	34	41	27	2.6	573	18	1.8	44
13	359	14	7.4	50	31	40	27	2.7	364	16	1.9	11
14	295	13	8.0	50	31	40	26	4.7	349	14	5.0	5.9
15	312	12	7.8	48	28	37	24	63	321	15	11	4.1
16	327	12	7.4	47	29	42	22	268	296	9.6	4.0	3.1
17	328	11	8.0	47	29	42	26	247	270	14	9.0	3.0
18	319	11	15	45	29	42	24	65	242	16	5.5	2.6
19	304	10	44	46	29	39	20	29	213	8.5	2.5	15
20	285	9.5	17	51	33	41	21	45	187	6.2	1.7	4.9
21	273	9.3	12	49	40	41	24	82	168	5.3	1.3	2.4
22	259	8.9	38	47	37	41	23	26	151	5.0	1.2	1.8
23	244	8.7	125	44	33	36	31	447	134	4.8	1.2	1.5
24	225	8.4	62	46	34	35	26	1570	115	4.5	1.1	1.3
25	208	8.7	29	55	46	39	21	1290	103	4.6	1.1	1.2
26	195	8.6	21	54	37	34	22	279	91	4.0	1.8	1.2
27	178	8.3	20	54	38	44	21	239	87	4.1	8.2	1.2
28	166	7.9	25	51	41	51	17	270	76	3.8	8.1	1.1
29	156	7.8	30	52	---	32	18	248	69	3.5	4.9	1.8
30	145	8.2	36	54	---	27	18	214	229	3.5	2.7	6.0
31	133	---	37	47	---	32	---	276	---	3.3	2.0	---
TOTAL	17740	883.3	664.2	1457	1264	1186	772	5736.7	7624	1208.7	101.6	346.2
MEAN	572	29.4	21.4	47.0	45.1	38.3	25.7	185	254	39.0	3.28	11.5
MAX	4820	118	125	57	146	51	32	1570	573	395	11	108
MIN	106	7.8	7.4	39	28	27	17	2.6	69	3.3	1.1	1.0
AC-FT	35190	1750	1320	2890	2510	2350	1530	11380	15120	2400	202	687

CAL YR 1986 TOTAL 40339.5 MEAN 111 MAX 4820 MIN .03 AC-FT 80010
WTR YR 1987 TOTAL 38983.4 MEAN 107 MAX 4820 MIN 1.0 AC-FT 77320

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1958 to current year. Chemical and biochemical analyses: October 1974 to October 1977. Sediment analyses: October 1974 to October 1977.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1958 to current year.
WATER TEMPERATURE: November 1958 to current year.

INSTRUMENTATION.--Beginning Mar. 5, 1981, specific conductance and water temperature are recorded continuously at this station.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 22,800 microsiemens June 2, 1969; minimum, 180 microsiemens May 25, 1986.
WATER TEMPERATURE: Maximum daily, 37.0°C June 28, 1960, and July 3, 1976; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 18,500 microsiemens June 5; minimum, 820 microsiemens May 24.
WATER TEMPERATURE: Maximum, 34.0°C Aug. 16; minimum, 4.5°C Dec. 12, 13, Jan. 2, 4, 11, 12,

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 27...	1100	176	10500	16.0	2300	2100	260	400	1800
DEC 09...	1510	9.5	11900	10.5	2500	2200	350	400	1900
FEB 10...	1045	34	14200	9.5	2800	2600	320	490	2400
APR 06...	1105	31	16800	11.0	3500	3300	410	600	3000
JUN 01...	1120	272	9130	21.0	1600	1400	180	280	1400
JUL 20...	1020	6.2	8720	26.0	1800	1500	260	270	1300

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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...	17	69	159	2300	2700	1.0	2.0	7600
DEC 09...	17	39	271	2100	3200	0.90	2.2	8200
FEB 10...	20	85	226	2700	3900	1.2	0.6	10000
APR 06...	22	97	238	3600	4500	1.3	0.7	12000
JUN 01...	15	62	157	1700	2100	0.80	6.6	5800
JUL 20...	14	5.0	233	1400	2300	1.0	3.8	5700

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	17740	4550	2980	143000	1200	57000	710	33900	1000
NOV.	1986	883.3	10800	7200	17200	2900	6940	1700	4160	*
DEC.	1986	664.2	9910	6630	11900	2700	4800	1600	2880	2200
JAN.	1987	1457	14000	9590	37700	3900	15400	2400	9320	*
FEB.	1987	1264	13200	9070	31000	3700	12600	2200	7640	*
MAR.	1987	1186	15600	10900	34800	4500	14300	2700	8680	*
APR.	1987	772	17200	12100	25300	5000	10400	3100	6370	*
MAY	1987	5736.7	4210	2740	42400	1100	16900	650	10000	930
JUNE	1987	7624	15100	10500	217000	4300	89100	2600	54100	*
JULY	1987	1208.7	10200	6910	22600	2800	9150	1700	5500	*
AUG.	1987	101.6	10000	6680	1830	2700	739	1600	442	*
SEPT	1987	346.2	5350	3430	3210	1400	1270	800	750	1200
TOTAL		38983.7	**	**	587000	**	239000	**	144000	**
WTD.AVG.		107	8220	5580	**	2300	**	1400	**	1800

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCTOBER MAX	OCTOBER MIN	OCTOBER MEAN	NOVEMBER MAX	NOVEMBER MIN	NOVEMBER MEAN	DECEMBER MAX	DECEMBER MIN	DECEMBER MEAN	JANUARY MAX	JANUARY MIN	JANUARY MEAN
1	12400	12300	12300	11000	10900	11000	11100	10200	10700	15200	14900	15000
2	12400	11700	12200	11100	11000	11100	11500	11000	11200	15100	14800	14900
3	12100	7370	10400	11100	11100	11100	11800	11500	11700	14900	14700	14800
4	10400	1350	5530	11100	11100	11100	12100	11800	12000	14800	14600	14700
5	1130	893	1010	11400	11100	11300	12400	12100	12300	14800	14600	14700
6	1680	1020	1300	11300	9340	10500	12500	12200	12400	14800	14500	14700
7	4940	1760	3230	11000	9940	10700	12200	11200	11700	14700	14400	14600
8	7320	5100	6320	11000	10900	11000	11700	11300	11500	14700	14200	14500
9	8470	7380	7940	10900	10900	10900	11800	11500	11600	14200	12200	13500
10	9790	8530	9290	10900	10800	10800	11700	11500	11600	13900	9960	12200
11	9370	1930	4900	10800	10600	10700	11600	11300	11400	13800	12200	13400
12	6020	2930	3830	10600	10500	10600	11300	10800	11100	14100	13100	13900
13	9800	6240	8210	10600	10400	10500	10800	10600	10700	14300	14000	14100
14	10400	9840	10200	10400	10000	10300	10900	10600	10800	14300	13900	14100
15	10500	10400	10500	10000	9740	9840	10900	10700	10800	14300	13900	14100
16	10500	10300	10400	9940	9760	9860	10700	10400	10600	14200	13900	14000
17	10400	10300	10400	9760	9500	9630	10400	9720	10300	14200	13900	14000
18	10500	10400	10400	9660	9600	9630	10400	6720	8490	14100	13800	13900
19	10400	10300	10300	9680	9580	9630	13000	7960	11400	14100	13800	13900
20	10300	10100	10200	9660	9540	9590	11200	8260	9990	14300	13800	14100
21	10200	10100	10100	9920	9600	9770	11200	10300	10700	14200	13200	13800
22	10200	10100	10100	9920	9620	9780	10800	7280	9520	13700	13200	13500
23	10200	10100	10200	9680	9600	9630	9320	4320	6810	13900	13500	13600
24	10300	10200	10200	10100	9720	9910	7940	5680	6590	13800	13500	13600
25	10300	10200	10200	10000	9640	9850	6700	5660	6080	13800	13500	13600
26	10300	10200	10300	9660	9420	9520	8120	6760	7340	13900	13600	13700
27	11000	10400	10500	9960	9520	9730	9780	8220	9110	13900	13600	13700
28	10700	10600	10700	9960	9780	9860	12800	9860	11500	13900	13500	13700
29	10800	10700	10800	9940	9820	9880	14300	12800	13700	13800	13500	13700
30	10900	10800	10900	10100	9740	9860	15100	14300	14700	14200	13800	14000
31	10900	10900	10900	---	---	---	15100	14800	14900	14200	14000	14100
MONTH	12400	893	8830	11400	9340	10300	15100	4320	10700	15200	9960	14000

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	14400	13900	14100	15100	14600	15000	16100	12600	14700	17900	17400	17700
2	14300	14100	14200	14900	12600	14000	16700	16200	16400	18100	17400	17800
3	14400	14000	14100	14900	13100	14100	17100	16700	16900	18100	17400	17700
4	14400	14000	14100	15500	15000	15300	17300	16700	17000	17300	16900	17100
5	14300	9140	13400	15900	15300	15600	17100	16800	17000	16900	16300	16600
6	11500	5220	7680	15900	15200	15600	17200	16800	17000	16300	16000	16200
7	11200	6300	9370	15900	15400	15600	17200	17000	17100	16100	15700	15900
8	11800	10300	11300	15800	15300	15600	17200	16900	17000	15800	15600	15700
9	13400	10100	12000	15800	15500	15600	17400	17000	17100	15500	15300	15400
10	14700	13400	14100	16000	15500	15700	17400	17200	17300	15500	15300	15400
11	14700	14500	14600	15800	15600	15700	17500	17200	17300	15300	15200	15300
12	15000	14700	14800	15800	15300	15600	17500	16300	16800	15300	15000	15200
13	15000	14700	14900	15800	15400	15600	17400	16900	17200	15400	13600	15100
14	15100	14800	14900	15600	15100	15400	17600	17300	17500	14700	13700	14200
15	15300	15000	15100	15500	15300	15400	17600	17400	17500	14300	2280	8850
16	15400	15100	15200	15900	15400	15600	17500	17300	17400	14600	2640	6120
17	15500	15100	15300	16100	15800	15900	17900	17400	17600	4380	2400	3280
18	15500	15200	15300	16200	15900	16000	18100	17800	17900	6300	4480	5500
19	15700	15100	15400	15900	15600	15700	18100	17700	17900	7640	5260	6040
20	15400	15100	15200	16000	15700	15800	18200	17800	18100	10700	7540	8360
21	15600	15000	15200	16200	15800	15900	18300	17700	17900	12500	3940	5990
22	15600	13000	14700	16200	15700	16000	17800	17500	17700	8660	5180	7050
23	14500	12400	13800	15900	15600	15700	17900	17400	17600	6320	1320	3090
24	14500	12200	13500	15700	14600	15300	17800	17200	17500	1420	820	943
25	15200	14400	14900	16500	14800	15800	17400	17100	17300	3020	860	1490
26	15000	14700	14900	16400	16200	16300	17900	17100	17300	9400	3180	5940
27	14900	10900	13100	16800	16200	16400	18300	17700	18100	10800	9620	9980
28	15200	14100	14700	16700	16000	16500	18100	17400	17900	11000	6540	10200
29	---	---	---	17000	16600	16700	17600	15800	16300	10700	6500	9090
30	---	---	---	17100	16000	16700	17500	16200	17200	11300	7560	10500
31	---	---	---	15800	11500	13100	---	---	---	9960	5900	7770
MONTH	15700	5220	13900	17100	11500	15600	18300	12600	17300	18100	820	10800
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10100	8680	9280	7650	3970	5140	12100	12000	12100	8420	7810	8170
2	13800	9150	11800	9510	5600	7440	12000	11700	11900	8060	7800	7930
3	16300	13900	14900	14500	9690	12400	11900	11400	11700	8410	8030	8180
4	18300	16500	17700	16200	12100	14600	12000	11400	11700	8700	8330	8500
5	18500	18000	18300	14500	12100	12800	11900	11200	11700	9000	8710	8840
6	18000	17900	17900	14800	13200	14300	11900	11300	11600	9020	4560	7580
7	18300	17900	18100	15200	14800	14900	11700	11000	11400	7570	2150	3650
8	18400	18200	18300	15200	14300	15000	11700	8740	11200	3950	3360	3710
9	18100	17200	17700	15200	13800	14700	11500	11000	11300	6040	4030	5040
10	17100	16000	16700	14800	13800	14300	11500	10800	11100	6170	3960	4430
11	16100	14300	15900	14900	13800	14600	11200	10500	10900	6780	2460	5260
12	15000	6640	11300	14600	13300	14100	11200	10400	10700	4320	3990	4120
13	15500	14600	15100	14500	13600	14200	11100	7290	10400	4770	4320	4540
14	15600	14500	15300	14300	13000	13800	11200	7410	10400	5120	4770	4920
15	15400	15000	15200	14100	11700	13300	11100	5670	9390	5430	5100	5290
16	15000	14700	14800	13100	10800	12000	11900	7550	11000	5660	5450	5570
17	14600	14300	14400	12300	11000	11400	12700	7780	11400	5810	5660	5750
18	14300	14100	14200	13400	12200	12700	10800	9140	10100	5840	5770	5810
19	14300	14000	14100	12900	9340	11600	11200	10400	10900	6300	5790	5980
20	14100	13800	14000	9140	8260	8770	10500	9240	9890	6750	6280	6410
21	14100	13600	13900	9290	8930	9140	9260	8590	8910	7360	6770	7100
22	13600	13200	13400	10300	9180	9700	8820	8490	8690	7570	7340	7470
23	13600	13200	13400	10300	9990	10200	8870	8480	8650	7560	7460	7510
24	13500	13300	13400	11900	10400	11100	9020	8670	8870	7650	7500	7580
25	13900	13500	13700	12600	11900	12300	9030	8710	8900	7700	7590	7640
26	14400	13900	14200	12500	12100	12400	8980	8580	8800	7850	7640	7740
27	14800	14300	14600	12100	11300	11600	9830	8290	9240	7980	7830	7910
28	15300	14700	15000	11700	11200	11400	9440	7070	8670	8110	7930	8010
29	15900	15200	15500	12300	11700	12000	6970	6170	6410	8150	8060	8090
30	14600	3650	9830	12300	12000	12200	8310	6640	7480	8170	6980	7780
31	---	---	---	12200	12000	12200	8590	8290	8420	---	---	---
MONTH	18500	3650	14700	16200	3970	12100	12700	5670	10100	9020	2150	6550

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08123800 BEALS CREEK NEAR WESTBROOK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08123850 COLORADO RIVER ABOVE SILVER, TX
(National stream-quality accounting network)

LOCATION.--Lat 32°03'13", long 100°45'42", Coke County, Hydrologic Unit 12080008, on right bank 25 ft downstream from Pan American Oil Co. bridge, 4.7 mi west of Silver, and at mile 756.0.

DRAINAGE AREA.--14,910 mi², of which 10,260 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,907.66 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 4, 1972, water-stage recorder at site 0.5 mi downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. For affects by upstream diversions, see stations 08121000 and 08123720. There is upstream regulation by Lake J. B. Thomas, Lake Colorado City, and by Champion Creek Reservoir (see stations 08118000, 08123000, and 08123600).

AVERAGE DISCHARGE.--20 years, 88.8 ft³/s (63,340 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft³/s Sept. 9, 1980 (gage height, 22.73 ft); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,100 ft³/s Oct. 6 at 0630 hours (gage height, 21.96 ft); minimum, 7.1 ft³/s Aug. 25, 26.

DISCHARGE, IN 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	176	150	31	94	74	158	76	46	2870	625	13	29
2	175	124	31	97	76	150	70	45	1910	718	12	25
3	245	111	32	93	80	135	67	40	1100	312	11	21
4	780	118	34	97	80	118	68	39	649	216	11	19
5	8210	112	43	97	132	112	62	35	569	188	12	16
6	15200	108	48	93	298	108	51	34	586	147	12	23
7	9050	94	55	93	333	106	47	32	680	117	12	68
8	4380	84	50	93	230	103	47	30	702	98	12	52
9	2490	72	49	93	153	102	47	30	671	78	11	31
10	1330	67	46	118	126	96	44	30	631	64	11	22
11	1090	56	45	99	113	99	45	27	604	55	11	20
12	2100	49	47	87	105	98	47	23	812	48	17	113
13	2180	36	46	86	105	98	53	22	900	41	13	48
14	1850	38	47	95	106	97	54	70	661	39	16	30
15	1280	44	49	93	88	96	57	312	531	59	16	24
16	800	51	49	92	83	96	57	117	459	55	78	19
17	644	54	50	88	77	95	55	323	405	55	103	18
18	563	53	72	87	72	93	55	148	350	70	46	48
19	511	50	95	88	73	93	55	88	310	73	34	35
20	467	43	143	90	85	92	54	70	274	54	24	34
21	434	41	105	90	105	90	49	92	246	45	18	27
22	406	50	92	89	127	89	54	85	230	40	15	20
23	385	45	145	91	130	87	56	1320	208	36	12	17
24	357	41	197	90	126	91	58	1380	184	29	11	15
25	326	46	145	85	126	84	61	2440	164	25	9.0	14
26	282	47	121	85	141	83	55	1180	149	22	8.6	13
27	277	46	101	83	135	85	50	583	135	21	25	13
28	257	46	92	84	149	90	50	468	123	20	216	11
29	239	46	90	83	---	102	48	826	105	18	102	9.3
30	199	44	90	79	---	88	46	1070	312	16	49	8.4
31	167	---	92	80	---	79	---	2930	---	14	34	---
TOTAL	56850	1966	2332	2812	3528	3113	1638	13935	17530	3398	974.6	842.7
MEAN	1834	65.5	75.2	90.7	126	100	54.6	450	584	110	31.4	28.1
MAX	15200	150	197	118	333	158	76	2930	2870	718	216	113
MIN	167	36	31	79	72	79	44	22	105	14	8.6	8.4
AC-FT	112800	3900	4630	5580	7000	6170	3250	27640	34770	6740	1930	1670

CAL YR 1986 TOTAL 108619.0 MEAN 298 MAX 15200 MIN .00 AC-FT 215400
WTR YR 1987 TOTAL 108919.3 MEAN 298 MAX 15200 MIN 8.4 AC-FT 216000

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1967 to current year. Chemical and biochemical analyses: November 1977 to current year. Pesticide analyses: October 1969 to August 1981. Sediment analyses: August 1977 to current year.

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

INSTRUMENTATION.--Beginning December 1967, specific conductance was recorded continuously. Beginning June 22, 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 and minimum specfiic 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 equatioins developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 17,300 microsiemens June 13, 1984; minimum, 180 microsiemens June 28, 1982.
WATER TEMPERATURE: Maximum, 35.5°C Aug. 2, 7, 1985; minimum, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 15,700 microsiemens June 9; minimum, 560 microsiemens Oct. 7.
WATER TEMPERATURE: Maximum, 35.0°C Aug. 4, 5; minimum, 0.0°C Jan. 18, 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
OCT 28...	1240	273	8080	8.20	17.5	32	14.5	166	7.8	42	50	1600
JAN 27...	1015	82	9780	8.20	7.0	3.7	13.6	123	2.1	K15	41	1800
FEB 24...	1120	117	7410	8.30	10.0	1.5	12.2	119	1.1	80	60	1400
APR 14...	1115	57	10900	8.60	13.5	3.3	10.8	114	9.3	K15	K11	2100
JUN 09...	1015	599	14600	8.20	22.5	130	10.9	141	2.2	50	1400	3200
AUG 18...	0945	50	3210	7.90	26.5	4.3	11.1	149	3.0	250	490	590

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 WH WAT TOTAL 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 28...	1400	200	260	1300	15	48	172	1600	1700	1.0	2.9	5690
JAN 27...	1600	260	290	1600	17	46	210	2000	2400	1.1	1.3	7040
FEB 24...	1200	230	200	1200	14	30	232	1500	1700	0.90	3.4	5200
APR 14...	2000	320	320	1800	17	49	124	2300	2700	0.90	4.0	7810
JUN 09...	3000	420	510	2600	21	100	198	3200	3800	1.3	4.4	11200
AUG 18...	480	130	63	450	8	9.7	106	470	700	0.60	22	1940

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT 28...	5200	--	<0.010	<0.100	0.060	0.060	1.1	1.2	0.340	0.030	<0.010	--
JAN 27...	6700	0.970	0.030	1.00	0.110	0.100	0.89	1.0	0.070	0.040	0.050	0.15
FEB 24...	5000	1.07	0.030	1.10	0.140	0.160	0.76	0.90	0.150	0.120	0.110	0.34
APR 14...	7600	--	<0.010	<0.100	0.130	0.100	1.2	1.3	0.100	0.030	0.020	0.06
JUN 09...	11000	--	<0.010	<0.100	0.130	0.090	2.0	2.1	0.270	0.060	0.030	0.09
AUG 18...	1900	0.140	0.020	0.160	0.020	0.010	1.3	1.3	0.080	0.020	0.010	0.03

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
OCT 28...	68	50	97	<10	4	200	<10	<1	<1	<1	3	30
JAN 27...	350	77	99	--	--	--	--	--	--	--	--	--
FEB 24...	--	--	--	10	3	<100	<10	<1	<1	1	3	30
APR 14...	8	1.2	88	--	--	--	--	--	--	--	--	--
JUN 09...	396	640	95	<100	7	200	<10	5	1	<1	2	50
AUG 18...	31	4.2	97	<10	3	100	<10	1	<1	<1	1	<10

DATE	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
OCT 28...	<5	180	30	0.5	39	5	2	<1	4200	<20	20
JAN 27...	--	--	--	--	--	--	--	--	--	--	--
FEB 24...	<5	170	70	<0.1	41	4	3	<1	4900	<200	20
APR 14...	--	--	--	--	--	--	--	--	--	--	--
JUN 09...	<5	330	30	0.5	49	2	2	<1	5900	<50	30
AUG 18...	<5	50	20	0.6	3	2	<1	<1	2300	17	<10

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	56850	1520	978	150000	350	53500	260	40500	330
NOV.	1986	1966	7100	4680	24900	1700	9130	1300	6830	1600
DEC.	1986	2332	5860	3820	24100	1400	8730	1000	6560	1300
JAN.	1987	2812	9740	6550	49700	2500	18600	1800	13800	2200
FEB.	1987	3528	6960	4590	43700	1700	16100	1300	12000	1600
MAR.	1987	3113	7790	5160	43300	1900	16000	1400	11900	1700
APR.	1987	1638	8920	5960	26400	2200	9810	1700	7300	2000
MAY	1987	13935	2540	1620	61100	580	21700	440	16500	550
JUNE	1987	17530	8150	5540	262000	2100	99400	1600	73400	1900
JULY	1987	3398	6410	4230	38800	1600	14300	1200	10700	1400
AUG.	1987	974.6	4240	2740	7210	980	2590	740	1960	930
SEPT	1987	842.7	4950	3210	7310	1200	2640	870	1990	1100
TOTAL		108919.3	**	**	739000	**	273000	**	203000	**
WTD.AVG.		298	3800	2510	**	930	**	690	**	850

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	9450	8640	8480	8590	5670	5550	5630	8800	7580	8270
2	---	---	9510	8500	8400	8430	5580	5500	5530	9310	8840	9050
3	---	---	9150	8760	8520	8670	5880	5580	5740	9510	9310	9420
4	---	---	8510	8860	8220	8570	6120	5880	6010	9730	9530	9640
5	---	---	1250	8200	7920	8060	6660	6120	6310	9650	9390	9490
6	---	---	620	8320	7700	7980	6740	6220	6490	9740	9500	9630
7	---	---	560	8200	7560	7800	6220	5980	6090	9800	9520	9670
8	---	---	930	7600	7380	7520	6000	5620	5780	9900	9680	9830
9	---	---	1060	7360	6570	6870	6760	5780	6430	9860	9560	9740
10	---	---	1240	6930	6730	6880	6680	6480	6550	9890	9450	9720
11	---	---	1420	6870	6730	6810	6520	6460	6500	9990	9070	9520
12	---	---	855	6710	6570	6670	6520	6400	6470	10100	9070	9470
13	---	---	840	6550	6250	6360	6440	6360	6400	10300	8670	9590
14	---	---	1320	6650	6330	6510	6380	6200	6280	11100	10200	10700
15	---	---	1810	6650	6190	6460	6200	6100	6140	10300	10100	10200
16	---	---	2290	6490	6170	6350	6160	6120	6150	10100	9800	9900
17	---	---	2770	6130	5330	5790	6180	5950	6120	10300	9820	10100
18	---	---	3250	5750	5490	5640	5910	5670	5790	10100	9950	10000
19	---	---	3770	6310	5470	5900	5970	5270	5610	10100	9870	9980
20	---	---	4250	6210	5770	5970	6370	5670	5940	9910	9690	9810
21	---	---	4700	5950	5730	5830	6090	5030	5450	10100	9810	9920
22	---	---	5180	6090	5870	5960	6120	5860	6050	10300	10100	10200
23	---	---	5770	6070	5770	5840	6060	5560	5920	10300	10000	10100
24	---	---	6190	5810	5650	5750	7360	4640	6530	10000	9600	9780
25	---	---	6630	5870	5670	5720	5830	4480	5260	9750	9480	9610
26	---	---	7110	5890	5670	5770	5730	5050	5410	9910	9550	9700
27	---	---	7600	5770	5690	5730	5010	4810	4880	9870	9710	9800
28	---	---	8080	5730	5670	5700	5150	4850	4980	9810	9730	9770
29	---	---	8380	5770	5710	5740	5320	5150	5220	9950	9810	9880
30	8520	8460	8500	5750	5670	5710	5820	5340	5490	9860	9540	9810
31	8620	8520	8570	---	---	---	7500	5900	6550	9980	9720	9870
MONTH	8620	8460	4570	8860	5330	6650	7500	4480	5930	11100	7580	9750
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9900	9840	9880	7220	6750	7020	8270	8140	8200	9110	8650	8960
2	9840	9740	9800	7050	6070	6540	8500	8100	8310	8910	8430	8650
3	9970	9770	9890	7120	7000	7060	8790	8400	8600	9250	8510	8910
4	9910	9530	9720	7100	7030	7080	8650	7820	8390	9130	8870	9030
5	9510	5690	8350	7170	6670	7030	7720	6880	7150	9090	8130	8510
6	6940	4170	5460	7260	6690	7020	7810	7160	7500	8410	8100	8300
7	8320	4300	5990	7750	6900	7470	8460	7810	8020	8060	7380	7780
8	4480	4040	4300	7910	7670	7790	9120	8500	8860	7340	7040	7150
9	5480	4060	4890	8020	7810	7910	9500	9140	9350	7060	6760	6910
10	5900	5520	5730	7900	7740	7810	9640	9520	9600	6840	6540	6750
11	5790	5390	5650	7790	7590	7660	10000	9500	9790	6820	6400	6620
12	6430	5450	6040	7900	7610	7750	10000	9830	9900	6670	6470	6580
13	7120	6450	6660	7990	7860	7920	10400	9990	10200	6550	5950	6380
14	7140	6940	7030	8250	8010	8130	10900	10400	10800	6430	5630	6200
15	7170	7050	7110	8240	8120	8180	10200	8410	9050	6210	894	3250
16	8100	7050	7510	8210	8030	8140	8470	8340	8410	6580	894	3320
17	8480	7450	8090	8130	7910	8010	8500	8400	8460	7780	2980	4940
18	8630	7450	8090	8300	7960	8150	9660	8500	9200	2900	2560	2690
19	8760	8570	8630	8350	8180	8260	9480	9040	9260	3280	2880	3110
20	9030	8240	8570	8350	8190	8270	9400	9020	9230	4080	3340	3670
21	9050	7330	8130	8240	7960	8090	9380	8950	9220	5420	4120	4810
22	7920	7370	7550	8530	8240	8350	9130	8630	8980	8090	5010	6790
23	8480	7550	8080	8470	8270	8350	9010	8590	8750	8270	689	3210
24	7610	7430	7520	8360	8140	8270	9130	8150	8840	2390	1210	1700
25	7570	6920	7310	8440	7390	8140	9110	8670	8870	1250	1110	1200
26	7200	6930	7060	8160	7330	7740	10100	8650	9360	2130	1270	1660
27	7590	7230	7400	8200	7880	8000	9960	8900	9410	4300	2140	3040
28	7440	7180	7300	8080	7430	7860	9180	8140	8930	6080	4420	5210
29	---	---	---	9920	7390	8350	9400	8480	8930	5620	2820	4160
30	---	---	---	9760	8480	8980	9680	8920	9380	3180	2080	2810
31	---	---	---	8460	8290	8370	---	---	---	1880	1320	1520
MONTH	9970	4040	7420	9920	6070	7860	10900	6880	8970	9250	689	5280

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1990	1190	1510	8390	2800	6270	7090	6730	6920	---	---	3600
2	2110	1710	1870	5240	3310	3740	6730	6550	6650	---	---	3500
3	3360	1870	2450	3770	2980	3260	6750	6430	6600	---	---	3600
4	5810	3440	4440	6160	3790	4660	6910	6550	6720	3800	3680	3740
5	9700	5950	7830	10700	6440	9220	---	---	6700	3900	3760	3820
6	12500	9780	11200	11500	9240	10500	---	---	6600	3940	3780	3880
7	14400	12600	13600	10300	9040	9570	---	---	6400	4680	3960	4200
8	15500	14500	15000	10500	10300	10400	---	---	6300	7180	4600	5840
9	15700	9800	15300	10600	10300	10400	---	---	6200	7180	6440	6760
10	15500	14700	15200	10400	10100	10200	---	---	6100	6840	6520	6730
11	14600	13700	14200	10600	10300	10400	---	---	5900	7980	6820	7380
12	13600	5940	12300	10500	10100	10300	---	---	5700	7860	3040	5330
13	9330	5560	7510	10300	10000	10100	---	---	5400	7660	2560	4790
14	10600	9330	10000	10200	9770	9930	---	---	5400	6340	2680	4900
15	11700	10600	11200	9790	8820	9540	---	---	5300	5740	4540	4850
16	11800	11500	11600	9310	7460	8390	---	---	5000	4780	4540	4640
17	11700	11400	11600	8010	6040	6740	---	---	4500	4940	3940	4780
18	11600	11300	11400	8130	6360	7040	---	---	5100	4940	3660	4290
19	11400	11100	11200	6560	5490	5950	---	---	5000	4580	2980	3630
20	11200	11000	11100	6120	5180	5670	---	---	4900	4500	2980	3480
21	11200	10900	11100	7630	5920	6800	---	---	4800	5640	4600	5240
22	11400	10900	11200	6760	5520	5950	---	---	4700	5700	5560	5630
23	11100	10900	11000	5500	5320	5420	---	---	4600	5780	5660	5730
24	11300	10700	11100	5680	5380	5550	---	---	4500	5960	5740	5830
25	11200	10800	11000	5940	5660	5800	---	---	4400	6120	5920	6010
26	11100	10900	11100	6080	5780	5930	---	---	4300	6260	6080	6150
27	11400	11100	11200	6480	6060	6270	---	---	4500	6420	6200	6290
28	11900	11300	11500	6800	6380	6600	---	---	2500	6480	6320	6390
29	12400	11800	12000	6960	6680	6810	---	---	3000	6520	6360	6440
30	12300	6170	9490	7200	6800	6990	---	---	3400	6520	6140	6410
31	---	---	---	7270	6990	7090	---	---	3800	---	---	---
MONTH	15700	1190	10400	11500	2800	7470	7090	6430	5220	7980	2560	5130

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08123850 COLORADO RIVER ABOVE SILVER, TX--Continued
(National stream-quality accounting network)

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	14.0	10.5	12.0	13.5	9.5	11.5	17.5	10.5	14.0	27.0	22.0	24.5
2	14.5	9.5	12.0	14.5	10.0	12.0	15.5	11.0	13.5	27.5	21.5	24.5
3	15.0	10.0	12.5	16.0	11.5	13.5	17.0	9.5	13.5	26.5	21.0	23.5
4	14.5	11.0	13.0	16.5	12.0	14.0	16.0	11.0	13.5	26.0	19.5	22.5
5	13.0	9.5	11.5	16.5	12.0	14.0	13.5	11.5	12.5	27.5	20.0	23.5
6	9.0	7.0	8.0	17.5	12.0	14.5	14.5	10.5	12.5	27.0	22.0	24.0
7	9.0	6.0	7.5	17.5	13.5	15.0	15.0	10.5	13.0	23.5	20.0	22.0
8	10.0	6.5	8.5	17.5	12.5	15.0	18.0	11.5	14.5	24.5	18.0	22.0
9	10.0	7.0	8.5	16.0	13.5	15.0	20.5	13.5	17.0	28.0	20.0	23.5
10	12.5	8.5	10.0	13.0	10.0	11.0	22.0	15.0	18.5	28.5	22.0	25.0
11	14.5	10.5	12.5	13.5	9.0	10.5	23.5	17.0	20.0	28.0	23.5	25.5
12	15.5	12.0	13.5	15.0	10.0	12.0	23.5	18.0	21.0	30.0	22.5	26.0
13	16.5	13.5	14.5	16.5	11.5	13.5	22.0	16.5	19.0	29.0	22.0	25.5
14	16.5	14.0	15.0	17.5	12.0	14.5	18.5	13.5	16.5	29.0	22.0	25.0
15	13.5	11.0	12.0	19.5	14.0	16.5	21.5	13.0	17.5	26.5	20.0	23.5
16	10.5	9.5	10.0	19.0	16.5	17.5	24.0	16.0	20.0	28.5	21.5	25.0
17	10.5	9.0	9.5	16.5	12.5	14.5	26.0	19.0	22.5	27.5	24.0	26.0
18	11.0	7.0	9.0	17.0	11.5	14.0	26.5	20.5	23.5	29.0	24.5	26.5
19	9.5	7.5	8.5	15.0	13.0	14.5	27.0	21.0	24.0	25.0	22.5	24.0
20	8.5	6.0	7.0	19.5	12.5	15.5	26.0	23.0	24.5	27.5	21.0	24.5
21	7.5	6.5	7.0	18.0	15.5	16.5	23.0	16.5	18.5	28.5	22.0	25.5
22	10.5	6.0	8.0	21.0	16.0	18.0	21.0	14.5	17.5	29.0	24.5	26.5
23	10.0	7.5	9.0	18.5	13.0	15.0	24.0	16.5	20.0	24.0	18.0	20.0
24	10.5	9.0	10.0	16.5	10.5	13.0	25.0	19.0	22.0	20.5	18.5	19.5
25	10.0	9.5	10.0	14.0	11.5	12.5	26.0	19.5	22.5	22.0	19.5	20.5
26	12.0	10.0	10.5	11.5	10.5	11.0	26.5	20.0	23.5	23.0	22.0	22.5
27	14.0	10.5	12.0	16.0	9.0	12.0	26.5	20.0	24.0	24.0	21.5	23.0
28	13.5	10.0	12.0	16.5	11.5	14.0	26.0	20.5	23.5	25.0	22.5	23.5
29	---	---	---	11.5	7.5	9.0	26.0	21.0	23.5	23.0	19.5	21.5
30	---	---	---	11.0	5.5	8.0	26.0	20.5	23.5	22.5	21.5	22.0
31	---	---	---	15.0	7.0	11.0	---	---	---	21.0	18.5	20.0
MONTH	16.5	6.0	10.5	21.0	5.5	13.5	27.0	9.5	19.0	30.0	18.0	23.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	23.5	20.0	22.0	29.0	26.0	28.0	33.5	25.5	29.5	28.0	22.5	25.5
2	24.5	23.0	23.5	30.5	23.5	27.5	34.0	26.0	29.5	30.5	23.5	27.0
3	24.0	20.0	24.0	31.0	25.0	29.0	34.5	25.0	29.5	---	---	---
4	24.0	20.0	23.0	31.0	26.0	28.0	35.0	25.5	30.0	---	---	---
5	26.0	20.5	24.0	31.0	26.5	28.5	35.0	26.5	30.5	---	---	---
6	26.5	21.5	24.5	31.5	24.5	28.5	34.5	27.5	30.0	---	---	---
7	27.5	23.5	25.5	31.5	25.5	28.5	33.5	26.0	29.5	---	---	---
8	26.0	25.0	25.5	31.5	25.5	28.0	34.0	25.0	29.0	---	---	---
9	26.5	20.0	25.0	30.5	26.0	28.5	34.5	25.5	29.5	---	---	---
10	27.0	24.5	25.5	29.5	24.5	28.0	34.5	24.5	30.0	---	---	---
11	29.0	25.0	26.5	31.0	23.5	27.5	34.0	26.5	29.5	---	---	---
12	29.0	26.0	27.0	29.5	26.0	27.5	32.5	26.5	29.0	---	---	---
13	29.5	25.0	27.0	28.0	24.0	26.0	33.0	24.0	28.5	---	---	---
14	31.0	27.5	29.0	30.0	23.0	26.5	34.0	26.5	29.0	---	---	---
15	31.5	28.0	29.5	32.0	23.0	28.5	34.5	25.5	29.5	---	---	---
16	31.5	28.0	29.5	28.0	23.0	25.0	33.5	27.0	30.0	---	---	---
17	31.5	25.0	29.5	30.5	22.5	27.0	34.5	27.5	30.5	---	---	---
18	31.0	28.0	30.0	32.0	22.0	27.5	33.5	26.5	30.0	---	---	---
19	30.5	27.0	29.5	31.0	22.5	26.5	33.0	27.0	30.0	---	---	---
20	31.0	27.0	29.0	31.5	24.0	28.5	33.0	25.0	28.5	---	---	---
21	31.0	27.5	29.0	31.5	26.0	28.5	33.0	25.5	29.0	---	---	---
22	30.5	25.5	27.5	31.5	22.5	28.5	32.5	24.5	29.0	---	---	---
23	32.0	27.0	28.0	31.5	27.0	29.0	33.0	27.0	29.0	---	---	---
24	33.0	28.0	29.5	32.0	25.0	28.5	32.5	26.5	28.5	---	---	---
25	32.5	27.0	29.0	33.0	26.5	29.0	30.0	24.0	27.0	---	---	---
26	30.5	26.5	28.5	33.0	25.5	29.0	28.0	21.5	26.0	---	---	---
27	28.5	25.0	26.5	33.0	26.0	29.0	28.0	22.0	25.5	---	---	---
28	30.0	25.5	27.0	32.0	26.5	29.0	25.5	23.5	24.5	---	---	---
29	30.0	25.5	28.0	32.5	26.5	28.5	28.5	22.5	25.0	---	---	---
30	27.5	24.5	25.5	32.5	24.0	28.5	28.5	22.5	25.5	---	---	---
31	---	---	---	33.5	25.5	29.5	26.5	23.5	25.0	---	---	---
MONTH	33.0	20.0	27.0	33.5	22.0	28.0	35.0	21.5	28.5	30.5	22.5	26.5

08123950 E. V. SPENCE RESERVOIR NEAR ROBERT LEE, TX

LOCATION.--Lat 31°52'46", long 100°31'01", Coke County, Hydrologic Unit 12080008, in outlet works of Robert Lee Dam on the Colorado River, 2.2 mi west of Robert Lee, and at mile 716.0.

DRAINAGE AREA.--15,278 mi², approximately, of which 10,260 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1968 to current year.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to June 24, 1969, non-recording gage at same site and datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 21,500 ft long. Closure was made Dec. 30, 1968, and dam was completed in June 1969. The dam is the property of the Colorado River Municipal Water District, which has a permit to divert 50,000 acre-ft annually for municipal, mining, and industrial uses. Inflow into the reservoir is partially regulated by Lake J. B. Thomas, Lake Colorado City, and by Champion Creek Reservoir (stations 08118000, 08123000, and 08123600). There are two spillways: The controlled service spillway is a morning-glory type that is partially controlled by 12 lift gates, 14.48 by 22.0 ft, and discharges through a 28.0-foot-diameter concrete conduit. The uncontrolled spillway is a 3,200-foot-wide cut through natural ground near the right end of dam. 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	1,928.0	-
Crest of spillway	1,908.0	653,400
Top of gates	1,900.0	519,300
Top of conservation pool	1,898.0	488,800
Crest of spillway	1,878.0	262,900
Lowest gated outlet (invert)	1,815.85	4,000

COOPERATION.--Capacity table (dated March 1972) was furnished by the Colorado River Municipal Water District. Records of diversions can be obtained from the city of San Angelo and from the Colorado River Municipal Water District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 355,300 acre-ft June 16, 1987 (elevation, 1,887.03 ft); minimum since first appreciable storage in June 1969 (not from recorder), about 330 acre-ft May 29, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 355,300 acre-ft June 16 at 2400 hours (elevation, 1,887.03 ft); minimum, 241,800 acre-ft Oct. 3 (elevation, 1,875.66 ft).

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

1,875.0	235,900	1,883.0	312,000
1,879.0	272,000	1,888.0	366,000

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	243500	312800	303300	306800	310000	318500	320500	319000	347200	352500	329600	292300
2	242800	312100	303300	307000	310100	318700	320100	319100	350700	353100	328200	291100
3	241800	311700	303200	306900	310100	318900	320000	318800	352500	353500	327000	289800
4	244700	310700	303100	306900	310100	319200	319700	318600	353100	353200	325400	288300
5	261000	309800	303100	306800	312100	319200	319700	318500	353000	353000	324100	287000
6	283300	308900	303100	307100	312700	319300	319900	318200	353100	352600	322700	286100
7	297700	308000	303500	307100	313300	319400	320000	318000	352800	352100	321200	284900
8	304800	307000	303300	307400	313900	319600	320200	318000	352600	351500	319800	283600
9	307900	305900	303300	307600	314100	319500	320200	318000	352900	350700	318400	282300
10	309800	304900	303100	307600	314400	319700	320000	317900	353000	350400	317200	281000
11	310600	303900	303000	307600	314900	320100	320400	317800	353500	349800	315700	280700
12	313400	303200	302800	307900	315000	320200	320100	317700	353900	348700	314100	280400
13	316300	302900	302600	307800	315000	320000	319600	317900	354200	348300	313900	280500
14	318400	303000	302800	308000	315400	320400	319500	318200	354700	347700	313700	280600
15	319500	303400	303000	308000	315300	320600	319500	321000	355200	347300	312600	280600
16	320100	303600	302900	308000	315300	320800	319900	321100	355300	346400	310900	280400
17	320100	303800	303900	308200	315300	320600	320000	321600	355000	346200	310300	280700
18	320100	303400	304200	308200	315100	320800	319700	322000	355000	345700	308900	281700
19	319800	303600	304300	308200	315200	320800	319600	323100	354900	345100	307500	281500
20	319600	303500	304400	308400	315800	321000	319500	323200	354700	344900	306300	281300
21	319300	303300	304600	308600	316100	321200	319500	323300	354700	344000	304800	281000
22	319100	303500	305200	308400	316400	321200	319500	323200	353800	343600	303700	281000
23	318800	303300	305500	308600	316500	321100	319700	325900	353600	342200	302300	280800
24	318100	303100	305900	309000	316900	321000	319700	328800	353400	340800	300900	280600
25	317500	303600	306100	309100	317200	320700	319600	333200	352700	339300	299700	280400
26	317100	303400	306300	309000	317600	320500	319700	336100	352400	337700	298100	280000
27	316400	303400	306500	309100	318300	321100	319700	337300	351600	336600	296900	279900
28	315800	303700	306400	309500	318500	321000	319600	337600	351300	335600	295600	279800
29	315100	303400	306600	309400	---	320500	319300	341800	350600	334000	294900	279500
30	314600	303600	306800	309300	---	320200	319200	342200	352100	332800	293600	279300
31	313700	---	306800	309400	---	320400	---	342800	---	331100	293500	---
MAX	320100	312800	306800	309500	318500	321200	320500	342800	355300	353500	329600	292300
MIN	241800	302900	302600	306800	310000	318500	319200	317700	347200	331100	293500	279300
(†)	1883.17	1882.16	1882.48	1882.74	1883.65	1883.84	1883.72	1885.89	1886.74	1884.83	1881.15	1879.73
(ϕ)	+68700	-10100	+3200	+2600	+9100	+1900	-1200	+23600	+9300	-21000	-37600	-14200

CAL YR 1986 MAX 320100 MIN 179600 (ϕ) +105700
WTR YR 1987 MAX 355300 MIN 241800 (ϕ) +34300

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

08123950 E. V. SPENCE RESERVOIR NEAR ROBERT LEE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1969 to current year. Biochemical analyses: January 1978 to current year.

315235100312201 - E.V.SPENCE RES SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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							
15...	1155	1.00	2770	8.20	9.5	9.5	90
15...	1157	10.0	2770	8.20	9.0	9.5	89
15...	1159	20.0	2770	8.20	9.0	9.5	89
15...	1201	30.0	2770	8.20	9.0	9.5	89
15...	1203	40.0	2770	8.20	9.0	9.4	88
15...	1205	50.0	2770	8.20	9.0	9.4	88
15...	1207	58.0	2770	8.20	9.0	9.4	88
MAY							
21...	1120	1.00	3000	8.60	22.5	7.6	95
21...	1122	10.0	3000	8.60	22.0	7.6	94
21...	1124	20.0	3000	8.50	20.5	6.8	82
21...	1126	30.0	3100	8.00	17.5	4.1	46
21...	1128	40.0	3080	7.90	16.0	4.3	47
21...	1130	50.0	3070	7.90	15.5	4.3	47
21...	1132	58.0	3070	7.90	15.5	4.0	43
AUG							
06...	1040	1.00	3380	8.50	29.0	7.8	110
06...	1042	10.0	3380	8.50	28.5	7.7	108
06...	1044	20.0	3380	8.50	28.0	7.2	100
06...	1046	30.0	3380	8.30	27.5	6.1	84
06...	1048	40.0	3450	7.50	24.5	0.6	8
06...	1050	53.0	3550	7.50	21.0	0.6	7

315335100312401 - E.V.SPENCE RES SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 (MG/L AS CACO3)
JAN									
15...	1125	1.00	2770	8.20	9.0	2.40	9.6	90	510
15...	1127	10.0	2770	8.20	9.0	--	9.6	90	--
15...	1129	20.0	2770	8.20	9.0	--	9.6	90	--
15...	1131	30.0	2770	8.20	9.0	--	9.5	89	--
15...	1133	40.0	2770	8.20	9.0	--	9.5	89	--
15...	1135	50.0	2770	8.20	9.0	--	9.5	89	--
15...	1137	60.0	2770	8.10	9.0	--	9.3	87	--
15...	1139	73.0	3180	7.80	9.5	--	3.9	37	750
MAY									
21...	1045	1.00	3060	8.60	22.5	1.50	7.6	95	620
21...	1047	10.0	3050	8.60	22.0	--	7.6	94	--
21...	1049	20.0	3040	8.60	22.0	--	7.5	93	--
21...	1051	30.0	3100	8.00	18.0	--	4.2	48	--
21...	1053	40.0	3070	7.90	16.0	--	4.5	49	--
21...	1055	50.0	3070	7.90	15.5	--	4.5	49	--
21...	1057	60.0	3080	7.90	15.0	--	4.3	46	--
21...	1059	70.0	3150	7.80	14.5	--	3.4	36	--
21...	1101	80.0	3840	7.70	14.5	--	0.6	6	--
21...	1103	89.0	5550	7.70	13.5	--	0.7	7	1100
AUG									
06...	1010	1.00	3380	8.50	28.5	1.70	7.3	102	700
06...	1012	10.0	3380	8.50	28.0	--	7.1	99	--
06...	1014	20.0	3380	8.50	28.0	--	7.0	97	--
06...	1016	30.0	3370	8.30	27.0	--	5.5	75	--
06...	1018	40.0	3430	7.50	24.0	--	0.7	9	--
06...	1020	50.0	3550	7.50	20.5	--	0.7	8	--
06...	1022	60.0	3760	7.50	20.0	--	0.7	8	--
06...	1024	70.0	3920	7.50	19.5	--	0.7	8	--
06...	1026	80.0	4090	7.50	19.5	--	0.7	8	--
06...	1028	89.0	4580	7.50	19.5	--	0.7	8	860

08123950 E. V. SPENCE RESERVOIR NEAR ROBERT LEE, TX--Continued

315335100312401 - E.V.SPENCE RES SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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)	SQDIUM AD-SORP-TION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)
JAN									
15...	400	100	63	350	7	14	110	420	570
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	600	150	91	490	8	14	148	630	780
MAY									
21...	490	120	77	440	8	15	125	510	670
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	930	190	160	850	11	26	202	1100	1300
AUG									
06...	570	130	92	470	8	14	131	560	740
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	700	130	130	660	10	2.9	161	830	1000

DATE	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (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, DIS-SOLVED (UG/L AS FE)	MANGANESE, DIS-SOLVED (UG/L AS MN)
JAN								
15...	0.40	4.9	1600	0.100	0.40	0.020	<10	<10
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	0.100	0.90	0.020	<10	<10
15...	--	5.2	2200	0.200	1.4	0.040	<10	100
MAY								
21...	0.50	3.0	1900	<0.100	1.6	0.020	20	<10
21...	--	--	--	--	--	--	--	--
21...	--	--	--	<0.100	0.70	0.010	20	20
21...	--	--	--	0.100	0.20	0.010	20	<10
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	7.8	3800	<0.100	2.2	0.270	110	2000
AUG								
06...	0.40	3.9	2100	<0.100	0.50	0.010	<10	<10
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	--	--	--	<0.100	1.0	0.020	<10	20
06...	--	--	--	<0.100	0.70	0.020	<10	190
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	--	8.5	2900	<0.100	1.0	0.120	80	440

08123950 E. V. SPENCE RESERVOIR NEAR ROBERT LEE, TX--Continued

315413100312501 - E.V.SPENCE RES SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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							
15...	1100	1.00	2770	8.20	9.0	9.6	90
15...	1102	10.0	2770	8.20	9.0	9.5	89
15...	1104	20.0	2770	8.20	9.0	9.5	89
15...	1106	30.0	2770	8.20	9.0	9.4	88
15...	1108	40.0	2770	8.20	9.0	9.3	87
15...	1110	49.0	2770	8.10	9.0	9.3	87
MAY							
21...	1025	1.00	3060	8.60	22.5	7.6	95
21...	1027	10.0	3060	8.60	22.5	7.6	95
21...	1029	20.0	3110	8.60	22.0	7.2	89
21...	1031	30.0	3110	8.10	17.0	4.4	49
21...	1033	40.0	3080	8.00	15.5	4.6	50
21...	1035	51.0	3080	8.00	15.0	4.4	47
AUG							
06...	0945	1.00	3380	8.50	28.5	7.1	100
06...	0947	10.0	3380	8.50	28.0	7.1	99
06...	0949	20.0	3380	8.40	28.0	6.9	96
06...	0951	30.0	3380	8.40	28.0	6.8	95
06...	0953	44.0	3490	7.50	23.5	0.6	8

315558100342601 - E.V.SPENCE RES SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 (MG/L AS CACO3)
JAN									
15...	1225	1.00	2780	8.20	9.0	2.00	9.6	90	510
15...	1227	10.0	2780	8.20	9.0	--	9.6	90	--
15...	1229	20.0	2770	8.20	9.0	--	9.5	89	--
15...	1231	30.0	2770	8.20	9.0	--	9.5	89	--
15...	1233	40.0	2770	8.20	9.0	--	9.5	89	--
15...	1235	50.0	2780	8.20	9.0	--	9.1	85	--
15...	1237	60.0	6790	7.80	9.0	--	5.4	51	1400
MAY									
21...	1200	1.00	3060	8.60	24.0	1.40	7.4	95	620
21...	1202	10.0	3060	8.60	23.0	--	7.4	94	--
21...	1204	20.0	3050	8.40	21.0	--	7.2	88	--
21...	1206	30.0	3300	7.80	17.5	--	3.0	34	--
21...	1208	40.0	3200	7.80	16.5	--	3.4	38	--
21...	1210	50.0	3200	7.80	16.0	--	3.2	35	--
21...	1212	61.0	3490	7.80	16.5	--	1.9	21	700
AUG									
06...	1110	1.00	3390	8.50	30.0	1.20	7.7	111	700
06...	1112	10.0	3390	8.50	29.0	--	7.6	108	--
06...	1114	20.0	3390	7.90	28.0	--	3.0	42	--
06...	1116	30.0	3390	7.80	27.0	--	2.9	40	--
06...	1118	40.0	3430	7.50	25.5	--	0.6	8	--
06...	1120	50.0	4290	7.50	22.0	--	0.6	7	--
06...	1122	60.0	4650	7.50	22.0	--	0.6	7	900

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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)
JAN								
15...	390	100	62	370	7	14	111	430
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	1200	230	190	1000	12	32	176	1300
MAY								
21...	500	120	78	420	8	15	123	510
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	560	130	90	480	8	16	138	590
AUG								
06...	570	130	90	480	8	--	129	550
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	710	130	140	700	10	1.0	187	830

08123950 E. V. SPENCE RESERVOIR NEAR ROBERT LEE, TX--Continued

315558100342601 - E.V.SPENCE RES SITE BC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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)
JAN								
15...	570	4.7	1600	0.100	0.60	0.020	<10	10
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	0.100	0.60	0.020	<10	<10
15...	1500	2.8	4400	0.300	1.1	0.060	20	60
MAY								
21...	690	3.0	1900	<0.100	0.90	0.020	20	<10
21...	--	--	--	--	--	--	--	--
21...	--	--	--	<0.100	0.40	0.010	20	<10
21...	--	--	--	0.100	1.5	0.020	20	20
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	780	4.7	2200	0.200	1.0	0.030	20	240
AUG								
06...	--	8.8	--	<0.100	0.90	0.020	20	<10
06...	--	--	--	<0.100	0.60	0.020	<10	<10
06...	--	--	--	--	--	--	--	--
06...	--	--	--	<0.100	0.50	0.020	<10	20
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	1000	10	2900	<0.100	1.5	0.210	90	460

315619100335601 - E.V.SPENCE RES SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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							
15...	1250	1.00	2770	8.20	9.0	9.7	91
15...	1252	10.0	2770	8.20	9.0	9.6	90
15...	1254	20.0	2770	8.20	9.0	9.6	90
15...	1256	30.0	2770	8.20	9.0	9.6	90
15...	1258	39.0	2770	8.10	9.0	9.5	89
MAY							
21...	1225	1.00	3030	8.60	24.5	7.4	96
21...	1227	10.0	3030	8.60	23.5	7.4	95
21...	1229	20.0	3030	8.50	21.0	6.8	83
21...	1231	30.0	3170	7.90	17.5	3.7	42
21...	1233	40.0	3200	7.80	16.5	3.0	33
21...	1235	46.0	3210	7.80	16.5	2.8	31
AUG							
06...	1135	1.00	3390	8.50	30.0	7.8	112
06...	1137	10.0	3390	8.50	29.0	7.5	106
06...	1139	20.0	3390	8.30	28.0	5.5	76
06...	1141	30.0	3390	8.20	27.5	5.2	72
06...	1143	40.0	3560	7.50	25.5	0.5	7
06...	1145	47.0	4170	7.50	23.5	0.5	6

315712100352001 - E.V.SPENCE RES SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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							
15...	1310	1.00	2770	8.20	9.0	9.7	91
15...	1312	10.0	2770	8.20	9.0	9.6	90
15...	1314	20.0	2770	8.20	9.0	9.6	90
15...	1316	30.0	2780	8.10	9.0	9.5	89
15...	1318	36.0	2790	8.10	9.0	9.5	89
MAY							
21...	1245	1.00	3080	8.60	25.0	7.0	92
21...	1247	10.0	3080	8.60	23.5	7.0	89
21...	1249	20.0	3340	8.00	22.0	3.4	42
21...	1251	30.0	3500	7.70	19.5	1.8	21
21...	1253	39.0	3310	7.80	17.5	2.7	31
AUG							
06...	1205	1.00	3380	8.50	30.0	8.1	117
06...	1207	10.0	3380	8.30	29.5	5.6	80
06...	1209	20.0	3380	8.10	28.5	4.4	62
06...	1211	30.0	3380	7.80	27.0	2.8	38
06...	1213	38.0	3380	7.70	27.0	2.0	27

08123950 E. V. SPENCE RESERVOIR NEAR ROBERT LEE, TX--Continued

315810100364901 - E.V.SPENCE RES SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 (MG/L AS CACO3)
JAN									
15...	1335	1.00	2730	8.20	8.5	0.80	9.8	91	540
15...	1337	10.0	2730	8.20	8.5	--	9.7	90	--
15...	1339	20.0	2730	8.20	8.5	--	9.6	89	--
15...	1341	30.0	8780	8.00	8.5	--	7.4	70	1800
MAY									
21...	1415	1.00	3040	8.50	26.0	0.90	7.0	94	580
21...	1417	10.0	3080	8.50	25.0	--	6.6	87	--
21...	1419	20.0	3470	7.90	24.5	--	2.6	34	--
21...	1421	29.0	5080	7.60	24.5	--	0.4	5	1000
AUG									
06...	1230	1.00	3400	8.60	31.0	0.90	9.5	139	710
06...	1232	10.0	3400	8.40	30.0	--	7.1	102	--
06...	1234	20.0	3700	7.70	29.0	--	0.5	7	--
06...	1236	28.0	3600	7.70	28.0	--	0.5	7	700

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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)
JAN								
15...	420	110	64	350	7	14	121	480
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	1600	280	260	1400	15	42	208	1800
MAY								
21...	460	110	75	440	8	15	123	510
21...	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--
21...	860	180	140	760	11	22	164	950
AUG								
06...	590	130	93	480	8	14	121	560
06...	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--
06...	560	120	98	490	8	7.0	148	590

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)
JAN								
15...	550	3.9	1600	0.100	0.60	0.030	<10	20
15...	--	--	--	--	--	--	--	--
15...	--	--	--	0.100	0.60	0.030	20	<10
15...	2000	1.6	5900	0.500	0.90	0.070	30	160
MAY								
21...	680	3.2	1900	<0.100	0.80	0.120	20	<10
21...	--	--	--	<0.100	0.60	0.030	20	20
21...	--	--	--	<0.100	0.30	0.040	20	120
21...	1200	4.6	3400	<0.100	1.7	0.210	70	520
AUG								
06...	710	<1.0	--	<0.100	0.80	0.050	<10	10
06...	--	--	--	<0.100	1.1	0.040	<10	20
06...	--	--	--	<0.100	1.3	0.080	30	250
06...	760	6.1	2200	<0.100	1.2	0.060	40	290

08124000 COLORADO RIVER AT ROBERT LEE, TX

LOCATION.--Lat 31°53'07", long 100°28'49", Coke County, Hydrologic Unit 12080008, on left bank 190 ft upstream from bridge on State Highway 208 in Robert Lee, 0.4 mi upstream from Mountain Creek, 2.7 mi downstream from Messbox Creek, 3.6 mi downstream from Robert Lee Dam, and at mile 712.4.

DRAINAGE AREA.--15,307 mi², of which 10,260 mi² probably is noncontributing.

PERIOD OF RECORD.--October 1923 to December 1927, April 1939 to May 1956, and October 1968 to current year. Prior to December 1927, published as "near Robert Lee".

REVISED RECORDS.--WSP 1723: 1925(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,771.70 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 31, 1927, nonrecording gage at site 9 mi downstream at different datum. Apr. 18 to Sept. 26, 1939, nonrecording gage, and Sept. 27, 1939, to May 9, 1956, water-stage recorder at site 200 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Beginning April 1949, flow was affected by Lake Colorado City and since July 1952 by Lake J. B. Thomas. Beginning December 1968, flow completely regulated by E. V. Spence Reservoir (station 08123950) 3.6 mi upstream. There are many diversions above station for municipal, mining, agricultural, and industrial uses. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1924-27, 1940-55) prior to completion of Robert Lee Dam, 207 ft³/s (150,000 acre-ft/yr); 19 years (water years 1969-87) regulated, 14.8 ft³/s (10,720 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft³/s Sept. 6, 1926 (gage height, 20.20 ft, site and datum then in use), from rating curve extended above 15,000 ft³/s; maximum gage height, 20.63 ft Sept. 9, 1980; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 26.7 ft Oct. 13, 1957, from floodmarks. Flood in April 1922 reached a stage of 25.5 ft, present datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,250 ft³/s May 29 at 0530 hours (gage height, 9.78 ft); minimum daily, 1.3 ft³/s Nov. 18, 19, and Sept. 30.

DISCHARGE, IN 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	589	567	1.9	1.8	2.9	2.5	1.7	1.9	622	217	502	380
2	574	567	1.9	1.9	1.9	2.2	1.8	1.9	610	215	500	486
3	582	571	1.8	2.0	1.6	2.3	1.8	1.9	601	212	497	485
4	588	586	1.8	1.9	1.4	2.1	1.8	1.9	590	211	497	475
5	892	568	1.8	2.1	8.5	2.1	1.8	1.9	564	208	491	481
6	634	569	1.9	2.1	5.3	2.1	2.0	1.9	549	205	490	484
7	590	567	2.1	2.1	2.5	2.1	1.9	1.9	525	208	487	483
8	585	567	2.0	2.3	2.1	2.1	1.9	1.9	498	205	485	481
9	589	569	2.0	2.4	1.9	2.0	1.9	1.9	470	205	482	482
10	587	567	1.9	2.3	1.9	2.0	2.1	1.9	436	205	479	232
11	559	565	1.8	2.2	2.0	3.0	2.0	2.0	407	206	477	16
12	513	284	1.9	2.3	2.0	2.0	2.2	2.0	388	203	475	5.4
13	523	3.6	1.9	2.2	2.1	1.9	2.0	2.0	357	203	535	3.9
14	544	2.5	2.2	2.1	2.2	2.0	2.0	1.9	336	205	497	3.5
15	554	2.0	2.1	2.0	2.6	1.8	1.9	93	318	206	471	3.6
16	555	1.7	1.9	2.1	2.5	2.4	2.2	2.9	301	207	472	2.7
17	560	1.6	2.4	2.3	2.6	2.6	2.9	2.0	280	206	471	2.3
18	568	1.3	5.1	2.4	2.5	1.7	1.9	2.0	271	208	470	7.4
19	576	1.3	2.7	2.3	2.4	1.7	1.9	2.0	260	211	471	4.5
20	577	1.4	2.3	2.3	3.3	1.8	1.9	1.9	251	205	470	2.7
21	579	1.5	2.0	2.2	3.0	1.8	2.0	2.0	244	207	469	2.2
22	569	1.8	2.1	2.1	2.7	1.9	1.9	2.0	240	360	468	2.0
23	567	1.8	2.4	2.2	2.6	2.4	1.9	2.0	236	530	469	1.9
24	563	1.8	2.2	2.2	3.4	1.9	2.0	2.1	233	522	469	1.8
25	565	2.7	2.1	2.1	2.9	1.9	1.9	1.9	229	518	466	1.8
26	555	2.1	2.0	2.1	2.9	1.8	1.9	2.0	226	515	467	1.7
27	551	1.8	2.0	2.2	2.9	1.7	1.9	2.0	225	513	466	1.8
28	550	1.8	1.9	2.2	3.7	1.6	2.0	2.0	225	508	463	1.7
29	554	1.8	1.7	2.0	---	1.6	2.0	687	227	504	462	1.4
30	555	1.9	1.7	2.1	---	1.5	2.0	644	249	504	462	1.3
31	557	---	1.9	2.2	---	1.6	---	633	---	501	465	---
TOTAL	17904	6581.4	65.4	66.7	78.3	62.1	59.1	2110.7	10968	9333	14845	4538.6
MEAN	578	219	2.11	2.15	2.80	2.00	1.97	68.1	366	301	479	151
MAX	892	586	5.1	2.4	8.5	3.0	2.9	687	622	530	535	486
MIN	513	1.3	1.7	1.8	1.4	1.5	1.7	1.9	225	203	462	1.3
AC-FT	35510	13050	130	132	155	123	117	4190	21760	18510	29450	9000

CAL YR 1986 TOTAL 38610.7 MEAN 106 MAX 892 MIN .01 AC-FT 76580
WTR YR 1987 TOTAL 66611.9 MEAN 182 MAX 892 MIN 1.3 AC-FT 132100

08126380 COLORADO RIVER NEAR BALLINGER, TX

LOCATION.--Lat 31°42'55", long 100°01'34", Runnels County, Hydrologic Unit 12090101, at left downstream end of bridge on Farm Road 2111, 0.4 mi upstream from Rocky Creek, 5.0 mi northwest of Ballinger, and at mile 665.8.

DRAINAGE AREA.--16,358 mi², approximately, of which 10,260 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1907 to September 1979 (published as "at Ballinger", station 08126500), October 1979 to current year. Monthly discharge only for some periods published in WSP 1312. Gage-height records collected in this vicinity from 1903-29 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1118: Drainage area. WSP 1512: 1916-17, 1919-20, 1921(M), 1922-25, 1928(M), 1930(M). WSP 1712: 1935, 1954-55(M). WDR TX-78-3: 1975-77.

GAGE.--Water-stage recorder. Datum of gage is 1,606.51 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 29, 1930, nonrecording gages at several sites and at various datums near site 5.4 mi downstream. Nov. 29, 1930, to May 1, 1975, water-stage recorder at site 6.2 mi downstream and May 1, 1975, to Sept. 30, 1979, water-stage recorder at site 5.4 mi downstream, both at datum 12.77 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are many diversions above station for irrigation, municipal supplies, and for oilfield operation. Flow is affected by E. V. Spence and by Oak Creek Reservoirs (see stations 08123950 and 08125500), and at times by discharge from floodwater-retarding structures in the Kickapoo and Valley Creeks drainage basins.

AVERAGE DISCHARGE.--61 years (water years 1908-68) prior to completion of Robert Lee Dam, 336 ft³/s (243,400 acre-ft/yr); 19 years (water years 1969-87) partially regulated, 69.4 ft³/s (50,280 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,400 ft³/s Sept. 18, 1936 (gage height, 28.6 ft, at former site and datum); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 36 ft sometime in 1884, at former site and datum, from information by local residents. Flood of Aug. 6, 1906, reached a stage of about 32.0 ft, at former site and datum, from floodmarks (backwater from Elm Creek).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,920 ft³/s Oct. 6 at 0500 hours (gage height, 19.86 ft); minimum, 38 ft³/s Sept. 27 (gage height, 4.81 ft).

DISCHARGE, IN 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	663	689	107	141	93	447	135	66	1320	761	647	679
2	663	688	101	134	106	363	131	61	1090	607	647	525
3	1070	686	98	132	109	335	123	60	1020	496	645	621
4	1050	1180	94	124	103	315	119	55	966	447	643	624
5	1490	845	91	122	107	300	112	53	931	418	638	611
6	5950	729	86	118	330	286	110	51	831	380	634	625
7	2950	699	84	115	506	272	111	48	806	e366	625	632
8	1890	675	84	115	467	259	113	47	802	360	620	613
9	1510	673	87	118	439	251	113	46	794	348	616	604
10	1340	645	84	115	404	250	110	44	789	339	612	604
11	1470	638	84	111	374	509	108	61	780	333	603	380
12	1350	640	84	110	348	386	106	79	773	333	601	127
13	1090	489	83	108	327	305	104	54	695	333	651	87
14	1010	198	82	106	309	270	93	515	623	333	930	70
15	948	133	82	104	295	251	89	585	577	329	844	57
16	915	113	84	103	272	324	83	298	542	325	638	51
17	890	109	87	109	250	1010	80	211	506	323	616	47
18	850	108	182	111	232	409	78	154	465	323	604	249
19	816	93	207	111	218	336	75	169	418	323	602	213
20	804	94	176	111	219	296	74	230	386	e323	595	101
21	797	89	157	109	230	261	121	146	370	e323	588	73
22	799	85	163	103	233	237	110	133	364	323	584	58
23	789	84	222	100	231	226	105	134	346	e486	587	52
24	779	83	216	98	251	209	95	535	344	e659	583	48
25	767	131	193	95	262	194	77	679	346	652	574	45
26	758	140	175	90	306	178	71	609	346	645	574	40
27	745	132	166	88	327	173	70	532	342	641	596	38
28	727	120	158	87	488	169	67	501	337	645	578	53
29	714	117	155	88	---	162	64	1530	e333	645	576	57
30	714	115	151	87	---	153	59	2100	693	647	572	45
31	701	---	145	84	---	142	---	1650	---	647	985	---
TOTAL	37009	11220	3968	3347	7836	9278	2906	11436	18935	14113	19808	8029
MEAN	1194	374	128	108	280	299	96.9	369	631	455	639	268
MAX	5950	1180	222	141	506	1010	135	2100	1320	761	985	679
MIN	663	83	82	84	93	142	59	44	333	323	572	38
AC-FT	73410	22250	7870	6640	15540	18400	5760	22680	37560	27990	39290	15930

CAL YR 1986 TOTAL 100656 MEAN 276 MAX 9220 MIN .10 AC-FT 199700
WTR YR 1987 TOTAL 147885 MEAN 405 MAX 5950 MIN 38 AC-FT 293300

e Estimated

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1961 to current year.
WATER TEMPERATURE: October 1961 to current year.
SUSPENDED SEDIMENT DISCHARGE: January 1978 to September 1981.

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. Prior to October 1979, station was operated as 08126500 Colorado River at Ballinger.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 13,500 microsiemens May 3, 1963; minimum daily, 244 microsiemens Sept. 9, 1980.
WATER TEMPERATURE: Maximum daily, 39.0°C July 3, 1977; minimum daily, 0.0°C Jan. 9-11, 1973.
SEDIMENT CONCENTRATION: Maximum daily mean, 3,740 mg/L Sept. 9 1980; minimum daily mean, 4 mg/L Feb. 2, 1980.
SEDIMENT LOADS: Maximum daily, 94,100 tons Aug. 3, 1978; minimum daily, 0 tons on many days during 1978 and 1980-81.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,990 microsiemens June 26; minimum daily, 750 microsiemens May 30.
WATER TEMPERATURE: Maximum daily, 30.0°C June 24, July 3, 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 21...	1400	791	2200	18.0	460	350	94	54	260
DEC 16...	1135	84	2100	10.0	640	430	150	65	200
FEB 11...	0950	377	1040	10.5	360	170	85	35	69
MAR 24...	1040	209	1450	15.0	500	290	110	54	120
MAY 20...	1050	226	1540	23.0	470	310	110	47	140
JUL 27...	1405	735	4560	25.0	870	720	150	120	650

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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 21...	5	12	112	330	420	0.40	6.0	1200
DEC 16...	4	6.2	217	460	310	0.40	7.4	1300
FEB 11...	2	4.7	184	200	110	0.40	6.1	620
MAR 24...	2	4.5	212	290	190	0.40	4.9	900
MAY 20...	3	6.0	156	300	240	0.50	7.1	940
JUL 27...	10	24	149	860	960	0.60	6.0	2900

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	37009	2040	1370	137000	300	29700	540	53700	730
NOV.	1986	11220	3480	2570	77800	490	14800	1200	35500	1500
DEC.	1986	3968	1810	1160	12400	270	2850	420	4510	600
JAN.	1987	3347	1730	1100	9910	260	2310	390	3530	570
FEB.	1987	7836	1270	773	16400	190	4000	250	5370	390
MAR.	1987	9278	1240	753	18900	180	4630	250	6160	380
APR.	1987	2906	1810	1160	9100	270	2100	420	3300	600
MAY	1987	11436	1150	698	21600	170	5290	230	7040	350
JUNE	1987	18935	3750	3050	156000	510	26000	1600	79800	1800
JULY	1987	14113	4760	3860	147000	650	24600	2000	75100	2300
AUG.	1987	19808	3720	2790	149000	520	27800	1300	69700	1600
SEPT	1987	8029	3430	2520	54500	480	10500	1100	24700	1400
TOTAL		147885	**	**	809000	**	155000	**	368000	**
WTD.AVG.		405	2750	2030	**	390	**	920	**	1200

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4200	3900	1980	1550	1830	1230	1650	2050	1950	2700	4110	2990
2	4240	4040	2010	1560	1850	1240	1640	2030	2220	3630	4040	3580
3	3500	4000	2020	1580	1900	1250	1690	2020	2230	4540	4110	3760
4	2750	3090	2040	1590	1920	1240	1700	1980	2310	4900	4040	3780
5	2480	3220	2070	1610	1870	1250	1740	2240	2350	5050	4040	3780
6	950	3890	2080	1620	1540	1250	1800	2180	2460	5040	4020	3630
7	1310	3880	2110	1630	1110	1280	1750	2150	2550	5100	4020	3600
8	1690	3890	2140	1630	1120	1310	1890	2150	2630	5170	4000	3700
9	1950	3920	1990	1650	1050	1340	1860	2180	2550	5210	4000	3700
10	2160	3930	2100	1640	1040	1370	1950	2250	2480	5280	4010	3650
11	1980	3750	2110	1710	1050	1040	1910	2210	2490	5360	3980	3650
12	1640	3590	2110	1720	1090	1220	1960	2170	2560	5420	3980	3440
13	1780	3430	2100	1740	1120	1290	1930	2160	2430	5400	3770	3430
14	1920	3240	2100	1750	1150	1300	1960	1150	2390	5390	3180	3390
15	1960	3090	2110	1780	1180	1330	1920	750	2920	5320	2960	3390
16	2040	2680	2100	1800	1200	1110	1960	1400	3270	5230	2950	3410
17	2180	2670	2100	1770	1240	820	1970	1590	6000	5200	3810	3430
18	2140	2610	1980	1720	1250	860	1960	1710	6030	5180	3890	2580
19	2150	2610	1930	1740	1290	1210	1940	1500	6550	5190	3880	1720
20	2230	2600	1890	1780	1280	1220	2030	1460	7020	5420	3880	2270
21	2200	2520	1880	1800	1350	1380	1350	1250	7240	5690	3920	2190
22	2270	2500	1630	1810	1360	1450	1440	1300	7430	5840	3930	2230
23	2200	2500	1550	1800	1380	1440	1570	1390	7510	5570	3900	2450
24	2220	2420	1480	1850	1390	1450	1660	1180	7520	4810	3910	2660
25	2260	2170	1510	1840	1380	1470	1790	1190	7710	4720	3850	2430
26	2270	1650	1540	1860	1440	1510	1880	1080	7990	4580	3790	2180
27	2340	1750	1530	1870	1420	1530	2020	1050	7200	4550	3770	2470
28	2480	1800	1520	1860	1220	1660	2030	950	7000	4400	3840	2690
29	2910	2200	1510	1860	---	1650	2140	770	7150	4390	3880	2440
30	3280	2210	1540	1880	---	1670	2210	750	5790	4210	3850	2450
31	3820	---	1540	2000	---	1680	---	1520	---	4200	1800	---
MEAN	2370	2990	1880	1740	1360	1320	1840	1610	4600	4930	3780	3040

08126380 COLORADO RIVER NEAR BALLINGER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

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

08127000 ELM CREEK AT BALLINGER, TX

LOCATION.--Lat 31°44'57", long 99°56'51", Runnels County, Hydrologic Unit 12090101, on right bank 1,000 ft upstream from storage dam at Ballinger and 1.9 mi upstream from mouth.

DRAINAGE AREA.--450 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1932 to current year.

REVISED RECORDS.--WSP 1442: 1935, 1946, 1954. WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and masonry dam control. Datum of gage is 1,617.72 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good except those below 100 ft³/s, which are fair. Stage-discharge relation during periods of low flow are affected by wind action and occasional accumulation of drift on dam. The city of Winters diverts water for municipal use from Lake Winters (capacity, 8,374 acre-ft at elevation 1,790 ft). Prior to June 1982, capacity of Lake Winters (old) was 3,060 acre-ft.

AVERAGE DISCHARGE.--55 years (water years 1933-87), 46.1 ft³/s (1.39 in/yr), 33,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s Oct. 13, 1957 (gage height, 14.20 ft, from floodmark); no flow at times.
Highest stage, not affected by backwater from the Colorado River since at least 1904, was that of Oct. 13, 1957, from information by local residents.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1906 reached a stage of 14.5 ft, affected by backwater from Colorado River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,020 ft³/s May 29 at 1930 hours (gage height, 6.48 ft); minimum daily, 1.4 ft³/s Oct. 1.

DISCHARGE, IN 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	1.4	23	32	50	44	468	68	42	853	124	6.9	153
2	5.3	21	31	50	67	262	68	34	463	75	5.1	43
3	144	20	29	43	72	181	71	33	274	67	4.4	17
4	396	257	29	41	60	140	72	36	224	55	4.4	11
5	376	290	29	36	63	120	73	30	242	41	4.3	9.4
6	1840	146	30	33	178	107	75	26	178	30	3.5	8.6
7	705	96	33	35	227	99	78	22	131	27	3.0	74
8	373	80	33	34	128	94	78	20	116	24	2.9	57
9	185	66	34	38	95	89	78	19	112	23	2.7	25
10	109	57	33	38	85	86	79	18	125	22	2.7	16
11	88	51	33	38	78	142	79	20	133	20	2.9	10
12	111	46	33	35	77	158	76	21	231	20	2.7	8.5
13	78	40	33	36	73	117	71	22	211	19	2.7	7.1
14	68	36	33	40	73	95	66	511	129	19	3.1	7.1
15	58	33	36	43	70	84	66	1540	107	16	4.4	7.8
16	54	33	38	44	70	80	67	363	90	20	9.7	7.3
17	50	33	40	50	64	1410	68	91	80	20	7.5	6.5
18	44	29	130	50	59	442	66	60	73	24	5.8	21
19	44	26	271	48	58	198	53	121	65	24	4.8	18
20	38	23	151	48	62	138	50	429	62	18	3.9	18
21	38	23	105	48	70	121	54	94	62	11	2.6	13
22	38	21	94	41	78	112	57	58	58	17	1.7	9.6
23	43	20	103	38	75	94	58	107	56	15	1.8	7.8
24	38	23	98	33	78	92	54	388	51	13	1.8	7.0
25	34	53	83	36	95	81	52	185	47	11	1.7	7.1
26	29	65	72	36	129	78	48	96	40	11	1.7	5.8
27	27	56	61	33	317	78	44	71	46	11	6.7	5.8
28	25	47	54	36	503	78	42	93	41	9.7	4.3	6.0
29	24	41	54	37	---	73	38	2730	41	8.0	2.8	5.0
30	24	36	54	38	---	71	36	1750	127	6.8	2.9	4.7
31	24	---	51	37	---	68	---	1640	---	6.9	163	---
TOTAL	5111.7	1791	1940	1243	3048	5456	1885	10670	4468	808.4	278.4	597.1
MEAN	165	59.7	62.6	40.1	109	176	62.8	344	149	26.1	8.98	19.9
MAX	1840	290	271	50	503	1410	79	2730	853	124	163	153
MIN	1.4	20	29	33	44	68	36	18	40	6.8	1.7	4.7
AC-FT	10140	3550	3850	2470	6050	10820	3740	21160	8860	1600	552	1180
CFSM	.37	.13	.14	.09	.24	.39	.14	.76	.33	.06	.0	.0
IN.	.42	.15	.16	.10	.25	.45	.16	.88	.37	.07	.0	.0

CAL YR 1986	TOTAL	21740.3	MEAN	59.6	MAX	2560	MIN	.00	AC-FT	43120	CFSM	.13	IN.	1.80
WTR YR 1987	TOTAL	37296.4	MEAN	102	MAX	2730	MIN	1.4	AC-FT	73980	CFSM	.23	IN.	3.08

08127000 ELM CREEK AT BALLINGER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1957 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 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, 4,220 microsiemens Sept. 12, 17, 1970; minimum daily, 244 microsiemens Aug. 4, 1978.
WATER TEMPERATURE: Maximum daily 35.0°C July 19, 1986; minimum daily, 0.0°C Jan. 8, 1968, Jan. 10, 13, 1973, and Jan. 11, 14, 1982.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,950 microsiemens Aug. 26; minimum daily, 400 microsiemens Oct. 6.
WATER TEMPERATURE: Maximum daily, 34.0°C Aug. 4, 19; minimum daily 4.0°C Jan. 17.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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									
21...	1015	38	1490	18.5	430	220	99	45	130
DEC									
16...	1430	39	2450	10.0	670	430	130	85	250
FEB									
11...	1125	77	1780	10.5	520	320	110	59	160
MAR									
24...	1205	112	1700	16.0	540	330	120	58	160
MAY									
20...	1300	331	929	22.0	250	130	59	25	81
JUL									
27...	1210	11	2690	29.0	740	530	130	100	280

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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								
21...	3	6.8	212	140	260	0.50	12	820
DEC								
16...	4	4.8	241	300	480	0.80	8.8	1400
FEB								
11...	3	6.4	197	220	320	0.50	6.8	1000
MAR								
24...	3	5.6	207	200	320	0.50	9.4	1000
MAY								
20...	2	6.1	118	82	170	<0.10	11	500
JUL								
27...	5	5.2	210	400	550	0.80	13	1600

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	5111.7	632	367	5060	100	1450	79	1100	190
NOV.	1986	1791	1580	932	4510	290	1420	210	1030	480
DEC.	1986	1940	1880	1110	5830	360	1870	260	1360	570
JAN.	1987	1243	2490	1490	5000	510	1700	360	1200	760
FEB.	1987	3048	1990	1180	9730	380	3160	280	2280	600
MAR.	1987	5456	1430	842	12400	260	3840	190	2820	430
APR.	1987	1885	2510	1500	7650	510	2600	360	1840	770
MAY	1987	10670	786	457	13200	130	3830	100	2880	230
JUNE	1987	4468	1510	886	10700	280	3340	200	2440	450
JULY	1987	808.4	2370	1410	3080	470	1040	340	737	720
AUG.	1987	278.4	1900	1130	848	370	280	270	200	580
SEPT	1987	597.1	1300	759	1220	230	370	170	274	390
TOTAL		37296.6	**	**	79200	**	24900	**	18200	**
WTD.AVG.		102	1330	786	**	250	*	180	**	400

08127000 ELM CREEK AT BALLINGER, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1170	2110	2100	2080	2740	1260	2220	2710	963	2450	2740	940
2	1230	2190	2120	2120	2760	1170	2230	2770	960	2370	2760	960
3	810	2180	2100	2160	2770	1150	2310	2750	1080	2220	2740	1070
4	480	1890	2050	2200	2760	1590	2380	2740	1270	2230	2780	1120
5	450	1650	2090	2250	2690	1610	2400	2800	1310	2210	2800	1140
6	400	1050	2090	2280	2240	1710	2380	2820	1480	2120	2800	1160
7	430	880	2120	2300	1820	1780	2420	2850	1470	2080	2810	1200
8	520	900	2270	2320	1850	1810	2430	2890	1520	2060	2820	1520
9	590	876	2190	2390	1860	1820	2450	2900	1620	2110	2830	1660
10	660	938	2270	2450	1870	1890	2510	2930	1700	2150	2810	1540
11	750	1000	2320	2530	1900	1970	2520	2910	1840	2170	2820	1420
12	960	1070	2380	2510	1870	2150	2530	2880	1730	2250	2820	1400
13	1110	1160	2400	2510	1900	2100	2520	2860	1700	2310	2820	1400
14	1170	1250	2400	2520	1960	2110	2460	1140	1680	2360	2710	1300
15	1210	1330	2410	2510	2020	2260	2550	520	1770	2400	2770	1320
16	1180	1450	2460	2550	2100	2220	2560	690	1840	2440	2760	1400
17	1150	1570	2470	2580	2130	950	2570	1280	1940	2500	2820	1380
18	1230	1770	2210	2480	2150	1040	2540	1430	2000	2520	2820	1440
19	1310	1780	1950	2580	2130	1140	2560	1160	2050	2580	2860	1440
20	1420	1900	1440	2550	2140	1320	2570	940	2160	2600	2870	1590
21	1490	1980	1290	2570	2220	1560	2580	1080	2280	2650	2890	1720
22	1690	2080	1410	2590	2340	1570	2650	1390	2350	2660	2900	1760
23	1650	2130	1350	2640	2390	1700	2640	1240	2360	2680	2910	1850
24	1800	2160	1620	2700	2370	1810	2660	910	2410	2690	2930	1890
25	1880	2140	1740	2720	2350	1840	2740	1040	2490	2650	2940	1940
26	1980	2220	1770	2730	1980	1900	2730	1240	2510	2710	2950	1980
27	2000	2230	1740	2770	1710	2210	2740	1310	2530	2700	2850	2030
28	2030	2180	1780	2750	1490	2220	2730	1430	2560	2710	2820	2080
29	2070	2210	1900	2730	---	2220	2730	720	2600	2720	2830	2090
30	2090	2160	2000	2750	---	2210	2740	530	2500	2710	2830	2090
31	2110	---	1990	2730	---	2210	---	575	---	2740	1250	---
MEAN	1260	1680	2010	2500	2160	1760	2540	1790	1890	2440	2780	1530

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	21.0	10.0	10.0	14.0	10.0	15.0	20.0	22.0	27.0	31.0	24.0
2	26.0	18.0	13.0	10.0	17.0	15.0	14.0	20.0	23.0	29.5	31.5	25.0
3	28.0	18.0	10.0	10.0	17.0	15.0	14.0	22.0	22.0	31.0	33.5	26.0
4	25.0	15.0	10.0	9.0	17.0	16.0	15.0	22.0	23.0	30.0	34.0	25.0
5	23.0	17.0	10.0	10.0	15.0	17.0	14.0	22.0	23.0	30.5	33.0	24.5
6	20.0	16.0	9.0	10.0	9.0	15.0	15.0	25.0	23.0	28.0	31.0	26.5
7	20.0	17.0	13.0	10.0	10.0	18.0	15.0	---	25.0	30.0	32.5	27.0
8	22.0	18.0	10.0	10.0	10.0	15.0	20.0	---	25.5	31.5	29.5	27.5
9	24.0	15.0	10.0	10.0	10.0	14.0	20.0	---	24.0	29.5	31.5	29.5
10	24.0	15.0	8.0	9.0	10.0	10.0	20.0	---	25.0	30.5	33.5	27.5
11	22.0	14.0	8.0	10.0	15.0	14.0	20.0	---	27.5	29.5	33.0	30.0
12	18.0	12.0	10.0	10.0	15.0	14.0	20.0	---	26.0	28.5	30.0	28.0
13	15.0	10.0	10.0	10.0	16.0	14.0	20.0	---	26.0	28.0	31.0	29.5
14	16.0	10.0	11.0	11.0	16.0	15.0	15.0	---	30.0	29.0	33.0	30.0
15	18.0	12.0	10.0	8.0	12.0	15.0	20.0	---	30.0	30.0	31.0	28.5
16	18.0	12.0	8.0	7.0	10.0	20.0	20.0	---	29.5	27.5	28.0	29.0
17	20.0	15.0	10.0	4.0	11.0	14.0	---	---	30.0	30.0	33.0	30.0
18	20.0	15.0	8.0	5.0	10.0	15.0	---	---	30.0	26.5	33.0	26.5
19	20.0	15.0	10.0	8.0	10.0	20.0	---	---	30.0	30.0	34.0	27.5
20	19.0	15.0	10.0	6.0	8.0	20.0	---	22.0	29.0	30.5	33.0	28.0
21	20.0	16.0	10.0	8.0	8.0	15.0	---	23.0	30.0	30.0	32.5	27.5
22	18.0	17.0	8.0	7.0	10.0	20.0	---	---	31.0	31.0	31.0	26.0
23	18.0	13.0	10.0	8.0	9.0	15.0	---	27.0	31.0	30.0	32.0	27.5
24	22.0	10.0	10.0	6.0	11.0	19.0	---	22.0	31.5	29.5	32.5	27.0
25	19.0	10.0	10.0	8.0	10.0	15.0	---	23.5	33.5	27.5	31.5	24.5
26	22.0	10.0	10.0	12.0	12.0	14.0	20.0	25.0	31.5	29.0	31.0	25.0
27	24.0	---	10.0	12.0	13.0	14.0	22.0	23.5	30.0	30.5	27.5	25.5
28	22.0	15.0	10.0	12.0	12.0	10.0	21.0	25.0	28.0	33.0	27.0	25.0
29	25.0	13.0	10.0	14.0	---	14.0	---	20.0	28.0	32.5	26.5	24.0
30	22.0	12.0	10.0	11.0	---	10.0	22.0	20.0	26.0	30.5	31.0	22.5
31	20.0	---	10.0	14.0	---	15.0	---	19.0	---	32.0	26.0	---
MEAN	21.0	14.5	10.0	9.5	12.0	15.0	18.0	22.5	27.5	30.0	31.0	27.0

08128000 SOUTH CONCHO RIVER AT CHRISTOVAL, TX

LOCATION (REVISED).--Lat 31°11'13", long 100°30'06", Tom Green County, Hydrologic Unit 12090102, on left upstream side of U.S. Highway 277 bridge, 9.5 mi upstream from Twin Buttes Dam, and 23.7 mi upstream from mouth.

DRAINAGE AREA.--412.6 mi², of which 58.6 mi² probably is noncontributing.

PERIOD OF RECORD.--February 1930 to current year.

REVISED RECORDS.--WSP 1118: 1943(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,010.22 ft above National Geodetic Vertical Datum of 1929. Prior to July 17, 1930, nonrecording gage at same site and datum. July 17, 1930, to Nov. 15, 1977, water-stage recorder at same site and datum. Nov. 16, 1977 to May 5, 1987, water-stage recorder at site 160 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Low flow is materially affected by diversion to South Concho Irrigation Co.'s canal (station 08127500) 800 ft upstream from station. Several observations of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--57 years, 32.1 ft³/s (23,260 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft³/s July 23, 1938 (gage height, 21.95 ft, from floodmark), from rating curve extended above 15,100 ft³/s on basis of slope-area measurement of 80,100 ft³/s; no flow Feb. 28 and Mar. 1, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1882, about 23 ft Aug. 6, 1906 (discharge, 115,000 ft³/s), from rating curve extended as noted above, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 160 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 6	0600	*1,270	*4.69	May 13	1030	1,180	4.56

Minimum discharge, 15 ft³/s Oct. 1-3.

DISCHARGE, IN 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	15	37	38	47	43	61	63	55	218	70	54	37
2	15	37	37	48	43	61	61	54	68	69	51	37
3	18	37	37	46	43	60	61	53	65	68	50	37
4	17	41	37	45	43	59	61	52	61	70	50	37
5	31	35	37	45	51	59	61	51	63	68	50	35
6	518	35	37	45	48	59	61	46	63	69	51	35
7	76	35	37	45	45	59	61	42	63	68	51	36
8	33	35	37	45	46	59	61	41	66	68	50	37
9	30	35	37	52	47	59	61	41	77	68	47	37
10	30	35	37	47	52	60	61	42	85	66	45	39
11	32	35	37	47	54	66	58	43	82	66	43	39
12	31	33	37	47	54	64	53	43	82	66	43	38
13	31	31	37	46	54	63	50	41	82	64	43	37
14	31	31	37	45	58	63	50	39	81	61	43	36
15	31	31	37	45	61	61	51	39	79	59	43	38
16	31	31	37	45	65	61	55	39	80	60	38	37
17	31	31	37	45	66	61	54	42	82	63	36	37
18	32	31	39	45	66	59	47	41	80	63	34	41
19	33	31	37	45	66	59	50	48	82	59	35	41
20	33	31	37	45	66	59	52	45	76	56	35	41
21	33	31	37	45	66	59	55	44	76	57	35	41
22	35	31	41	45	66	58	56	43	76	59	35	40
23	36	32	43	45	66	61	57	45	76	58	34	39
24	37	35	43	44	68	63	55	48	74	55	33	39
25	37	38	43	43	68	63	50	43	71	54	33	39
26	37	39	43	43	67	63	50	43	69	54	33	39
27	37	39	44	43	64	63	52	43	68	54	33	38
28	37	39	45	43	63	63	51	43	68	52	33	35
29	37	39	44	41	---	63	50	50	68	53	39	35
30	37	39	46	41	---	63	53	53	76	54	40	35
31	37	---	47	40	---	63	---	553	---	54	37	---
TOTAL	1499	1040	1219	1393	1599	1894	1661	1905	2357	1905	1277	1132
MEAN	48.4	34.7	39.3	44.9	57.1	61.1	55.4	61.5	78.6	61.5	41.2	37.7
MAX	518	41	47	52	68	66	63	553	218	70	54	41
MIN	15	31	37	40	43	58	47	39	61	52	33	35
AC-FT	2970	2060	2420	2760	3170	3760	3290	3780	4680	3780	2530	2250

CAL YR 1986	TOTAL	11773	MEAN	32.3	MAX	518	MIN	4.5	AC-FT	23350
WTR YR 1987	TOTAL	18881	MEAN	51.7	MAX	553	MIN	15	AC-FT	37450

08128400 MIDDLE CONCHO RIVER ABOVE TANKERSLEY, TX

LOCATION.--Lat 31°25'38", long 100°42'39", Irion County, Hydrologic Unit 12090103, on left bank 0.3 mi upstream from East Rocky Creek, 0.5 mi southwest of Tullos Ranch Headquarters, 6.7 mi northwest of Tankersley, and 20.9 mi upstream from mouth.

DRAINAGE AREA.--2,084 mi², of which 968 mi² probably is noncontributing.

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,986.47 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. Satellite telemeter at station.

AVERAGE DISCHARGE.--26 years, 17.7 ft³/s (12,820 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft³/s Sept. 21, 1974 (gage height, 24.98 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 29.5 ft Sept. 26, 1936. A flood in 1900 reached the same stage, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 5	1930	*5,070	*16.26	Oct. 6	0730	3,540	14.44

Minimum daily discharge, 6.8 ft³/s Aug. 10.

DISCHARGE, IN 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	25	30	27	35	35	66	78	48	74	41	10	18
2	25	29	27	35	35	60	76	54	56	33	10	16
3	30	29	27	35	32	57	72	46	57	28	9.8	15
4	31	43	27	35	32	54	72	39	60	26	9.3	14
5	1130	33	27	35	423	52	68	37	63	24	8.9	14
6	2710	30	27	35	333	54	69	35	55	24	8.0	15
7	423	30	28	35	123	57	71	35	51	22	7.4	17
8	244	30	28	35	99	57	66	34	52	21	7.1	16
9	353	27	28	34	87	58	65	34	55	21	6.9	16
10	206	27	28	35	82	62	65	32	66	20	6.8	17
11	175	27	28	33	77	176	64	32	60	19	8.3	19
12	135	26	28	33	71	115	64	31	70	19	10	19
13	111	26	28	33	67	100	61	31	56	18	9.2	19
14	96	26	28	33	65	98	53	199	50	18	9.8	18
15	88	30	29	33	61	97	51	78	48	18	9.6	19
16	78	33	29	33	57	99	52	56	45	19	8.6	19
17	68	33	29	33	56	102	54	50	44	26	8.2	19
18	65	33	37	34	54	93	54	49	41	21	7.8	24
19	56	33	36	34	52	85	52	49	40	18	7.4	24
20	47	33	32	34	54	84	49	51	39	17	7.5	22
21	44	32	31	34	57	83	72	46	38	16	7.4	20
22	43	29	34	33	56	151	63	42	42	15	7.6	19
23	43	26	43	33	51	131	55	44	39	16	7.8	19
24	42	26	41	33	61	101	53	67	35	14	8.1	18
25	37	28	38	33	56	92	58	63	32	14	7.9	18
26	32	29	37	32	54	91	52	50	31	14	8.1	18
27	31	27	37	32	56	91	48	47	30	13	14	18
28	30	27	37	32	90	85	45	56	30	13	14	18
29	30	27	37	32	---	80	41	81	31	12	15	18
30	29	27	35	32	---	80	40	105	50	11	15	18
31	30	---	35	31	---	78	---	73	---	11	19	---
TOTAL	6487	886	983	1039	2376	2689	1783	1694	1440	602	294.5	544
MEAN	209	29.5	31.7	33.5	84.9	86.7	59.4	54.6	48.0	19.4	9.50	18.1
MAX	2710	43	43	35	423	176	78	199	74	41	19	24
MIN	25	26	27	31	32	52	40	31	30	11	6.8	14
AC-FT	12870	1760	1950	2060	4710	5330	3540	3360	2860	1190	584	1080

CAL YR 1986 TOTAL 27404.5 MEAN 75.1 MAX 5580 MIN .00 AC-FT 54360
WTR YR 1987 TOTAL 20817.5 MEAN 57.0 MAX 2710 MIN 6.8 AC-FT 41290

08129300 SPRING CREEK ABOVE TANKERSLEY, TX

LOCATION.--Lat 31°19'48", long 100°38'24", Tom Green County, Hydrologic Unit 12090102, on right bank at downstream side of bridge on Farm Road 2335, 1.4 mi south of Tankersley, 2.5 mi upstream from Dove Creek, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--424.7 mi², of which 19.7 mi² probably is noncontributing.

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,964.72 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 10, 1960, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are many small diversions above station for irrigation. Several observations of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--27 years, 13.5 ft³/s (9,780 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,400 ft³/s Aug. 12, 1971 (gage height, 16.57 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Outstanding floods since at least 1853 occurred in 1882 and 1884. Flood of Oct. 3, 1959, reached a stage of 18.4 ft, from floodmarks. At former gage near Tankersley 8 mi downstream, the flood of Oct. 3, 1959, had a discharge of 82,100 ft³/s and was found to be about 3 ft lower than the 1882 flood, the greatest at that location since at least 1853.

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)
Oct. 5	2100	*1,400	*6.39	Feb. 5	1830	552	5.60

Minimum discharge, 5.2 ft³/s Oct. 1-2.

DISCHARGE, IN 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	6.1	19	17	29	24	42	41	46	e52	35	17	25
2	6.4	20	16	27	23	41	38	43	e38	31	16	25
3	15	22	18	24	22	39	39	41	e45	29	16	24
4	14	31	19	25	22	38	37	38	e41	30	15	25
5	214	24	18	25	202	33	38	39	e39	27	14	26
6	327	21	19	25	150	37	41	39	e36	25	14	25
7	77	21	20	25	63	37	42	41	e33	23	11	29
8	40	21	19	25	51	37	38	42	e34	25	12	27
9	31	21	19	27	49	38	39	42	e34	25	10	29
10	32	20	19	26	47	39	39	41	e52	25	8.2	e28
11	36	20	21	24	45	55	38	39	e44	23	11	e28
12	34	19	21	24	45	46	38	39	e39	24	24	e26
13	33	18	20	24	45	45	31	40	e37	23	18	e26
14	28	19	20	24	44	46	29	72	e37	22	20	e28
15	28	20	20	24	40	44	30	50	e33	23	25	e28
16	27	20	19	24	40	45	30	47	e32	27	27	e30
17	27	21	20	24	41	47	31	46	e31	31	25	30
18	27	20	26	25	41	43	37	44	e31	28	24	36
19	24	18	21	24	40	41	39	51	e31	27	23	29
20	23	20	20	23	43	42	38	38	e32	25	17	28
21	24	21	21	23	43	43	44	44	e31	25	13	28
22	24	22	27	23	41	43	42	43	e30	25	13	28
23	23	21	32	23	41	40	38	38	e28	24	15	29
24	24	20	29	22	43	41	36	53	e29	23	17	23
25	23	22	28	20	40	41	34	49	e30	21	18	23
26	23	18	27	20	40	42	43	46	e30	23	17	21
27	21	18	28	21	42	43	38	47	e31	24	17	18
28	21	19	31	21	47	39	36	55	e30	19	24	18
29	21	16	33	21	---	38	36	76	e28	20	32	13
30	20	18	33	21	---	39	36	71	e49	19	44	17
31	21	---	32	22	---	41	---	e79	---	19	33	---
TOTAL	1294.5	610	713	735	1414	1285	1116	1479	1067	770	590.2	770
MEAN	41.8	20.3	23.0	23.7	50.5	41.5	37.2	47.7	35.6	24.8	19.0	25.7
MAX	327	31	33	29	202	55	44	79	52	35	44	36
MIN	6.1	16	16	20	22	33	29	38	28	19	8.2	13
AC-FT	2570	1210	1410	1460	2800	2550	2210	2930	2120	1530	1170	1530

CAL YR 1986	TOTAL	4568.7	MEAN	12.5	MAX	382	MIN	.01	AC-FT	9060
WTR YR 1987	TOTAL	11843.7	MEAN	32.4	MAX	327	MIN	6.1	AC-FT	23490

08130500 DOVE CREEK AT KNICKERBOCKER, TX

LOCATION.--Lat 31°16'24", long 100°37'45", Tom Green County, Hydrologic Unit 12090102, on right bank at right end of bridge on Farm Road 2335, 0.4 mi west of Knickerbocker, and 5.7 mi upstream from mouth.

DRAINAGE AREA.--226.43 mi², of which 8.43 mi² probably is noncontributing.

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,001.45 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 10, 1960, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow is partly regulated by storage, by diversions from two small channel dams upstream, and by small upstream diversions (for irrigation). Several observations of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--26 years, 16.9 ft³/s (12,240 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s Aug. 12, 1971 (gage height, 20.66 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, 30.4 ft in 1906 and Oct. 3, 1959; floods in 1882 and 1884 reached about the same stage, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 5	2100	*431	*a6.53	Feb. 5	1730	111	4.57

a From graph.

Minimum daily discharge, 5.0 ft³/s Oct. 1-2.

DISCHARGE, IN 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	5.2	16	16	21	21	40	e38	30	32	36	24	24
2	5.1	16	16	21	21	40	e38	28	30	33	23	23
3	9.7	16	16	21	21	39	e38	27	32	32	22	22
4	8.5	24	16	21	21	39	e38	26	33	32	22	21
5	e92	18	16	21	58	e38	e38	26	32	31	21	20
6	e132	17	16	21	61	e37	e38	26	31	31	23	20
7	33	17	16	21	39	e37	38	26	30	30	25	25
8	19	17	16	21	37	e37	37	26	30	29	24	20
9	17	17	16	23	37	e37	37	26	30	30	24	19
10	18	16	16	22	37	e37	37	25	34	30	22	22
11	22	16	16	21	37	e37	37	25	32	30	20	21
12	20	17	16	21	37	e37	37	26	31	30	21	20
13	20	17	16	21	37	e37	37	26	31	30	20	20
14	20	17	16	21	36	e37	36	25	31	30	18	20
15	19	17	16	21	35	e37	36	25	30	30	17	25
16	19	15	16	21	35	e37	36	25	30	33	16	23
17	18	13	16	21	36	e37	35	28	30	33	16	21
18	18	13	18	21	36	e37	35	29	29	32	15	24
19	17	13	16	21	36	e37	32	32	28	30	17	23
20	17	15	16	21	37	e37	31	30	28	29	18	22
21	17	15	16	21	37	e38	35	28	28	29	20	22
22	17	16	19	21	36	e38	34	28	31	28	20	22
23	18	16	21	21	36	e38	33	28	29	27	21	22
24	18	16	19	21	39	e38	34	31	28	27	20	22
25	17	18	19	21	38	e38	33	28	27	26	20	21
26	17	17	19	21	40	e38	32	27	27	26	20	21
27	17	17	20	21	41	e38	32	27	27	26	21	21
28	17	16	20	21	44	e38	32	30	27	26	20	21
29	17	16	20	21	---	e38	32	33	24	25	23	21
30	16	16	21	21	---	e38	32	31	42	24	26	21
31	16	---	21	21	---	e38	---	38	---	24	30	---
TOTAL	716.5	490	537	654	1026	1169	1058	866	904	909	649	649
MEAN	23.1	16.3	17.3	21.1	36.6	37.7	35.3	27.9	30.1	29.3	20.9	21.6
MAX	132	24	21	23	61	40	38	38	42	36	30	25
MIN	5.1	13	16	21	21	37	31	25	24	24	15	19
AC-FT	1420	972	1070	1300	2040	2320	2100	1720	1790	1800	1290	1290

CAL YR 1986	TOTAL 3656.8	MEAN 10.0	MAX 132	MIN .67	AC-FT 7250			
WTR YR 1987	TOTAL 9627.5	MEAN 26.4	MAX 132	MIN 5.1	AC-FT 19100			

e Estimated.

08131200 TWIN BUTTES RESERVOIR NEAR SAN ANGELO, TX

LOCATION.--Lat 31°22'55", long 100°32'17", Tom Green County, Hydrologic Unit 12090102, in outlet control tower at Twin Buttes Dam on Middle Concho River, Spring Creek, and South Concho River, 3.8 mi upstream from Lake Nasworthy Dam, 8.1 mi southwest of San Angelo, and 75.0 mi upstream from mouth.

DRAINAGE AREA.--3,868 mi², of which 1,055 mi² probably is noncontributing.

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder on Middle Concho-Spring Creek pool and nonrecording gage on South Concho pool. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rolled earthfill dam 8.1 mi long, including a 200-foot-wide uncontrolled off-channel concrete gravity spillway with ogee weir section. Outlet works consist of three 15.5-foot concrete conduits, each controlled by a 12.0- by 15.0-foot fixed-wheel gate and a 12.0- by 15.0-foot radial gate, located in the Middle Concho-Spring Creek pool. Low-flow releases are made through 2.0- by 2.0-foot gates located in the center of three fixed-wheel gates. The South Concho and Middle Concho-Spring Creek pools are connected by a 3.22-mile equalizing channel. At an elevation of 1,926.5 ft, the two pools join to form one lake. Below elevation 1,926.5 ft, daily contents are obtained from capacity tables for South Concho and Middle Concho-Spring Creek pools and summed to obtain combined daily contents. Lake level elevations below 1,926.5 ft represent Middle Concho-Spring Creek pool only. Deliberate impoundment of water began on Dec. 1, 1962; dam was completed Feb. 13, 1963. Capacity curve is based on a survey made in 1958. Reservoir was built for flood control, irrigation, and municipal uses. 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	1,991.0	-
Crest of spillway	1,969.1	640,600
Top of conservation storage	1,940.2	186,200
Bottom of equalizing channel (Middle Concho-Spring Creek pool)	1,926.5	86,480
Dead storage in South Concho pool	1,926.5	5,440
Lowest gated outlet (invert at Middle Concho-Spring Creek pool)	1,885.0	3,750

COOPERATION.--Capacity curve furnished by the U.S. Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 205,200 acre-ft May 12, 1975 (elevation, 1,942.20 ft); minimum since first appreciable storage, 2,120 acre-ft Apr. 15, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum combined daily contents, 151,500 acre-ft July 8; minimum, 59,280 acre-ft Oct. 2.

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59290	76910	81290	87970	94790	109700	122600	130700	141700	150500	148300	141800
2	59280	77010	81390	88200	95020	110000	122800	130900	142000	151100	148100	141900
3	59630	77160	81500	88320	95200	110400	123100	131100	142500	151100	147800	142000
4	59660	77800	81610	88540	95440	110800	123500	131300	142800	151200	147500	142000
5	61800	77980	81710	88790	98070	111100	123700	131300	143200	151200	147200	142000
6	69950	78160	81900	89000	99810	111500	124100	131100	143500	151300	146800	142700
7	72040	78260	82050	89210	100500	111900	124400	131000	143800	151400	146200	142800
8	72520	78390	82250	89410	100900	112200	124700	131000	144100	151500	145800	142800
9	73120	78500	82380	89680	101400	112500	125000	130900	144700	151200	145300	142900
10	73540	78600	82600	89890	101900	113400	125200	130900	145300	151200	145000	143500
11	73880	78750	82810	90130	102300	114200	125600	130900	145800	151200	144600	143500
12	74090	78790	82940	90380	102700	114700	125800	130900	146400	150600	144400	143600
13	74190	78890	83100	90650	103200	115200	125900	130700	146700	150600	143900	143600
14	74370	78990	83300	90850	103600	115600	126000	131600	147000	150200	143800	143700
15	74520	79140	83470	91070	103700	116000	126300	132100	147300	150000	143500	144100
16	74670	79260	83610	91280	104200	116600	126600	132300	147500	150100	143300	144100
17	74800	79410	83890	91640	104500	117100	126800	132500	147700	149700	143000	144400
18	74980	79560	84170	91890	104800	117500	127000	132700	147900	149700	142800	145000
19	75130	79710	84370	92060	105200	117900	127300	133400	148100	149700	142600	145200
20	75260	79790	84500	92250	105700	118400	127500	133500	148200	149600	142300	145200
21	75430	79940	84650	92510	106100	118700	128200	133500	148500	149500	142100	145300
22	75600	80050	85260	92680	106500	119500	128500	133600	148800	149400	141900	145300
23	75820	80140	85730	92900	107100	119500	128800	133800	148800	149300	141600	145300
24	76000	80260	85970	93070	107500	119900	129000	134300	148800	149100	141500	145300
25	76140	80550	86280	93240	107900	120200	129300	134500	148800	149100	141100	145300
26	76250	80690	86530	93450	108300	120800	129500	134600	148800	149000	141000	145300
27	76360	80810	86790	93630	108900	121700	129700	134600	149100	149000	141000	145300
28	76490	80960	87040	93850	109300	121300	129900	136000	149100	148900	141000	145400
29	76600	81070	87340	94020	---	121600	130100	138200	149400	148800	141400	145400
30	76750	81180	87550	94190	---	121900	130300	139000	150200	148800	141300	145400
31	76830	---	87780	94460	---	122300	---	140900	---	148500	141700	---
MAX	76830	81180	87780	94460	109300	122300	130300	140900	150200	151500	148300	145400
MIN	59280	76910	81290	87970	94790	109700	122600	130700	141700	148500	141000	141800
(†)	1922.59	1923.76	1925.40	1926.97	1929.74	1931.88	1933.09	1934.61	1935.87	1935.65	1934.73	1935.23
(ϕ)	+17520	+4350	+6600	+6680	+14840	+13000	+8000	+10600	+9300	-1700	-6800	+3700

CAL YR 1986 MAX 87780 MIN 21820 (ϕ) +62910
WTR YR 1987 MAX 151500 MIN 59280 (ϕ) +86090

(†) Elevation, in feet, at end of month of Middle Concho and Spring Creek Pool.
(ϕ) Change in combined contents, in acre-feet.

08132000 LAKE NASWORTHY NEAR SAN ANGELO, TX

LOCATION.--Lat 31°23'19", long 100°28'41", Tom Green County, Hydrologic Unit 12090102, on left bank 250 ft upstream from Nasworthy Dam on South Concho River, 3.8 mi downstream from Twin Buttes Dam, 6.0 mi southwest of San Angelo, and 68.9 mi upstream from mouth.

DRAINAGE AREA.--3,975 mi², of which 3,868 mi² is above Twin Buttes Reservoir and 1,055 mi² probably is noncontributing.

PERIOD OF RECORD.--March 1930 to current year. Prior to October 1969, monthend contents only.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,840.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a 6,090-foot dam with a 5,590-foot earthen section that has an earthen spillway 300 ft long, a concrete spillway 475 ft long with a bank of fifteen 25.0- by 18.0-foot tainter gates, and a 25.0- by 3.0-foot collapsible floodgate. The dam was completed and storage began Mar. 28, 1930. Since July 1966, West Texas Utilities Co. has operated a steam generating powerplant on the lake. Since September 1962, the lake has been almost totally controlled by releases or pumpage from Twin Buttes Reservoir (station 08131200). Siltation surveys in December 1938 and May 1953 by the Soil Conservation Service show that 1,191 acre-ft of silt was deposited from March 1930 to December 1938 and an additional 1,023 acre-ft was deposited from December 1938 to May 1953, totaling 2,214 acre-ft. Water is used for part of San Angelo municipal supply and for irrigation east of San Angelo. The capacity curve is based on a survey by the Soil Conservation Service in 1953 and has been used since 1955. 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	43.5	-
Crest of spillway (300 ft)	39.1	27,810
Top of gates	33.2	13,990
Top of collapsible floodgate	32.2	12,390
Lowest outlet to canal (invert)	27.5	6,370
Crest of spillway (tainter gates sill)	15.3	435
Lowest gated outlet (invert)	-4.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 26,900 acre-ft Sept. 15, 1936 (gage height, 38.36 ft); minimum, 209 acre-ft Aug. 22, 1964 (gage height, 13.21 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 12,570 acre-ft May 30 at 2200 hours (gage height, 32.31 ft); minimum, 10,250 acre-ft May 5 (gage height, 30.84 ft).

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

30.8	10,190
32.4	12,710

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10330	10900	11030	11780	12230	11960	11970	10840	11960	10970	11090	11480
2	10300	10890	10950	11810	12230	11960	11930	10610	12040	11060	11060	11460
3	10460	10890	10970	11780	12250	11940	11910	10470	11810	11050	11030	11430
4	10430	11080	10930	11800	12260	11930	11880	10300	11450	11030	11010	11400
5	11090	11080	10970	11810	12390	11940	11880	10270	11490	10900	11030	11370
6	11220	11110	11060	11810	12250	11960	11880	10400	11530	10890	11050	11540
7	11220	11050	10980	11810	12310	11970	11880	10430	11570	10850	11050	11570
8	11220	11050	11030	11850	12340	11990	11860	10470	11640	10810	11050	11560
9	11220	11010	10980	11880	12370	11970	11830	10470	11720	11250	11010	11540
10	11220	11000	11010	11890	12410	12170	11770	10460	11800	11480	11050	11620
11	11240	11010	11060	11910	12410	12280	11720	10490	11830	11490	11090	11560
12	11210	10930	11050	11910	12440	12310	11670	10530	11880	11490	11240	11560
13	11190	10920	11050	11930	12230	12050	11540	10600	11890	11380	11330	11540
14	11170	11050	11080	11930	12260	12050	11460	11110	11910	11450	11380	11530
15	11160	10930	11090	11930	12250	12090	11430	11170	11930	11460	11410	11560
16	11140	10920	11110	11930	12250	12180	11380	11220	11910	11480	11460	11540
17	11130	10970	11170	12010	12260	12170	11350	11250	11890	11400	11490	11590
18	11110	10920	11220	12020	12260	12170	11300	11170	11880	11370	11480	11800
19	11090	11010	11250	12020	12280	12180	11270	11490	11860	11330	11400	11810
20	11080	10920	11250	12020	12310	12200	11220	11490	11830	11330	11300	11800
21	11090	10920	11270	12050	11810	12210	11300	11510	11810	11350	11250	11780
22	11080	10900	11540	12050	11810	12260	11270	11510	11780	11450	11240	11770
23	11080	10890	11620	12070	11850	12150	11270	11530	11700	11510	11220	11750
24	11060	10890	11670	12070	11860	12130	11220	11590	11590	11540	11220	11730
25	11060	11010	11690	12090	11860	12090	11190	11610	11410	11540	11170	11700
26	11050	10970	11700	12100	11880	12100	11160	11610	11210	11540	11170	11670
27	11050	10970	11700	12120	11960	12090	11110	11610	11000	11460	11250	11650
28	11030	10980	11720	12130	11970	12020	11050	11960	10760	11370	11270	11620
29	10970	11030	11750	12130	---	12020	10920	12230	10730	11220	11400	11610
30	10950	10970	11770	12150	---	12010	10840	12260	10920	11130	11430	11570
31	10930	---	11780	12170	---	11990	---	11780	---	11110	11490	---
MAX	11240	11110	11780	12170	12440	12310	11970	12260	12040	11540	11490	11810
MIN	10300	10890	10930	11780	11810	11930	10840	10270	10730	10810	11010	11370
(†)	31.29	31.31	31.82	32.06	31.94	31.95	31.23	31.82	31.28	31.40	31.64	31.69
(ϕ)	+560	+40	+810	+390	-200	+20	-1150	+940	-860	+190	+380	+80

CAL YR 1986 MAX 11780 MIN 9660 (ϕ) +1840
WTR YR 1987 MAX 12440 MIN 10270 (ϕ) +1200

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

08134000 NORTH CONCHO RIVER NEAR CARLSBAD, TX

LOCATION.--Lat 31°35'33", long 100°38'12", Tom Green County, Hydrologic Unit 12090104, near left bank at downstream side of bridge on county road, 0.6 mi southeast of Carlsbad, 1.5 mi upstream from Mule Creek, 2.5 mi upstream from Grape Creek, 16.2 mi upstream from O. C. Fisher Dam, and 21.3 mi upstream from mouth.

DRAINAGE AREA.--1,266 mi², of which 75.1 mi² probably is noncontributing.

PERIOD OF RECORD.--March 1924 to current year.
Water-quality records: Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 1512: 1924(M), 1925, 1926(M), 1928, 1930, 1932(M), 1935, 1937-38(M), 1941(M), 1945(M), 1947-49(M). WRD TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,968.02 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 4, 1925, and Sept. 27, 1936, to Feb. 7, 1937, nonrecording gage; Feb. 4, 1925, to Sept. 26, 1936, and Feb. 8, 1937, to Nov. 6, 1955, water-stage recorder, all at site 2.5 mi upstream at datum 32.76 ft higher.

REMARKS.--No estimated daily discharges. Records good. There are several diversions (by pumping) upstream from station.

AVERAGE DISCHARGE.--63 years, 33.1 ft³/s (23,980 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,600 ft³/s Sept. 26, 1936 (gage height, 16.0 ft, at former site, 29.1 ft at present site, from floodmark), by slope-area measurement of peak flow at former site; no flow at times. Maximum stage since 1853, that of Sept. 26, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Stage unknown for major flood in June 1853.

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)
Oct. 6	1730	*10,100	*18.48	No other peak greater than base discharge.			

Minimum daily discharge, 1.2 ft³/s Aug. 26.

DISCHARGE, IN 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	3.5	16	12	12	17	23	23	17	18	10	3.1	4.9
2	3.5	15	12	12	15	22	23	16	16	9.9	2.9	4.9
3	4.7	15	12	12	14	22	23	15	16	9.0	2.7	4.7
4	4.7	20	12	12	14	22	23	14	17	8.3	2.4	4.5
5	1000	15	12	12	18	22	23	13	17	7.4	2.4	3.9
6	7380	14	12	12	162	23	23	13	15	7.0	2.2	4.7
7	2060	13	12	12	35	23	23	12	14	6.8	2.2	5.5
8	320	13	12	12	25	24	23	12	14	6.5	2.0	4.7
9	120	13	13	12	24	24	23	12	15	6.5	2.0	4.2
10	78	13	13	12	24	27	23	12	15	6.2	2.0	4.2
11	67	12	14	12	24	39	23	12	15	5.7	1.8	4.2
12	54	12	14	13	24	26	22	12	21	5.7	2.4	3.9
13	47	12	14	13	24	24	21	12	32	5.7	2.7	3.9
14	43	12	14	14	24	25	19	12	13	5.5	2.9	3.7
15	37	13	14	14	24	25	19	12	13	5.7	3.3	3.9
16	33	15	14	13	24	25	20	12	13	6.0	3.1	3.9
17	31	15	15	14	24	24	21	12	13	6.0	2.4	3.7
18	29	15	17	14	24	24	21	12	12	5.5	2.0	8.6
19	27	15	16	14	24	24	20	16	11	5.1	1.8	6.1
20	26	15	15	14	24	24	19	15	10	4.7	1.6	4.7
21	25	15	16	13	24	30	19	12	11	4.7	1.6	4.5
22	24	15	16	13	24	35	19	10	12	4.7	1.5	4.5
23	23	14	17	13	24	28	17	12	12	4.5	1.5	4.2
24	22	13	16	13	24	26	17	15	11	4.2	1.5	3.9
25	21	14	16	13	21	24	17	15	10	3.9	1.5	3.9
26	20	13	14	13	21	24	16	16	9.9	3.7	1.2	3.7
27	19	12	13	13	23	24	16	15	9.6	3.7	3.7	3.5
28	19	12	13	14	25	23	15	15	9.6	3.5	4.5	3.5
29	17	12	13	14	---	22	15	197	9.9	3.5	3.7	3.5
30	17	12	12	14	---	22	15	21	13	3.3	3.5	3.5
31	16	---	12	14	---	23	---	19	---	3.3	4.7	---
TOTAL	11591.4	415	427	402	774	773	601	610	418.0	176.2	76.8	131.5
MEAN	374	13.8	13.8	13.0	27.6	24.9	20.0	19.7	13.9	5.68	2.48	4.38
MAX	7380	20	17	14	162	39	23	197	32	10	4.7	8.6
MIN	3.5	12	12	12	14	22	15	10	9.6	3.3	1.2	3.5
AC-FT	22990	823	847	797	1540	1530	1190	1210	829	349	152	261

CAL YR 1986	TOTAL	25020.0	MEAN	68.5	MAX	7380	MIN	.00	AC-FT 49630
WTR YR 1987	TOTAL	16395.8	MEAN	44.9	MAX	7380	MIN	1.2	AC-FT 32520

08134500 O. C. FISHER LAKE AT SAN ANGELO, TX

LOCATION.--Lat 31°29'04", long 100°28'53", Tom Green County, Hydrologic Unit 12090104, in intake structure of O. C. Fisher Dam on North Concho River, 3.1 mi northwest of San Angelo, and 6.6 mi upstream from mouth.

DRAINAGE AREA.--1,488 mi², of which 105 mi² probably is noncontributing.

PERIOD OF RECORD.--February 1952 to current year. Published as San Angelo Reservoir prior to October 1970, and as San Angelo Lake, October 1970 to September 1974.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 12, 1953, non-recording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 40,885 ft long, including spillway. Closure was completed Mar. 7, 1951, and the dam was completed May 3, 1951. Deliberate impoundment began Feb. 1, 1952. The lake is operated for flood control and recreation with part as municipal supply for the city of San Angelo. The spillway is an uncontrolled off-channel concrete gravity dam with ogee weir section 1,150 ft wide located to the right and upstream from the right end of dam. The spillway is designed to discharge 356,000 ft³/s at maximum design flood level. The control outlet works consist of six gate-controlled outlets, 7.5 by 14.5 ft, opening into two 18.0-foot-diameter concrete conduits, and two 2.5-foot gate-controlled outlets for water-supply outlets. Since February 1973, the capacity is based on a survey made in 1962. Prior to 1973, the capacity was based on a survey made in 1944. 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	1,964.0	-
Design flood	1,958.0	690,000
Crest of spillway	1,938.5	392,700
Top of conservation pool	1,908.0	115,700
Lowest gated outlet (invert)	1,840.0	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, 174,100 acre-ft Oct. 14, 1957 (elevation, 1,916.47 ft); minimum since first appreciable storage, lake dry July 16, 1970, to Apr. 15, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 72,700 acre-ft June 18 at 1600 hours (elevation, 1,898.30 ft); minimum, 43,140 acre-ft Oct. 2 at 2400 hours (elevation, 1,888.73 ft).

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

1,888.0	41,220	1,894.0	58,410	1,898.0	71,630
1,890.0	46,620	1,896.0	64,790	1,899.0	75,250
1,892.0	52,370	1,897.0	68,140		

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43200	67700	66680	66750	66180	68180	69250	69070	71420	72160	69980	67630
2	43140	67660	66620	66680	66150	68210	69180	69040	71450	72130	69910	67560
3	43410	67800	66550	66620	66150	68210	69180	69000	71600	72090	69800	67460
4	43390	68180	66520	66550	66150	68250	69110	68940	71670	71910	69770	67390
5	46620	68040	66480	66520	66850	68250	69140	68900	71700	71840	69700	67260
6	61460	67970	66520	66450	67190	68280	69140	68870	71700	71810	69630	67160
7	66720	67900	66480	66450	67220	68280	69140	68800	71700	71600	69450	68070
8	67500	67870	66520	66450	67260	68320	69140	68730	71880	71490	69350	68070
9	67770	67840	66520	66480	67290	68350	69140	68690	72020	71380	69250	68040
10	68070	67800	66520	66480	67320	68620	69140	68660	72130	71280	69180	68040
11	68280	67630	66450	66450	67360	68800	69140	68590	72130	71240	69070	67900
12	68320	67560	66420	66450	67430	68830	69140	68520	72160	71170	69040	67870
13	68320	67390	66350	66450	67460	68870	69070	68490	72200	71140	69180	67770
14	68320	67390	66350	66420	67560	68940	69070	68490	72200	71100	69070	67730
15	68250	67320	66320	66420	67560	68940	68830	68590	72200	71030	68970	67660
16	68250	67360	66280	66380	67530	69110	68830	68620	72160	70990	68830	67560
17	68210	67320	66420	66450	67530	69110	68800	68620	72130	70960	68730	67630
18	68140	67260	66520	66420	67530	69070	68760	68560	72060	70920	68590	67840
19	68140	67220	66480	66350	67530	69110	68730	68760	72020	70850	68450	67800
20	68140	67190	66480	66350	67600	69140	68940	68830	71950	70780	68320	67700
21	68140	67120	66520	66350	67630	69180	69110	68800	71910	70710	68180	67600
22	68140	67090	66820	66280	67660	69350	69110	68800	71880	70710	68040	67530
23	68180	66950	66850	66250	67700	69280	69110	68760	71840	70680	67900	67500
24	68140	66920	66890	66210	67800	69250	69110	68870	71810	70570	67770	67390
25	68140	66950	66890	66180	67840	69250	69070	68830	71740	70500	67600	67290
26	68070	66950	66890	66150	67900	69280	69070	68800	71630	70470	67530	67260
27	68040	66890	66850	66150	68180	69320	69040	68800	71560	70400	67870	67160
28	67970	66850	66850	66150	68180	69320	69040	69040	71450	70330	67770	67120
29	67870	66820	66850	66110	---	69280	69000	70610	71630	70220	67730	67020
30	67800	66750	66850	66080	---	69250	68970	70960	72160	70150	67700	66990
31	67770	---	66780	66080	---	69210	---	71380	---	70080	67840	---
MAX	68320	68180	66890	66750	68180	69350	69250	71380	72200	72160	69980	68070
MIN	43140	66750	66280	66080	66150	68180	68730	68490	71420	70080	67530	66990
(†)	1896.89	1896.59	1896.60	1896.39	1897.01	1897.31	1897.24	1897.93	1898.15	1897.56	1896.91	1896.66
(ϕ)	+24470	-1020	+30	-700	+2100	+1030	-240	+2410	+780	-2080	-2240	-850

CAL YR 1986 MAX 68320 MIN 7510 ϕ +57950
WTR YR 1987 MAX 72200 MIN 43140 ϕ +23690

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

08135000 NORTH CONCHO RIVER AT SAN ANGELO, TX

LOCATION.--Lat 31°27'57", long 100°26'51", Tom Green County, Hydrologic Unit 12090104, near left bank at downstream side of pier of Sixth Street Bridge in San Angelo, 3.2 mi upstream from confluence with South Concho River, and 3.4 mi downstream from O. C. Fisher Dam.

DRAINAGE AREA.--1,525 mi², of which 75.1 mi² probably is noncontributing.

PERIOD OF RECORD.--October 1915 to June 1928, February 1929 to September 1931, July 1947 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 568: 1916, 1918-22. WSP 1512: 1916(M), 1917-18, 1919-21(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,813.42 ft above National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1920, nonrecording gage, and Sept. 1, 1920, to Feb. 11, 1929, water-stage recorder at site 1.6 mi downstream at datum 11.02 ft lower. Feb. 12, 1929, to Sept. 30, 1931, water-stage recorder at site 1.6 mi downstream at datum 13.02 ft lower.

REMARKS.--No estimated daily discharges. Records good. Since October 1951, flow regulated by O. C. Fisher Lake (station 08134500), 3.4 mi upstream.

AVERAGE DISCHARGE.--17 years (water years 1917-27, 1930-31, 1948-51), prior to completion of O. C. Fisher Dam, 54.5 ft³/s (39,490 acre-ft/yr); 36 years (water years 1952-87) regulated, 7.92 ft³/s (5,750 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 47,000 ft³/s June 13, 1930 (gage height, 22.52 ft, site and and datum then in use); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 17, 1936, reached a stage of 34.6 ft, from floodmarks (discharge, 184,000 ft³/s), by slope-area measurement. The flood in 1936 was the greatest since flood in June 1853 (stage unknown).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,780 ft³/s May 30 at 2300 hours (gage height, 3.88 ft, from graph); minimum daily, 1.1 ft³/s Aug. 25.

DISCHARGE, IN 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	6.5	7.0	7.5	8.7	7.2	4.7	3.8	8.5	6.4	4.3	1.7	2.6
2	6.0	6.9	7.5	8.5	2.3	4.5	3.7	3.2	4.7	3.4	1.6	2.3
3	31	6.5	7.8	8.1	2.2	4.4	3.7	2.8	8.5	2.7	1.5	2.2
4	5.3	50	8.3	8.3	2.1	4.3	3.2	2.6	6.7	2.6	1.3	2.2
5	78	6.5	8.4	8.9	58	4.4	3.2	3.1	4.9	2.6	1.3	2.1
6	20	6.7	9.3	8.6	8.8	4.4	3.4	2.7	4.2	2.7	1.3	94
7	6.5	6.9	8.8	4.1	4.9	4.4	3.2	2.7	4.0	2.5	1.4	36
8	6.3	7.4	8.5	2.7	4.6	4.4	3.0	2.7	22	2.3	1.4	4.2
9	6.5	7.7	9.6	6.4	4.3	4.5	3.3	2.8	11	2.3	1.3	3.5
10	6.5	7.6	8.8	2.8	4.3	20	3.0	2.8	8.2	2.3	1.3	17
11	43	7.3	10	2.5	4.1	19	2.9	2.5	5.7	2.2	1.2	4.9
12	19	7.1	9.2	2.3	4.0	5.3	3.2	2.3	5.2	2.3	1.5	3.5
13	6.2	6.9	9.2	2.3	4.2	4.9	3.0	2.2	4.7	2.3	9.7	3.3
14	6.4	7.1	10	2.4	4.3	4.9	2.7	4.2	4.5	2.2	9.4	3.6
15	6.2	7.2	9.3	2.4	4.0	4.9	2.6	2.7	4.8	2.2	2.6	3.2
16	6.2	7.8	10	2.3	3.7	7.2	2.7	2.2	4.9	4.9	1.7	3.2
17	6.2	7.6	36	3.7	3.9	6.1	2.8	2.5	5.3	3.0	1.5	14
18	6.3	7.8	16	3.0	3.8	4.7	2.9	2.4	4.4	2.1	1.3	49
19	6.4	7.9	7.8	2.6	3.7	4.6	3.0	14	4.3	2.0	1.3	5.5
20	6.5	7.8	7.8	2.5	6.8	5.0	3.0	3.9	4.1	1.9	1.3	4.4
21	7.0	8.1	8.5	2.3	4.2	4.9	11	2.3	3.8	1.8	1.4	3.9
22	6.5	8.3	32	2.1	4.0	4.8	4.4	2.2	5.4	16	1.4	3.8
23	7.0	8.2	12	2.2	4.6	4.6	3.4	3.4	3.8	5.4	1.3	3.7
24	6.5	8.4	8.4	2.1	9.7	3.9	3.4	13	3.1	2.3	1.3	3.6
25	6.5	15	8.4	2.0	4.4	4.0	3.1	2.6	2.8	2.1	1.1	3.4
26	6.5	7.8	8.1	2.0	4.8	4.6	3.0	2.3	3.0	1.9	4.0	3.4
27	6.8	7.8	8.2	2.1	16	4.1	2.6	2.3	3.0	2.0	28	3.5
28	6.7	7.6	8.2	2.1	11	4.0	2.5	17	3.0	1.8	3.2	3.4
29	6.6	7.3	8.4	2.1	---	3.9	2.4	30	16	1.8	4.6	3.4
30	6.9	7.8	8.6	2.1	---	3.8	2.5	138	57	1.6	3.3	3.2
31	6.6	---	8.6	2.1	---	3.8	---	149	---	1.7	9.8	---
TOTAL	358.6	274.0	329.2	116.3	199.9	173.0	100.6	434.9	229.4	91.2	105.0	296.0
MEAN	11.6	9.13	10.6	3.75	7.14	5.58	3.35	14.0	7.65	2.94	3.39	9.87
MAX	78	50	36	8.9	58	20	11	149	57	16	28	94
MIN	5.3	6.5	7.5	2.0	2.1	3.8	2.4	2.2	2.8	1.6	1.1	2.1
AC-FT	711	543	653	231	397	343	200	863	455	181	208	587

CAL YR 1986 TOTAL 3122.0 MEAN 8.55 MAX 120 MIN .04 AC-FT 6190
WTR YR 1987 TOTAL 2708.1 MEAN 7.42 MAX 149 MIN 1.1 AC-FT 5370

08136000 CONCHO RIVER AT SAN ANGELO, TX

LOCATION.--Lat 31°27'16", long 100°24'37", Tom Green County, Hydrologic Unit 12090105, on left bank 0.4 mi downstream from confluence of North and South Concho Rivers, 1.8 mi southeast of Tom Green County Courthouse, and 61.9 mi upstream from mouth.

DRAINAGE AREA.--5,542 mi², of which 1,131 mi² probably is noncontributing.

PERIOD OF RECORD.--September 1915 to current year. Prior to October 1969, published as "near San Angelo".

REVISED RECORDS.--WSP 568: 1915-16, 1919-22. WSP 1148: 1916-22(M), 1924(M), 1925-26, 1929(M), 1930-32, 1935-37. WSP 1512: 1917-18. WSP 1712: 1936. WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,776.79 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 11, 1917, nonrecording gage at same site and datum. Aug. 11, 1917, to May 15, 1963, water-stage recorder on right bank at same datum.

REMARKS.--No estimated daily discharges. Records good. Many diversions upstream from station for irrigation, industrial, and municipal supply. Flow is regulated by Twin Buttes Reservoir (station 08131200) on the South Concho River and by O. C. Fisher Lake (station 08134500) on North Concho River. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--47 years (water years 1916-62) prior to construction of Twin Buttes Dam, 158 ft³/s (114,500 acre-ft/yr); 25 years (water years 1963-87) regulated, 22.2 ft³/s (16,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s Sept. 17, 1936 (gage height, 46.6 ft, from floodmarks), from rating curve extended above 105,000 ft³/s on basis of slope-area measurements of 167,000 and 230,000 ft³/s; no flow at times in 1921, 1952-53, 1965, and 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1853, 47.5 ft Aug. 6, 1906 (discharge, about 246,000 ft³/s), from information by local resident. Other large floods are known to have occurred in June 1853, August 1882, and April 1900.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,320 ft³/s May 31 at 0030 hours (gage height, 10.50 ft, from floodmark); minimum daily, 2.7 ft³/s Aug. 24.

DISCHARGE, IN 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	11	10	20	25	53	39	32	47	100	46	5.0	20
2	11	9.1	20	31	22	36	28	24	58	28	3.8	15
3	176	6.9	16	30	14	36	30	15	168	20	3.9	13
4	24	224	10	30	16	33	29	11	306	19	3.9	8.4
5	408	38	10	30	652	29	31	12	53	15	3.7	12
6	269	26	13	30	309	20	34	10	48	19	4.2	335
7	50	25	14	14	40	19	30	11	48	19	3.8	506
8	20	14	12	12	33	18	24	11	95	22	8.6	45
9	14	10	15	25	30	18	24	10	67	8.8	5.5	29
10	13	11	15	13	29	66	22	9.6	68	5.5	3.8	96
11	71	10	16	11	19	167	21	12	58	6.7	3.1	40
12	50	18	15	10	28	35	18	10	55	6.1	5.0	25
13	16	21	27	9.4	86	152	14	7.7	52	5.5	45	23
14	26	21	32	17	83	36	14	40	52	5.7	73	23
15	26	10	29	12	22	29	12	23	47	5.4	12	22
16	25	12	29	9.1	24	41	11	15	38	24	6.9	21
17	24	4.9	50	21	24	52	11	14	36	11	4.6	59
18	12	15	97	20	23	30	11	12	36	6.1	3.2	332
19	11	21	25	15	22	30	8.7	102	35	4.3	3.4	53
20	11	10	17	12	45	23	8.6	56	35	3.6	2.8	22
21	14	9.8	23	18	246	27	48	20	35	4.0	2.9	22
22	25	11	153	13	43	31	32	14	41	54	3.3	23
23	26	19	104	13	41	34	16	24	37	15	3.0	18
24	14	21	28	14	70	37	15	78	34	5.1	2.7	21
25	11	67	22	11	42	35	10	27	32	4.2	2.9	22
26	12	24	16	11	41	37	9.7	18	23	4.0	4.3	22
27	5.3	14	17	11	65	35	8.2	20	20	4.5	96	22
28	13	8.7	16	13	109	28	7.5	119	20	9.5	24	24
29	20	16	16	11	---	29	9.8	573	53	7.0	28	24
30	19	22	16	9.1	---	32	9.4	917	416	6.6	27	24
31	12	---	16	14	---	30	---	1810	---	4.2	73	---
TOTAL	1439.3	729.4	909	514.6	2231	1264	578.9	4072.3	2166	398.8	472.3	1921.4
MEAN	46.4	24.3	29.3	16.6	79.7	40.8	19.3	131	72.2	12.9	15.2	64.0
MAX	408	224	153	31	652	167	48	1810	416	54	96	506
MIN	5.3	4.9	10	9.1	14	18	7.5	7.7	20	3.6	2.7	8.4
AC-FT	2850	1450	1800	1020	4430	2510	1150	8080	4300	791	937	3810

CAL YR 1986 TOTAL 6606.3 MEAN 18.1 MAX 950 MIN .05 AC-FT 13100
WTR YR 1987 TOTAL 16697.0 MEAN 45.7 MAX 1810 MIN 2.7 AC-FT 33120

08136500 CONCHO RIVER AT PAINT ROCK, TX

LOCATION.--Lat 31°30'57", long 99°55'09", Concho County, Hydrologic Unit 12090105, near left bank at downstream end of pier of bridge on U.S. Highway 83, 0.5 mi north of Concho County Courthouse in Paint Rock, 2.7 mi downstream from Kickapoo Creek, and 20.0 mi upstream from mouth.

DRAINAGE AREA.--6,574 mi², of which 1,131 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1915 to current year. Prior to October 1970, published as "near Paint Rock".

REVISED RECORDS.--WSP 458: 1915-16. WSP 568: 1919-20. WSP 1712: 1922(M). WSP 1732: 1918(M), 1923(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder with masonry dam control. Datum of gage is 1,574.36 ft above National Geodetic Vertical Datum of 1929. See WSP 1922 for history of changes prior to Jan. 15, 1940.

REMARKS.--No estimated daily discharges. Records good except those below 10 ft³/s, which are poor. There are many diversions above station for irrigation and municipal supply. Regulation is the same as that for Concho River at San Angelo (station 08136000). Flow is affected at times by discharge from flood-detention pools of two floodwater-retarding structures with a combined detention capacity of 2,690 acre-ft. These structures control runoff from 16.5 mi² in the Willow Creek drainage basin.

AVERAGE DISCHARGE.--47 years (water years 1916-62) prior to construction of Twin Buttes Dam, 210 ft³/s (152,100 acre-ft/yr); 25 years (water years 1963-87) regulated, 145 ft³/s (42,890 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 301,000 ft³/s Sept. 17, 1936 (gage height, 43.4 ft, from flood-marks), from rating curve extended above 98,000 ft³/s on basis of slope-area measurements of 144,000 and 301,000 ft³/s; no flow at times.
Maximum stage since at least 1853, that of Sept. 17, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1882 reached a stage of about 39.9 ft, and flood in August 1906 reached a stage of 39.5 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,540 ft³/s May 31 at 1330 hours (gage height, 17.68 ft); minimum daily, 32 ft³/s Apr. 30, May 8, 9, 13.

DISCHARGE, IN 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	42	61	46	63	56	219	93	35	1880	1360	55	177
2	41	57	54	62	59	146	87	40	517	392	54	133
3	47	53	58	62	88	110	80	54	467	224	53	97
4	132	74	57	64	74	98	74	56	379	164	49	86
5	186	283	56	64	73	92	78	41	541	131	42	80
6	820	159	49	64	757	89	83	36	256	118	43	77
7	633	86	48	64	397	86	85	34	188	106	45	538
8	261	66	47	68	145	77	84	32	175	101	45	468
9	146	60	53	71	102	76	82	32	211	95	44	164
10	103	56	53	61	86	81	76	36	285	93	39	113
11	93	51	56	63	75	158	73	38	308	85	37	115
12	107	48	56	55	74	380	69	37	514	79	37	157
13	150	44	58	54	65	186	62	32	433	78	55	105
14	98	43	56	55	68	199	55	680	329	79	52	95
15	77	50	62	52	159	177	54	668	227	81	124	99
16	78	56	74	53	86	125	52	429	182	87	94	94
17	76	58	77	55	65	354	52	131	155	87	67	87
18	71	54	95	55	61	240	48	92	140	92	55	125
19	64	50	153	55	61	152	43	98	131	89	49	556
20	56	45	124	58	69	125	40	420	124	71	45	247
21	53	50	84	57	68	117	43	231	118	61	43	126
22	55	57	84	59	247	108	50	126	113	59	44	97
23	57	52	157	61	142	105	87	84	113	57	43	86
24	72	50	263	62	103	101	78	83	108	108	41	83
25	76	82	142	59	115	102	62	132	100	84	43	76
26	66	100	99	59	123	102	54	124	94	68	45	76
27	58	121	83	58	116	105	50	85	93	66	62	83
28	57	79	71	56	137	107	44	81	87	63	120	92
29	53	59	67	51	---	101	38	1670	83	57	159	89
30	51	52	66	48	---	93	32	2070	1660	58	107	82
31	53	---	64	52	---	94	---	4140	---	58	124	---
TOTAL	3932	2156	2512	1820	3671	4305	1908	11847	10011	4351	1915	4503
MEAN	127	71.9	81.0	58.7	131	139	63.6	382	334	140	61.8	150
MAX	820	283	263	71	757	380	93	4140	1880	1360	159	556
MIN	41	43	46	48	56	76	32	32	83	57	37	76
AC-FT	7800	4280	4980	3610	7280	8540	3780	23500	19860	8630	3800	8930

CAL YR 1986	TOTAL	20723	MEAN	56.8	MAX	1540	MIN	.02	AC-FT	41100
WTR YR 1987	TOTAL	52931	MEAN	145	MAX	4140	MIN	32	AC-FT	105000

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1946 to October 1949. Chemical and biochemical analyses: March 1964 to current year. Pesticide analyses: April 1968 to October 1981. Sediment analyses: February 1978 to September 1980.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1946 to October 1949, October 1967 to current year.
WATER TEMPERATURE: April 1946 to October 1949, October 1967 to current year.
SUSPENDED SEDIMENT DISCHARGE: February 1978 to September 1981.

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, 3,690 microsiemens June 28, Aug. 12, 1984; minimum daily, 268 microsiemens Sept. 9, 1980.
WATER TEMPERATURE: Maximum daily, 35.0°C on several days during summer months; minimum daily, 0.0°C on many days during winter months.
SEDIMENT CONCENTRATION: Maximum daily mean, 4,190 mg/L Sept. 9, 1980; minimum daily mean, 3 mg/L Feb. 2, 1979.
SEDIMENT LOAD: Maximum daily, 269,000 tons Sept. 9, 1980; minimum daily, 0.0 tons on several days during Sept. 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,620 microsiemens May 7; minimum daily, 580 microsiemens June 1.
WATER TEMPERATURE: Maximum daily, 28.0°C Aug. 12, 13; minimum daily 6.0°C Jan. 18.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT										
28...	1630	58	1810	8.20	19.0	11.0	126	5.3	510	360
JAN										
27...	1530	52	2450	8.10	10.5	18.5	176	5.5	660	480
FEB										
26...	1300	115	2320	7.80	11.0	11.3	109	4.2	640	420
APR										
16...	1300	52	2460	7.90	19.0	13.7	158	6.8	680	530
JUN										
01...	1030	1840	544	--	19.5	--	--	--	160	53
11...	1405	306	1650	8.20	26.0	11.8	154	5.2	500	300
AUG										
20...	0930	49	2480	7.80	29.5	10.5	146	3.2	700	610

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 WH WAT TOTAL 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										
28...	110	58	170	3	6.8	155	220	360	0.40	9.8
JAN										
27...	140	75	240	4	5.8	176	310	500	0.50	9.0
FEB										
26...	150	64	240	4	6.1	220	230	480	0.40	13
APR										
16...	140	81	250	4	5.8	158	290	530	0.50	6.7
JUN										
01...	47	11	40	1	2.5	110	39	79	0.30	11
11...	120	48	150	3	6.6	200	180	320	0.50	14
AUG										
20...	140	84	250	4	5.8	87	330	540	0.60	9.9

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT										
28...	1000	2.45	0.050	2.50	0.030	0.77	0.80	0.020	--	--
JAN										
27...	1400	5.78	0.020	5.80	0.050	0.45	0.50	0.090	2	200
FEB										
26...	1300	3.17	0.030	3.20	0.060	1.8	1.9	0.140	--	--
APR										
16...	1400	3.42	0.080	3.50	0.060	2.0	2.1	0.090	--	--
JUN										
01...	300	--	--	--	--	--	--	--	--	--
11...	960	4.20	0.100	4.30	0.060	1.8	1.9	0.150	8	200
AUG										
20...	1400	0.120	0.080	0.200	0.020	1.8	1.8	0.050	--	--

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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										
28...	--	--	--	--	--	--	--	--	--	--
JAN										
27...	<1	<10	1	<10	<5	<10	<0.1	3	<1	<10
FEB										
26...	--	--	--	--	--	--	--	--	--	--
APR										
16...	--	--	--	--	--	--	--	--	--	--
JUN										
01...	--	--	--	--	--	--	--	--	--	--
11...	<1	<10	3	18	<5	2	0.1	2	<1	250
AUG										
20...	--	--	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	3932	1260	710	7540	240	2550	120	1320	370
NOV.	1986	2156	1970	1130	6590	400	2330	220	1310	580
DEC.	1986	2512	2210	1290	8720	460	3140	270	1800	660
JAN.	1987	1820	2360	1370	6760	500	2440	290	1420	700
FEB.	1987	3671	1940	1120	11100	400	3920	220	2190	570
MAR.	1987	4305	1940	1120	13000	400	4610	220	2580	570
APR.	1987	1908	2410	1410	7250	510	2630	300	1530	720
MAY	1987	11847	977	547	17500	180	5880	93	2980	290
JUNE	1987	10011	1200	678	18300	230	6240	120	3250	350
JULY	1987	4351	1660	946	11100	330	3880	180	2120	490
AUG.	1987	1915	2480	1450	7520	530	2740	310	1610	740
SEPT	1987	4503	1780	1020	12400	360	4330	200	2390	520
TOTAL		52931	**	**	128000	**	44700	**	24500	**
WTD.AVG.		145	1560	894	**	310	**	170	**	460

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1280	2080	2530	2260	2460	2470	2290	2480	580	1360	2520	1200
2	1400	2030	2550	2210	2510	2280	2300	2520	706	1430	2510	2380
3	1570	2040	2500	2190	2500	2270	2370	2550	874	1120	2540	2310
4	1100	2070	2400	2230	2460	2230	2380	2610	850	1050	2540	2000
5	1490	1550	2480	2270	2280	2260	2470	2520	1060	1210	2500	2030
6	1350	1430	2470	2250	1600	2230	2450	2600	1040	1300	2530	2000
7	1030	2200	2480	2280	1750	2260	2410	2620	1310	1370	2500	2300
8	985	2300	2490	2390	1910	2120	2390	2570	1400	1520	2450	2100
9	953	2200	2540	2220	2030	2290	2410	2580	1570	1550	2480	1800
10	931	2170	2450	2380	2260	2240	2450	2610	1720	1530	2520	1250
11	906	1940	2540	2360	2080	2150	2410	2570	1650	1920	2510	1230
12	1010	1950	2350	2320	1860	2080	2380	2550	1450	1870	2500	1350
13	1100	1970	2140	2330	1820	1950	2400	2610	1600	2110	2480	1470
14	1220	1880	2390	2360	1970	1860	2360	1350	1580	2200	2490	1520
15	1170	1890	2550	2370	1610	1790	2370	908	1560	2210	2430	1560
16	1290	1950	2530	2360	1790	1670	2420	1450	1540	2110	2350	1740
17	1390	2010	2540	2370	2030	1540	2400	1680	1680	2150	2480	1950
18	1040	1800	2270	2360	2160	1460	2440	1700	1760	2090	2600	1680
19	1270	2060	2190	2380	2090	1450	2430	1710	1960	2170	2490	1480
20	1560	2160	2150	2390	2250	1490	2420	810	2060	2240	2420	1590
21	1600	2300	2240	2400	2270	1470	2430	830	1770	2300	2450	1490
22	1780	2240	2350	2430	1610	1480	2440	1130	1900	2370	2540	1510
23	1770	2180	2080	2410	2060	1670	2420	1590	2000	2460	2550	1560
24	1470	2260	1600	2480	2350	1820	2470	1640	2140	1960	2570	1570
25	1580	2050	1840	2420	2300	2060	2460	770	2080	2290	2480	1950
26	1660	2020	2200	2480	2260	2210	2450	1660	2100	2310	2500	1770
27	1470	2000	2190	2460	2200	2230	2440	2010	2220	2400	2510	1760
28	1680	1900	2070	2470	2240	2100	2460	2170	2010	2530	2360	1850
29	1860	2320	2170	2460	---	2190	2450	1030	2170	2510	2460	1820
30	1900	2500	2220	2470	---	2230	2460	846	1050	2500	2590	2100
31	1880	---	2240	2480	---	2200	---	610	---	2520	2480	---
MEAN	1380	2050	2310	2360	2100	1990	2410	1850	1580	1960	2490	1740

08136500 CONCHO RIVER AT PAINT ROCK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	20.0	13.0	14.0	11.0	12.0	16.0	21.0	21.0	24.0	27.0	23.0
2	27.0	19.0	12.0	13.0	12.0	12.0	16.0	20.0	22.0	23.0	27.0	23.0
3	26.0	20.0	12.0	12.0	13.0	13.0	15.0	22.0	21.0	24.0	26.0	23.0
4	25.0	20.0	11.0	---	12.0	12.0	15.0	22.0	21.0	25.0	27.0	24.0
5	---	19.0	12.0	12.0	13.0	12.0	16.0	23.0	21.0	24.0	26.0	23.0
6	20.0	20.0	13.0	11.0	13.0	12.0	16.0	23.0	22.0	25.0	26.0	22.0
7	22.0	19.0	---	13.0	14.0	13.0	15.0	23.0	21.0	24.0	26.0	22.0
8	22.0	19.0	15.0	12.0	---	13.0	16.0	22.0	21.0	---	27.0	23.0
9	21.0	18.0	13.0	13.0	14.0	11.0	16.0	22.0	21.0	25.0	---	22.0
10	22.0	18.0	10.0	13.0	13.0	11.0	17.0	22.0	21.0	25.0	27.0	23.0
11	22.0	17.0	9.0	11.0	14.0	13.0	16.0	22.0	20.0	25.0	27.0	24.0
12	---	15.0	13.0	12.0	14.0	13.0	---	22.0	22.0	26.0	28.0	24.0
13	17.0	12.0	12.0	12.0	14.0	13.0	13.0	23.0	21.0	25.0	28.0	27.0
14	18.0	13.0	---	14.0	13.0	13.0	15.0	22.0	---	26.0	27.0	26.0
15	18.0	14.0	13.0	14.0	---	---	15.0	20.0	22.0	25.0	27.0	26.0
16	17.0	---	12.0	12.0	14.0	14.0	16.0	22.0	23.0	26.0	---	25.0
17	20.0	15.0	14.0	10.0	13.0	15.0	16.0	---	23.0	26.0	---	23.0
18	18.0	14.0	15.0	6.0	13.0	15.0	15.0	20.0	23.0	26.0	26.0	23.0
19	---	14.0	13.0	8.0	14.0	14.0	---	23.0	24.0	---	26.0	22.0
20	18.0	13.0	13.0	8.0	12.0	15.0	15.0	21.0	24.0	25.0	26.0	23.0
21	20.0	14.0	---	9.0	12.0	16.0	15.0	23.0	25.0	25.0	25.0	24.0
22	20.0	14.0	12.0	10.0	11.0	15.0	16.0	22.0	24.0	26.0	26.0	24.0
23	19.0	---	13.0	11.0	12.0	15.0	15.0	22.0	25.0	26.0	---	23.0
24	19.0	13.0	12.0	11.0	13.0	16.0	16.0	23.0	25.0	26.0	25.0	23.0
25	19.0	14.0	---	11.0	12.0	15.0	18.0	22.0	24.0	26.0	26.0	23.0
26	19.0	15.0	13.0	10.0	13.0	16.0	---	23.0	25.0	27.0	25.0	24.0
27	20.0	13.0	14.0	10.0	12.0	15.0	20.0	22.0	24.0	26.0	24.0	23.0
28	19.0	14.0	---	11.0	13.0	15.0	20.0	22.0	24.0	26.0	24.0	23.0
29	20.0	13.0	14.0	11.0	---	---	19.0	22.0	25.0	26.0	24.0	23.0
30	20.0	14.0	13.0	12.0	---	14.0	20.0	21.0	23.0	26.0	---	23.0
31	20.0	---	15.0	12.0	---	17.0	---	22.0	---	27.0	23.0	---
MEAN	20.5	16.0	12.5	11.5	13.0	14.0	16.0	22.0	22.5	25.5	26.0	23.5

08136700 COLORADO RIVER NEAR STACY, TX

LOCATION.--Lat 31°29'37", long 99°34'25", Coleman County, Hydrologic Unit 12090106, on left bank at downstream side of bridge on Farm Road 503, 1.2 mi upstream from Bois d'Arc Creek, 1.8 mi northeast of Stacy, 24 mi downstream from Concho River, and at mile 604.8.

DRAINAGE AREA.--24,193 mi², approximately, of which 11,391 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1968 to current year. Prior to October 1970, published as "at Stacy".

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,394.66 ft above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bridge plans).

REMARKS.--No estimated daily discharges. Records good. There are many diversions above station for irrigation, municipal, and oilfield operation uses. Sewage effluent is returned to the river from numerous sewage plants above station. Flow is affected by upstream reservoirs (see stations 08126380 and 08136000) and at times by discharge from the flood-detention pools of 42 floodwater-retarding structures with a combined detention capacity of 56,730 acre-ft. These structures control runoff from 277 mi².

AVERAGE DISCHARGE.--19 years (water years 1969-87), 228 ft³/s (165,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft³/s Sept. 10, 1980 (gage height, 28.00 ft); no flow at times in 1974, 1980, and 1983-86.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, 356,000 ft³/s Sept. 18, 1936 (gage height, 64.59 ft), by slope-area measurement of peak flow. The flood of Sept. 18, 1936, was 4 ft higher than the 1906 flood and 7 to 8 ft higher than the 1882 flood, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,700 ft³/s May 15 at 1800 hours (gage height, 15.50 ft); minimum, 110 ft³/s, May 11-12 (gage height, 4.87 ft).

DISCHARGE, IN 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	629	692	200	298	166	1410	328	149	7510	3520	638	1520
2	624	690	186	283	166	1120	310	140	3270	1430	637	971
3	646	685	176	271	177	843	288	145	2240	855	626	727
4	1640	770	174	267	221	714	275	138	1960	688	630	763
5	1410	1590	174	258	232	637	270	145	1910	589	634	747
6	5230	1210	174	256	246	591	258	148	1730	533	627	731
7	7110	954	174	251	1070	553	256	132	1370	494	614	775
8	3550	825	172	244	940	523	254	127	1210	468	614	1320
9	2400	766	168	263	699	489	253	121	1190	448	614	1070
10	1880	718	162	267	603	467	248	114	1820	433	616	852
11	1640	688	169	253	549	642	237	113	2320	419	627	781
12	1820	682	179	234	507	1160	230	112	1900	404	614	599
13	1500	663	179	227	481	999	217	118	1810	404	611	389
14	1290	558	179	214	452	741	205	856	1650	385	763	262
15	1140	326	177	208	424	668	195	6580	1190	383	977	229
16	1050	241	176	205	471	635	188	3510	1010	383	942	228
17	987	213	180	203	427	1410	181	1080	888	390	726	196
18	939	202	217	213	382	2100	175	656	788	389	668	267
19	895	193	319	227	348	1010	171	492	713	379	650	696
20	862	180	558	224	352	761	163	1320	659	382	642	840
21	834	168	481	221	365	654	163	1220	619	359	635	472
22	823	158	416	220	376	652	174	715	583	330	633	300
23	823	155	413	217	501	546	217	518	562	317	626	228
24	820	157	538	210	487	519	214	541	543	371	625	193
25	782	191	631	205	447	473	239	1120	528	654	622	179
26	762	246	503	202	504	445	209	1050	505	670	623	168
27	769	298	422	195	635	418	181	890	482	657	669	171
28	746	298	377	187	1000	407	162	765	471	656	726	194
29	729	259	348	182	---	389	153	5550	464	641	696	180
30	702	224	327	178	---	367	145	8180	511	641	755	173
31	697	---	313	170	---	349	---	7880	---	636	776	---
TOTAL	45729	15000	8862	7053	13228	22692	6559	44625	42406	19308	20856	16221
MEAN	1475	500	286	228	472	732	219	1440	1414	623	673	541
MAX	7110	1590	631	298	1070	2100	328	8180	7510	3520	977	1520
MIN	624	155	162	170	166	349	145	112	464	317	611	168
AC-FT	90700	29750	17580	13990	26240	45010	13010	88510	84110	38300	41370	32170

CAL YR 1986 TOTAL 148135 MEAN 406 MAX 9340 MIN .00 AC-FT 293800
WTR YR 1987 TOTAL 262539 MEAN 719 MAX 8180 MIN 112 AC-FT 520700

08136700 COLORADO RIVER NEAR STACY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1961 to current year. Chemical and biochemical analyses: October 1974 to October 1977. Pesticide analyses: April 1975 to August 1977. Sediment analyses: October 1974 to October 1977.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to current year.
WATER TEMPERATURE: April 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, 5,440 microsiemens June 29, 1987; minimum daily, 165 microsiemens June 9, 1986.
WATER TEMPERATURE: Maximum daily, 35.0°C July 1, 1980; minimum daily, 0.0°C Feb. 9, 10, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,440 microsiemens June 29; minimum daily, 557 microsiemens May 30.
WATER TEMPERATURE: Maximum daily, 32.0°C June 23, 24, 25; minimum daily 5.0°C Jan. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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									
08...	1435	3340	1060	20.0	280	160	64	30	96
DEC									
01...	1050	198	2020	11.0	650	460	150	68	200
JAN									
26...	1200	206	1990	8.0	600	400	140	61	180
MAR									
23...	1135	542	1130	17.0	370	200	91	34	90
MAY									
26...	1125	1040	1140	24.5	330	160	78	33	95
JUL									
13...	1130	419	3970	27.5	750	580	120	110	560

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT								
08...	3	8.0	120	160	160	0.20	7.9	600
DEC								
01...	4	6.5	195	350	360	0.50	9.1	1300
JAN								
26...	3	5.1	202	340	340	0.50	4.8	1200
MAR								
23...	2	4.8	171	150	180	0.40	6.2	660
MAY								
26...	2	4.8	166	150	180	0.40	8.1	650
JUL								
13...	9	3.8	171	720	810	0.60	7.3	2400

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	45729	1610	959	118000	300	37200	260	32300	490
NOV.	1986	15000	2860	1780	72000	590	24000	530	21600	920
DEC.	1986	8862	1970	1170	28100	370	8870	320	7720	600
JAN.	1987	7053	1780	1050	20000	330	6240	280	5380	540
FEB.	1987	13228	1620	955	34100	300	10600	250	9090	490
MAR.	1987	22692	1270	734	45000	220	13600	190	11500	370
APR.	1987	6559	1880	1120	19800	350	6220	300	5390	570
MAY	1987	44625	837	477	57400	140	17000	120	14200	240
JUNE	1987	42406	1800	1100	126000	360	41400	320	36900	570
JULY	1987	19308	3350	2140	112000	740	38500	680	35400	1100
AUG.	1987	20856	3660	2350	132000	810	45700	750	42000	1200
SEPT	1987	16221	2670	1650	72400	550	24000	490	21500	850
TOTAL		262539	**	**	838000	**	273000	**	243000	**
WTD.AVG.		719	1930	1180	**	390	**	340	**	610

08136700 COLORADO RIVER NEAR STACY, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4210	2700	2000	1550	1990	1140	1610	2070	668	2400	4120	2750
2	4160	2960	2120	1560	1950	1310	1630	2080	914	1830	4080	2630
3	4100	3190	2150	1570	1980	1460	1650	1940	1210	1700	4030	2250
4	2330	3390	2190	1600	2000	1330	1690	1980	1450	2030	4000	2520
5	1600	2600	2150	1620	2010	1300	1720	2040	1550	2360	3950	3120
6	1210	2340	2140	1640	1980	1230	1740	2060	1570	2670	3910	3550
7	1000	2260	2150	1600	2070	1260	1760	2100	1660	3180	3860	3910
8	1020	2830	2180	1630	2100	1250	1740	2150	1850	3560	3870	3480
9	1270	3090	2160	1650	2120	1270	1770	2180	1970	3720	3920	2870
10	1440	3210	2130	1700	1800	1300	1830	2190	1710	3800	3870	2880
11	1620	3360	2090	1710	1420	1290	1810	2180	1430	3850	3830	3150
12	1140	3410	2120	1720	1280	1240	1870	2170	1580	3920	3840	3220
13	1330	3440	2070	1730	1250	1370	1900	2190	1700	3950	3790	3130
14	1420	3470	2080	1740	1220	1430	1920	1650	1560	4070	3610	3010
15	1610	3360	2090	1770	1290	1460	1920	720	1430	4190	3330	2590
16	1700	3300	2070	1780	1310	1470	1950	600	1630	4250	3200	2480
17	1750	3210	2110	1770	1330	1250	1970	790	1830	4320	3160	2360
18	1800	3130	2070	1800	1370	1070	2020	960	1950	4280	2880	2200
19	1860	3000	2060	1830	1380	1090	2040	1060	2090	4400	2830	1860
20	1910	2850	2110	1840	1400	1100	2050	1440	2570	4240	3600	1470
21	1960	2680	2190	1880	1430	1130	2000	900	3440	4170	3700	1750
22	2040	2590	2250	1910	1490	1160	2010	1070	4180	4220	3720	1790
23	2070	2530	2000	1940	1470	1210	2030	1200	4580	4240	3750	1800
24	2090	2490	1720	1950	1620	1240	2040	1160	4850	4290	3760	1830
25	2120	2310	1750	1960	1650	1350	2060	920	5040	4380	3760	1740
26	2140	2160	1790	1970	1650	1440	2090	1130	5180	4010	3760	1600
27	2120	2120	1800	2020	1640	1400	2140	1160	5260	4180	3750	1640
28	2170	2160	1740	2060	1290	1370	2130	1200	5350	4350	3690	1590
29	2160	2180	1690	2060	---	1380	2150	910	5440	4260	3640	1550
30	2210	2120	1650	2090	---	1560	2170	557	5300	4320	3500	1520
31	2460	---	1660	2020	---	1600	---	600	---	4220	3420	---
MEAN	2000	2810	2020	1800	1620	1310	1910	1460	2700	3720	3680	2410

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	20.0	10.0	9.0	---	---	---	26.0	22.0	27.0	30.0	24.0
2	25.0	16.0	10.0	---	14.0	---	15.0	27.0	22.0	29.0	---	25.0
3	26.0	18.0	11.0	9.0	15.0	14.0	16.0	---	22.0	30.0	30.0	27.0
4	25.0	18.0	10.0	---	16.0	15.0	---	26.0	22.0	---	30.0	26.0
5	18.0	17.0	10.0	10.0	14.0	15.0	---	27.0	22.0	---	31.0	27.0
6	19.0	---	12.0	10.0	11.0	16.0	15.0	26.0	24.0	30.0	30.0	---
7	18.0	19.0	---	10.0	11.0	17.0	14.0	26.0	---	30.0	31.0	---
8	20.0	19.0	12.0	10.0	---	---	16.0	24.0	24.0	28.0	30.0	27.0
9	22.0	---	12.0	11.0	12.0	16.0	16.0	25.0	25.0	29.0	---	28.0
10	22.0	17.0	9.0	9.0	12.0	14.0	20.0	---	25.0	29.0	31.0	27.0
11	22.0	---	7.0	---	14.0	13.0	19.0	28.0	25.0	28.0	30.0	27.0
12	---	14.0	7.0	9.0	15.0	13.0	---	28.0	26.0	---	30.0	26.0
13	---	10.0	9.0	8.0	15.0	14.0	21.0	29.0	27.0	27.0	29.0	---
14	18.0	11.0	9.0	10.0	15.0	16.0	19.0	27.0	---	27.0	30.0	28.0
15	---	12.0	---	10.0	---	---	20.0	22.0	29.0	29.0	29.0	26.0
16	19.0	---	10.0	10.0	---	20.0	21.0	22.0	30.0	28.0	---	28.0
17	20.0	15.0	12.0	6.0	12.0	17.0	23.0	---	30.0	27.0	---	28.0
18	20.0	16.0	10.0	---	12.0	15.0	25.0	28.0	30.0	28.0	30.0	25.0
19	---	16.0	11.0	---	10.0	16.0	---	24.0	30.0	---	31.0	25.0
20	20.0	15.0	11.0	5.0	8.0	17.0	26.0	25.0	29.0	---	30.0	---
21	19.0	15.0	---	6.0	8.0	18.0	21.0	25.0	---	29.0	30.0	26.0
22	20.0	16.0	9.0	6.0	---	---	20.0	---	30.0	29.0	30.0	24.0
23	20.0	---	8.0	---	11.0	15.0	23.0	27.0	32.0	29.0	---	24.0
24	20.0	---	9.0	7.0	10.0	16.0	24.0	---	32.0	29.0	29.0	25.0
25	20.0	10.0	---	---	10.0	16.0	25.0	---	32.0	29.0	29.0	25.0
26	---	10.0	10.0	10.0	11.0	14.0	---	25.0	31.0	---	29.0	25.0
27	19.0	---	10.0	12.0	14.0	---	26.0	24.0	---	---	27.0	---
28	19.0	10.0	---	11.0	12.0	15.0	21.0	25.0	28.0	29.0	25.0	24.0
29	20.0	10.0	10.0	13.0	---	15.0	26.0	23.0	27.0	29.0	25.0	25.0
30	20.0	---	10.0	12.0	---	11.0	24.0	20.0	27.0	29.0	---	24.0
31	19.0	---	10.0	12.0	---	12.0	---	---	---	30.0	25.0	---
MEAN	20.5	14.5	10.0	9.5	12.5	15.0	20.5	25.5	27.0	28.5	29.0	26.0

08138000 COLORADO RIVER AT WINCHELL, TX

LOCATION.--Lat 31°28'04", long 99°09'43", McCulloch-Brown County line, Hydrologic Unit 12090106, near left bank at downstream end of pier of bridge on U.S. Highway 377, 0.3 mi south of Winchell, 5.9 mi downstream from Home Creek, and at mile 560.7.

DRAINAGE AREA.--25,179 mi², approximately, of which 11,391 mi² probably is noncontributing.

PERIOD OF RECORD.--November 1923 to September 1934 (published as "near Milburn"), June 1939 to current year.
Water-quality records.--Chemical analyses: November 1967 to September 1985.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,264.86 ft above National Geodetic Vertical Datum of 1929. November 1923 to September 1934, nonrecording gage at site 4.2 mi downstream at datum 10.14 ft lower. Jan. 13, 1939, to Mar. 24, 1940, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are many diversions above station for irrigation, municipal supply, and oilfield operation. Flow is affected by reservoirs upstream (see stations 08126380 and 08136000), and at times by discharge from the flood-detention pools of 89 floodwater-retarding structures with a combined detention capacity of 105,100 acre-ft. These structures control runoff from mi² in the area above this station.

AVERAGE DISCHARGE.--39 years (water years 1925-34, 1940-68) prior to completion of Robert Lee Dam, 628 ft³/s (455,000 acre-ft/yr); 19 years (water years 1969-87) partially regulated, 283 ft³/s (205,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,100 ft³/s Oct. 15, 1930 (gage height, 51.8 ft, present site and datum); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Highest stages since 1882 were 62.2 ft Sept. 19, 1936, and 56.2 ft Aug. 8, 1906, at railway bridge 1,000 ft upstream and converted to present site and datum, from information by Gulf, Colorado, and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,500 ft³/s May 16 at 0730 hours (gage height, 19.41 ft); minimum, 108 ft³/s May 13-14 (gage height, 3.23 ft).

DISCHARGE, IN 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	686	752	234	355	e200	2090	380	157	e9980	1980	680	1100
2	648	743	215	336	e200	1850	349	185	e6600	2560	678	1290
3	659	738	200	316	e210	1310	329	166	e4630	1230	672	931
4	733	764	190	301	e250	1040	308	160	e2560	889	666	728
5	1870	1170	190	290	e275	879	295	147	2110	722	663	779
6	3350	1490	190	282	e300	777	298	143	2120	617	659	760
7	9300	1210	191	279	e550	705	286	155	1690	548	645	808
8	5630	989	191	271	e1350	647	281	135	1430	504	632	872
9	3210	889	187	281	e1000	598	278	128	1350	469	631	1330
10	2290	826	179	310	e760	553	276	124	1780	445	632	972
11	1920	784	178	314	681	860	269	114	e6750	420	635	825
12	2000	755	186	289	616	e1550	259	110	e3900	404	653	768
13	2020	725	190	273	564	e2430	243	108	e2410	390	650	520
14	1550	705	192	265	525	e1580	226	108	e1840	383	636	344
15	1350	526	196	249	484	e1340	217	2090	e1540	369	901	273
16	1190	310	196	243	451	e1260	212	8150	e1320	379	986	245
17	1110	238	196	239	508	e1230	199	2290	1180	375	972	226
18	1050	212	229	241	437	e1760	193	1150	1030	377	728	385
19	1000	201	288	248	385	e1580	186	806	896	372	686	636
20	954	192	465	260	376	e1290	225	2630	799	360	664	868
21	923	182	691	256	378	e1190	340	2790	731	361	648	768
22	902	173	627	255	382	e1150	243	1610	676	339	640	419
23	897	164	702	255	394	e1100	211	1070	631	321	635	284
24	894	158	704	251	610	828	235	1400	596	304	631	231
25	882	255	832	244	540	667	226	1320	569	422	627	200
26	863	279	798	238	630	574	241	1370	539	718	619	186
27	850	285	627	228	820	524	219	1170	505	711	744	176
28	824	312	519	218	2120	482	193	972	482	702	747	369
29	799	303	454	212	---	455	177	3480	471	703	735	219
30	780	270	410	206	---	432	163	10100	512	693	759	185
31	762	---	379	e200	---	405	---	8150	---	683	768	---
TOTAL	51896	16600	11026	8205	15996	33136	7557	52488	61627	19750	21622	17697
MEAN	1674	553	356	265	571	1069	252	1693	2054	637	697	590
MAX	9300	1490	832	355	2120	2430	380	10100	9980	2560	986	1330
MIN	648	158	178	200	200	405	163	108	471	304	619	176
AC-FT	102900	32930	21870	16270	31730	65730	14990	104100	122200	39170	42890	35100

CAL YR 1986 TOTAL 193011 MEAN 529 MAX 9300 MIN .00 AC-FT 382800
WTR YR 1987 TOTAL 317600 MEAN 870 MAX 10100 MIN 108 AC-FT 630000

e Estimated

08141000 HORDS CREEK LAKE NEAR VALERA, TX

LOCATION.--Lat 31°49'58", long 99°33'38", Coleman County, Hydrologic Unit 12090108, at outlet-works structure near right end of dam on Hords Creek, 5.6 mi north of Valera, and 8.8 mi west of Coleman.

DRAINAGE AREA.--48 mi², approximately.

PERIOD OF RECORD.--April 1948 to current year. Prior to October 1970, published as Hords Creek Reservoir.

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

REMARKS.--The lake is formed by a rolled earthfill dam 6,800 ft long, including spillway. Deliberate impoundment of water began Apr. 7, 1948, and the dam was completed in June 1948. The spillway is an excavated channel through natural ground, 500 ft wide, located about 600 ft from the right end of dam. The spillway consists of three concrete conduits; two controlled by 5.0- by 6.0-foot slide gates, and a third uncontrolled ogee spillway 4.0 ft wide and 19.5 ft high. The lake is operated for flood control and municipal water supply for the city of Coleman. The capacity table of August 1974 is based on a sedimentation survey made in 1948. Flow is affected at times by discharge from the flood-detention pool of one floodwater-retarding structure with a detention capacity of 1,370 acre-ft. This structure controls runoff from 6.82 mi² in the Jim Ned Creek drainage basin. 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	1,939.0	-
Design flood	1,933.6	-
Crest of spillway	1,920.0	24,730
Crest of spillway (top of conservation pool)	1,900.0	8,110
Lowest gated outlet (invert)	1,856.0	3

COOPERATION.--Records furnished by U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 12,790 acre-ft May 1, 1956 (elevation, 1,906.86 ft); minimum since first appreciable storage in June 1951, 1,550 acre-ft Sept. 2, 1984 (elevation, 1,878.01 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 7,220 acre-ft June 30 at 1600 hours (elevation, 1,898.15 ft); minimum, 2,890 acre-ft Oct. 1 at 2400 hours (elevation, 1,885.14 ft).

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

1,885.0	2,860	1,891.0	4,460	1,897.0	6,700
1,888.0	3,600	1,894.0	5,490	1,899.0	7,630

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2890	3300	3260	3380	3430	3690	4140	4110	6640	7250	6920	6770
2	2890	3300	3250	3380	3430	3720	4140	4110	6690	7250	6910	6760
3	2890	3320	3250	3380	3430	3740	4140	4110	6740	7240	6890	6750
4	2890	3310	3250	3380	3430	3760	4140	4100	6770	7220	6880	6740
5	3080	3300	3250	3380	3440	3770	4140	4100	6800	7210	6870	6730
6	3230	3300	3250	3380	3440	3780	4140	4090	6820	7200	6850	6730
7	3250	3300	3260	3380	3440	3800	4150	4080	6840	7180	6830	6730
8	3250	3300	3260	3380	3440	3810	4150	4080	6860	7170	6810	6720
9	3250	3290	3260	3400	3440	3820	4150	4080	6900	7150	6800	6710
10	3250	3290	3260	3400	3450	3850	4150	4070	7000	7130	6790	6700
11	3340	3280	3260	3400	3450	3920	4150	4070	7100	7120	6770	6690
12	3360	3280	3260	3400	3450	3940	4150	4060	7190	7110	6760	6680
13	3360	3280	3260	3400	3450	3960	4140	4060	7230	7120	6810	6670
14	3360	3270	3260	3400	3460	3980	4140	4170	7250	7110	6800	6660
15	3350	3270	3270	3400	3460	3990	4130	4640	7270	7100	6780	6660
16	3350	3270	3270	3400	3460	4030	4130	4660	7270	7120	6760	6660
17	3340	3270	3280	3410	3460	4050	4130	4680	7280	7120	6750	6650
18	3340	3270	3300	3410	3460	4070	4130	4680	7290	7110	6740	6710
19	3340	3260	3300	3410	3460	4080	4120	4960	7290	7100	6720	6710
20	3330	3260	3310	3410	3470	4090	4120	5140	7290	7080	6700	6710
21	3330	3260	3320	3410	3470	4100	4130	5170	7290	7070	6690	6690
22	3330	3260	3340	3410	3470	4110	4130	5200	7280	7060	6670	6690
23	3340	3260	3350	3410	3480	4120	4130	5210	7280	7050	6660	6660
24	3330	3260	3360	3410	3490	4120	4130	5260	7270	7040	6640	6660
25	3330	3280	3360	3410	3500	4120	4130	5290	7260	7020	6630	6640
26	3320	3280	3360	3410	3530	4140	4120	5290	7250	7010	6620	6640
27	3320	3280	3370	3410	3580	4140	4120	5300	7240	7000	6750	6630
28	3320	3280	3370	3410	3660	4140	4120	5400	7230	6980	6740	6620
29	3320	3270	3370	3410	---	4140	4110	6340	7220	6960	6740	6610
30	3320	3270	3370	3410	---	4140	4110	6430	7250	6950	6740	6600
31	3310	---	3380	3410	---	4140	---	6560	---	6940	6770	---
MAX	3360	3320	3380	3410	3660	4140	4150	6560	7290	7250	6920	6770
MIN	2890	3260	3250	3380	3430	3690	4110	4060	6640	6940	6620	6600
(†)	1886.90	1886.74	1887.16	1887.31	1888.25	1889.95	1889.84	1896.67	1898.22	1897.53	1897.16	1896.76
(ϕ)	+420	-40	+110	+30	+250	+480	-30	+2450	+690	-310	-170	-170

CAL YR 1986 MAX 3380 MIN 1960 (ϕ) +1180
WTR YR 1987 MAX 7290 MIN 2890 (ϕ) +3710

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

08141500 HORDS CREEK NEAR VALERA, TX

LOCATION.--Lat 31°50'03", long 99°32'26", Coleman County, Hydrologic Unit 12090108, on right bank 74 ft downstream and 50 ft south of bridge on Farm Road 503, 1.1 mi downstream from Hords Creek Dam, 5.7 mi north of Valera, 7.5 mi west of Coleman, and 27.4 mi upstream from mouth.

DRAINAGE AREA.--54.2 mi^2, approximately, of which 49.3 mi^2 is above Hords Creek Dam.

PERIOD OF RECORD.--April 1947 to current year.
Water-quality records.--Chemical and bichemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,826.72 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 1, 1979, at site 0.5 mi downstream at datum 6.84 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by Hords Creek Lake (station 08141000) 1.1 mi upstream.

AVERAGE DISCHARGE.--40 years (water years 1948-87), 1.45 ft^3/s (1,050 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,860 ft^3/s Apr. 30, 1956 (gage height, 14.73 ft), at site 0.5 mi downstream at datum 6.84 ft lower, from rating curve extended above 1,900 ft^3/s; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 23.0 ft July 3, 1932, from information by local residents (discharge not determined). Flood in July or September 1900 reached a stage 3.7 ft higher than that of July 1932, at site 12 mi downstream from station, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 525 ft^3/s May 29 at 0200 hours (gage height, 4.07 ft); no flow for many days.

DISCHARGE, IN 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	.18	.23	.86	.63	3.8	.56	.12	2.3	.53	.06	.00
2	.00	.22	9.0	.83	.61	2.8	.47	.13	1.6	.44	.05	.00
3	.00	.31	1.1	.73	.48	2.2	.43	.13	1.6	.39	.05	.00
4	.00	.90	.50	.63	.44	1.7	.40	.11	8.7	.35	.04	.00
5	.09	.48	.45	.59	.46	1.6	.37	.10	3.6	.29	.04	.00
6	4.9	.32	.41	.58	1.2	1.6	.37	.09	1.6	.25	.03	.00
7	1.4	.26	.41	.50	.75	1.4	.36	.08	1.3	.23	.03	.00
8	.62	.23	.41	.53	.66	1.2	.32	.08	1.5	.23	.02	.00
9	.45	.22	.59	1.2	.57	1.1	.29	.08	2.2	.23	.01	.00
10	.29	.21	.76	.79	.54	1.7	.28	.08	31	.20	.00	.01
11	.26	.18	.83	.61	.54	10	.26	.07	49	.18	.00	.01
12	.69	.16	.90	.55	.53	3.2	.23	.06	31	.17	.00	.01
13	.39	.15	.90	.54	.50	2.5	.23	.06	13	.22	.00	.02
14	.29	.15	.98	.54	.50	2.0	.23	.12	5.3	.22	.00	.02
15	.72	.15	.98	.54	.50	1.7	.21	.26	3.3	.19	.00	.02
16	.60	.15	.98	.51	.50	2.0	.19	.14	2.2	.27	.00	.03
17	.40	.15	1.1	.55	.45	3.7	.19	.11	1.8	.22	.00	.03
18	.27	.15	5.0	.64	.45	1.7	.17	.10	1.5	.18	.00	.10
19	.22	.15	2.4	.61	.45	1.5	.15	.28	1.2	.15	.00	.15
20	.20	.15	1.8	.80	.83	1.4	.15	.31	1.0	.15	.00	.10
21	.17	.13	2.9	.71	.92	1.3	.18	.17	.91	.14	.00	.10
22	.17	.13	4.0	.61	.71	1.2	.19	.13	.77	.13	.00	.10
23	.17	.13	3.5	.59	.61	1.1	.16	.15	.64	.12	.00	.09
24	.17	.13	2.6	.58	.96	.97	.13	.27	.56	.11	.00	.07
25	.17	.37	2.1	.53	.91	.90	.13	.19	.48	.09	.00	.06
26	.17	.78	1.7	.50	3.9	.90	.12	.16	.43	.08	.00	.06
27	.17	1.2	1.5	.49	5.7	.91	.13	.15	.38	.08	.02	.06
28	.17	.48	1.4	.43	13	.66	.13	.25	.39	.08	.00	.06
29	.15	.34	1.4	.40	---	.65	.13	85	.38	.07	.00	.06
30	.16	.28	1.2	.36	---	.60	.11	5.0	.71	.07	.00	.06
31	.17	---	.98	.33	---	.59	---	3.0	---	.06	.01	---
TOTAL	13.63	8.84	53.01	18.66	38.30	58.58	7.27	96.98	170.35	6.12	.36	1.22
MEAN	.44	.29	1.71	.60	1.37	1.89	.24	3.13	5.68	.20	.01	.04
MAX	4.9	1.2	9.0	1.2	13	10	.56	85	49	.53	.06	.15
MIN	.00	.13	.23	.33	.44	.59	.11	.06	.38	.06	.00	.00
AC-FT	27	18	105	37	76	116	14	192	338	12	.7	2.4

CAL YR 1986	TOTAL	185.97	MEAN	.51	MAX	108	MIN	.00	AC-FT	369
WTR YR 1987	TOTAL	473.32	MEAN	1.30	MAX	85	MIN	.00	AC-FT	939

08143600 PECAN BAYOU NEAR MULLIN, TX

LOCATION.--Lat 31°31'02", long 98°44'25", Mills County, Hydrologic Unit 12090107, on right bank 44 ft downstream from bridge on Farm Road 573, 0.6 mi downstream from Blanket Creek, 5.5 mi southwest of Mullin, and 13.6 mi upstream from mouth.

DRAINAGE AREA.--2,073 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,202.93 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow is affected by Lake Brownwood 47 mi upstream (see station 08143000). At end of year, flow from 152 mi² above this station and below Lake Brownwood was partly controlled by 41 floodwater-retarding structures with a combined detention capacity of 43,420 acre-ft below the flood-spillway crests.

AVERAGE DISCHARGE.--20 years, 122 ft³/s (88,390 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s Jan. 23, 1968 (gage height, 29.26 ft); no flow at times in 1974, 1978, 1980-81, and 1984-85.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,160 ft³/s May 31 at 0100 hours (gage height, 15.39 ft); minimum, 0.45 ft³/s, Aug. 11 (gage height, 0.55 ft).

DISCHARGE, IN 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	12	35	339	352	78	3530	198	18	3100	57	6.2	8.4
2	10	30	291	300	97	3250	62	18	2070	37	5.1	6.8
3	8.7	28	218	261	110	2340	50	23	1470	33	4.7	6.2
4	99	26	184	271	122	1720	47	64	1450	29	5.0	4.9
5	104	34	159	195	136	1310	47	64	908	25	4.7	4.5
6	455	35	143	172	152	1030	52	40	734	22	3.1	4.5
7	2590	38	132	158	203	855	58	30	610	19	1.9	7.1
8	2860	32	131	145	199	735	57	26	530	18	1.2	7.7
9	2040	30	136	138	216	642	54	24	502	16	.82	8.2
10	1690	36	132	211	213	584	53	21	1060	15	.58	9.4
11	1600	43	109	203	205	712	50	21	1470	16	.45	7.5
12	1720	41	105	182	195	806	46	21	1980	15	1.7	6.6
13	1620	45	109	167	189	718	40	20	1950	15	5.4	7.7
14	1080	33	96	156	181	644	35	20	2160	15	16	9.1
15	785	35	103	144	175	585	34	23	1700	15	15	10
16	608	33	118	140	242	550	33	889	1230	29	14	11
17	477	28	120	125	186	867	32	401	893	57	12	15
18	217	25	157	126	149	757	31	369	709	35	11	18
19	93	24	483	152	119	630	30	476	624	22	11	61
20	76	24	874	119	112	561	27	457	552	18	11	27
21	65	24	862	105	209	608	27	761	474	16	11	16
22	58	25	865	103	223	923	33	757	414	14	10	12
23	53	24	1060	115	266	570	37	637	255	13	7.9	11
24	55	24	1080	96	297	521	33	1750	169	12	6.2	9.5
25	63	115	956	98	404	435	30	1620	118	11	5.1	8.5
26	59	541	822	99	741	408	28	989	50	8.9	4.5	7.9
27	51	597	704	86	886	397	26	736	39	7.2	5.4	7.7
28	45	570	606	86	1670	392	26	780	35	7.2	16	7.7
29	39	485	527	86	---	388	25	2830	32	6.8	22	6.6
30	35	399	466	86	---	388	22	4340	42	8.3	14	5.3
31	34	---	403	83	---	385	---	4660	---	9.0	10	---
TOTAL	18701.7	3459	12490	4760	7975	28241	1323	22885	27330	621.4	242.95	332.8
MEAN	603	115	403	154	285	911	44.1	738	911	20.0	7.84	11.1
MAX	2860	597	1080	352	1670	3530	198	4660	3100	57	22	61
MIN	8.7	24	96	83	78	385	22	18	32	6.8	.45	4.5
AC-FT	37090	6860	24770	9440	15820	56020	2620	45390	54210	1230	482	660

CAL YR 1986 TOTAL 107337.77 MEAN 294 MAX 12600 MIN .70 AC-FT 212900
WTR YR 1987 TOTAL 128361.50 MEAN 352 MAX 4660 MIN .45 AC-FT 254600

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

WATER-QUALITY RECORDS

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

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,230 microsiemens May 14, 1978; minimum daily, 200 microsiemens July 24, 1984.
WATER TEMPERATURES: Maximum daily, 37.0°C July 18, 1979; minimum daily, 0.5°C Feb. 7, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,740 microsiemens Aug. 27, 28; minimum daily, 277 microsiemens Oct. 6.
WATER TEMPERATURE: Maximum daily, 32.0°C Aug. 18, 19; minimum daily, 5.0°C Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 15...	1525	797	358	19.0	--	--	--	--	--
DEC 02...	0830	312	387	10.0	130	33	43	6.2	21
JAN 27...	0815	87	581	7.0	180	49	57	9.6	38
MAR 24...	0940	544	577	14.0	190	47	59	11	38
MAY 26...	1525	900	579	23.5	190	52	57	11	40
JUL 14...	0855	15	1070	26.0	310	97	81	26	91

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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 15...	--	--	--	--	--	--	--	--
DEC 02...	0.8	5.0	100	20	41	0.20	6.2	200
JAN 27...	1	5.1	133	41	75	0.20	5.5	310
MAR 24...	1	5.0	146	39	71	0.20	6.3	320
MAY 26...	1	5.3	136	39	78	0.20	5.5	320
JUL 14...	2	2.8	212	96	160	0.30	7.8	590

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	18701.7	364	200	10100	50	2530	26	1310	100
NOV.	1986	3459	521	286	2670	78	727	37	342	140
DEC.	1986	12490	415	228	7690	58	1960	29	995	110
JAN.	1987	4760	498	274	3520	72	928	35	452	130
FEB.	1987	7975	516	283	6100	75	1620	36	784	140
MAR.	1987	28241	525	289	22000	77	5860	37	2830	140
APR.	1987	1323	939	517	1850	160	580	64	230	220
MAY	1987	22885	533	293	18100	79	4880	38	2320	140
JUNE	1987	27330	571	314	23100	85	6270	40	2970	150
JULY	1987	621.4	1140	630	1060	210	351	78	130	260
AUG.	1987	242.95	1390	766	502	270	179	93	61	290
SEPT	1987	332.8	1240	684	614	230	207	84	75	270
TOTAL		128361.85	**	**	97300	**	26100	**	12500	**
WTD.AVG.		352	511	281	**	75	**	36	**	140

08143600 PECAN BAYOU NEAR MULLIN, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	473	618	388	430	730	480	638	1320	595	732	1040	1550
2	488	646	386	429	624	470	650	1310	588	796	1000	1490
3	500	682	393	427	564	453	666	1280	603	876	1000	1420
4	435	700	398	438	545	476	674	1370	500	1000	1000	1370
5	359	730	412	431	598	470	679	1160	590	1030	1000	1350
6	277	773	423	448	546	475	681	1100	595	1080	1000	1330
7	368	877	440	504	550	519	707	1130	605	1120	1020	1280
8	361	837	447	500	545	524	741	1130	613	1170	1030	1310
9	363	844	470	508	515	550	811	1160	616	1160	1060	1320
10	360	867	468	517	480	560	900	1210	487	1090	1080	1320
11	357	898	476	560	464	545	947	1230	557	1120	1100	1310
12	348	926	475	493	518	540	1040	1260	535	1090	1140	1290
13	351	909	489	500	521	555	1100	1270	507	1070	1100	1290
14	350	780	518	498	540	565	1140	1350	563	1070	1050	1270
15	351	815	514	512	541	566	1190	1300	571	1090	1070	1250
16	354	866	513	514	547	584	1220	325	576	1160	1150	1260
17	358	890	516	516	560	568	1160	450	584	1280	1300	1270
18	364	885	508	515	529	571	1180	610	585	1410	1300	1260
19	378	910	482	532	543	570	1180	640	599	1500	1350	1040
20	398	846	404	540	560	590	1170	400	597	1520	1390	1320
21	425	839	385	520	575	588	1180	570	610	1500	1450	1260
22	480	826	386	538	609	573	1220	600	614	1500	1530	1250
23	585	808	394	552	528	577	1290	600	621	1380	1610	1210
24	590	800	400	554	536	582	1280	410	633	1460	1630	1190
25	553	728	407	540	520	590	1290	400	693	1440	1680	1200
26	634	560	410	559	488	613	1300	570	708	1400	1720	1240
27	673	425	408	575	481	655	1320	590	726	1360	1740	1240
28	686	372	409	568	471	644	1330	600	738	1280	1740	1220
29	673	369	409	580	---	628	1320	450	745	1220	1730	1180
30	644	387	418	587	---	627	1330	540	740	1110	1710	1160
31	614	---	452	600	---	620	---	592	---	1160	1640	---
MEAN	456	747	439	516	544	559	1040	869	610	1200	1300	1280

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

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

08144500 SAN SABA RIVER AT MENARD, TX

LOCATION.--Lat 30°55'08", long 99°47'07", Menard County, Hydrologic Unit 12090109, at downstream side of bridge on U.S. Highway 83 in Menard, 1.1 mi downstream from Las Moras Creek, 1.9 mi upstream from Volkmann Draw, and 116.3 mi upstream from mouth.

DRAINAGE AREA.--1,135 mi², of which 6.6 mi² probably is noncontributing.

PERIOD OF RECORD.--September 1915 to current year.

REVISED RECORDS.--WDR TX-81-3: Drainage area. WSP 1512: 1918-20, 1922-25, 1926(M), 1927-32, 1934(M), 1936, 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,863.05 ft above National Geodetic Vertical Datum of 1929. Sept. 14, 1915, to Mar. 12, 1924, nonrecording gage at site 635 ft downstream at datum 2.20 ft lower. Mar. 13, 1924, to Feb. 21, 1939, nonrecording gage at site 1,000 ft upstream at datum 2.00 ft higher. Feb. 22, 1939, to Jan. 25, 1940, nonrecording gage at present site and datum. Jan. 26, 1940, to Sept. 19, 1957, water-stage recorder at site 240 ft to right at present datum. Feb. 8, 1962, to Jan. 22, 1963, nonrecording gage at site 600 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Aug. 10 to Sept. 10. Records good except those for estimated daily discharges, which are fair. Since about 1890, low flow during irrigation season regulated by diversions to Noyes Canal 4.5 mi upstream and diversions by pumping at several locations upstream. Records of the Texas Department of Water Resources show that permits have been granted to irrigate 3,338 acres above station. See record for (station 08144000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--72 years, 61.8 ft³/s (44,770 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s July 23, 1938 (gage height, 22.2 ft, from floodmark), present site and datum, from rating curve extended above 56,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times as result of upstream diversion to Noyes Canal (station 08144000).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 23.3 ft June 6, 1899, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 670 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 6	0730	1,050	6.37	June 11	2000	988	6.31
June 1	0145	*2,560	*7.60				

Minimum daily discharge, 15 ft³/s Oct. 1, 21.

DISCHARGE, IN 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	15	25	23	29	31	36	33	20	985	51	25	30
2	18	29	22	29	32	32	31	22	135	45	25	29
3	17	29	21	29	30	31	30	23	135	40	24	29
4	16	47	21	28	30	32	30	22	146	37	23	28
5	89	47	24	29	32	32	25	22	115	35	23	28
6	426	40	25	30	38	32	27	20	84	34	22	26
7	171	50	27	31	36	32	26	19	71	32	22	25
8	95	48	26	31	31	32	24	20	64	32	21	28
9	70	47	24	35	30	33	24	20	64	32	22	30
10	49	46	24	35	29	34	23	20	124	33	22	32
11	41	47	27	33	30	46	23	20	228	32	21	33
12	45	45	28	31	30	45	22	20	228	31	21	31
13	37	43	27	30	30	39	22	20	100	31	22	29
14	31	45	26	31	31	37	20	21	78	31	21	27
15	27	46	26	30	30	35	18	21	69	32	23	26
16	21	45	26	30	29	35	19	20	63	31	24	27
17	16	45	25	31	29	38	19	33	59	33	21	27
18	17	43	32	34	29	36	19	29	57	34	20	28
19	18	26	32	32	29	34	18	34	56	31	19	32
20	31	23	30	30	33	33	18	31	55	30	19	31
21	15	22	29	29	33	34	25	27	55	28	19	30
22	44	23	36	29	32	35	28	23	57	28	19	30
23	28	24	51	29	30	34	25	27	58	30	18	30
24	29	23	49	28	34	32	22	44	52	28	18	30
25	30	29	37	29	35	30	21	35	42	28	17	30
26	27	31	33	28	39	31	20	27	41	28	16	32
27	25	28	31	29	40	34	19	24	39	31	21	34
28	24	24	30	30	39	33	18	25	39	29	25	45
29	24	24	30	30	---	32	18	26	38	28	21	42
30	24	24	29	30	---	33	17	29	49	27	25	42
31	24	---	29	30	---	32	---	52	---	26	32	---
TOTAL	1544	1068	900	939	901	1064	684	796	3386	998	671	921
MEAN	49.8	35.6	29.0	30.3	32.2	34.3	22.8	25.7	113	32.2	21.6	30.7
MAX	426	50	51	35	40	46	33	52	985	51	32	45
MIN	15	22	21	28	29	30	17	19	38	26	16	25
AC-FT	3060	2120	1790	1860	1790	2110	1360	1580	6720	1980	1330	1830

CAL YR 1986 TOTAL 8882 MEAN 24.3 MAX 426 MIN 3.6 AC-FT 17620
WTR YR 1987 TOTAL 13872 MEAN 38.0 MAX 985 MIN 15 AC-FT 27520

08144600 SAN SABA RIVER NEAR BRADY, TX

LOCATION.--Lat 31°00'14", long 99°16'07", McCulloch County, Hydrologic Unit 12090109, on right bank at downstream side of bridge on U.S. Highways 87 and 377, 0.4 mi upstream from Hudson Branch, and 8.4 mi southeast of Brady, and 72.9 mi upstream from mouth.

DRAINAGE AREA.--1,633 mi², of which 6.60 mi² probably is noncontributing.

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,530.98 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: June 20-24. Records good except those for estimated daily discharges, which are fair. There are diversions above station for irrigation (see station 08144000). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--8 years, 72.7 ft³/s (52,670 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,000 ft³/s Sept. 8, 1980 (gage height, 25.50 ft); minimum, 0.24 ft³/s Aug. 1, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Highest stage since June 1899, 33.8 ft July 23, 1938, from high-water mark on left bank 150 ft upstream from present site.

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 23	2330	5,560	8.26	June 2	2030	*10,900	*10.61
May 31	0730	6,930	8.93	June 10	2330	1,470	5.15
June 1	1800	2,200	5.93				

Minimum daily discharge, 7.9 ft³/s Oct. 1.

DISCHARGE, IN 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	7.9	41	43	76	63	100	78	53	1010	160	33	54
2	8.3	42	45	76	59	90	70	49	1860	120	30	53
3	8.3	40	44	73	59	86	67	50	1560	99	30	47
4	13	77	44	68	60	80	67	60	837	93	26	46
5	56	84	45	72	62	76	68	55	597	86	26	45
6	163	66	49	75	64	75	75	51	456	81	26	43
7	505	64	59	73	65	74	72	46	340	71	24	41
8	285	56	55	70	66	71	71	45	290	68	22	44
9	152	53	50	78	65	72	72	43	413	63	27	46
10	100	54	39	72	69	67	70	40	762	62	27	49
11	88	46	42	67	70	101	68	39	1100	63	26	64
12	65	45	46	70	70	97	66	40	860	60	26	65
13	56	35	49	72	69	95	70	36	709	52	27	58
14	60	41	55	72	69	93	66	33	499	52	26	55
15	58	48	57	64	67	88	62	32	422	43	28	65
16	53	50	57	62	61	86	62	31	388	42	29	68
17	50	50	61	61	60	104	62	45	388	89	26	51
18	46	49	78	60	58	90	59	43	388	74	21	141
19	40	48	79	61	55	84	52	76	585	53	18	85
20	38	48	74	61	60	83	48	65	400	51	18	67
21	39	41	77	62	63	82	65	66	300	49	18	60
22	46	41	209	60	68	82	64	67	220	46	17	57
23	51	37	265	62	67	79	63	361	170	47	16	54
24	64	35	188	67	70	73	69	678	140	46	16	54
25	48	48	155	62	72	70	62	165	110	46	15	53
26	45	43	124	61	97	67	60	120	99	46	14	47
27	46	41	104	61	97	70	56	100	89	46	22	50
28	44	44	93	62	114	68	53	92	92	46	30	128
29	43	43	93	64	---	58	52	88	91	43	22	156
30	42	43	84	60	---	65	53	93	150	38	32	74
31	41	---	83	60	---	75	---	2430	---	36	47	---
TOTAL	2361.5	1453	2546	2064	1919	2501	1922	5192	15325	1971	765	1920
MEAN	76.2	48.4	82.1	66.6	68.5	80.7	64.1	167	511	63.6	24.7	64.0
MAX	505	84	265	78	114	104	78	2430	1860	160	47	156
MIN	7.9	35	39	60	55	58	48	31	89	36	14	41
AC-FT	4680	2880	5050	4090	3810	4960	3810	10300	30400	3910	1520	3810

CAL YR 1986 TOTAL 16038.4 MEAN 43.9 MAX 1400 MIN .95 AC-FT 31810
WTR YR 1987 TOTAL 39939.5 MEAN 109 MAX 2430 MIN 7.9 AC-FT 79220

08146000 SAN SABA RIVER AT SAN SABA, TX

LOCATION.--Lat 31°12'47", long 98°43'09", San Saba County, Hydrologic Unit 12090109, on right bank at downstream side of bridge on State Highway 16, 1.2 mi north of San Saba, 2.7 mi upstream from Mill Creek, 4.8 mi downstream from China Creek, and 16.8 mi upstream from mouth.

DRAINAGE AREA.--3,046 mi², of which 6.6 mi² probably is noncontributing.

PERIOD OF RECORD.--December 1904 to December 1906 (gage heights only), September 1915 to current year. Published as "near San Saba" December 1904 to December 1906 and September 1915 to August 1930.

REVISED RECORDS.--WSP 458: 1915-16. WSP 1282: WDR TX-81-3: Drainage area. WSP 1512: 1918-19(M), 1922, 1931(M), 1935 WSP 1922: 1917.

GAGE.--Water-stage recorder. Datum of gage is 1,162.16 ft above National Geodetic Vertical Datum of 1929. See WSP 1922 for brief history of changes prior to July 8, 1953. Since Oct. 1, 1956, supplementary water-stage recorder 2,780 ft to right of main channel gage used for floodflows.

REMARKS.--Estimated daily discharges: Nov. 15 to Dec. 1, Dec. 14 to Jan. 26. Records good except those for estimated daily discharges, which are poor. Many diversions above station for irrigation and municipal use affect low flow. Flow partly affected by Brady Creek Reservoir (see station 08144900), capacity 90,300 acre-ft. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--72 years, 226 ft³/s (163,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 203,000 ft³/s July 23, 1938 (gage height, 39.3 ft, present site and datum), from rating curve extended above 41,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1918, 1930, 1954-56, 1963-64, and 1984.
Maximum stage since at least 1899, that of July 23, 1938.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 6, 1899, reached a stage of 36.7 ft, present site and datum, from information by local residents.

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 24	1630	3,270	12.90	June 3	1430	4,000	14.69
June 1	0030	*4,020	*14.73				

Minimum daily discharge, 31 ft³/s Oct. 1-3.

DISCHARGE, IN 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	31	88	110	176	139	313	143	90	1990	217	72	107
2	31	86	108	176	138	288	138	201	957	272	75	173
3	31	84	106	170	138	239	135	356	2420	227	73	184
4	36	192	104	165	134	212	134	186	1520	206	66	141
5	75	208	102	168	136	195	136	130	891	187	62	119
6	335	204	103	174	144	183	147	118	649	172	57	106
7	603	172	106	170	153	175	151	110	534	156	57	101
8	616	151	107	166	157	169	151	103	458	147	57	100
9	462	138	109	180	147	166	146	103	440	139	57	91
10	329	126	107	168	146	162	145	98	644	130	53	90
11	243	121	106	161	145	180	144	93	1010	123	58	90
12	206	128	111	160	140	221	142	84	1920	120	69	88
13	191	119	113	168	138	235	139	81	1100	117	66	93
14	152	119	116	168	137	221	132	79	807	119	70	103
15	136	125	122	154	135	205	151	77	598	105	63	93
16	131	127	137	152	131	195	130	77	501	106	60	101
17	121	126	150	150	127	228	123	77	447	122	59	104
18	111	125	180	148	125	257	117	82	410	149	57	130
19	103	124	182	150	123	230	111	109	373	176	54	344
20	97	122	172	150	136	203	106	142	337	140	50	415
21	92	121	179	152	143	189	110	179	309	120	49	240
22	90	120	600	148	146	180	112	165	283	113	47	175
23	95	119	760	152	139	174	122	137	260	108	45	144
24	118	118	522	161	141	165	126	1390	244	102	44	129
25	119	160	445	152	150	156	115	852	234	99	43	118
26	123	140	380	150	199	151	119	462	225	99	41	107
27	107	120	290	150	231	149	109	336	215	101	46	102
28	100	113	240	148	359	147	105	268	201	95	72	316
29	95	112	240	146	---	144	102	231	191	89	210	423
30	92	111	190	140	---	144	96	239	204	87	202	282
31	89	---	188	137	---	144	---	1000	---	79	129	---
TOTAL	5160	3919	6485	4910	4277	6020	3837	7655	20372	4222	2163	4809
MEAN	166	131	209	158	153	194	128	247	679	136	69.8	160
MAX	616	208	760	180	359	313	151	1390	2420	272	210	423
MIN	31	84	102	137	123	144	96	77	191	79	41	88
AC-FT	10230	7770	12860	9740	8480	11940	7610	15180	40410	8370	4290	9540

CAL YR 1986 TOTAL 42347 MEAN 116 MAX 3010 MIN 17 AC-FT 84000
WTR YR 1987 TOTAL 73829 MEAN 202 MAX 2420 MIN 31 AC-FT 146400

08147000 COLORADO RIVER NEAR SAN SABA, TX
(National stream-quality accounting network)

LOCATION.--Lat 31°13'04", long 98°33'51", San Saba-Lampasas County line, Hydrologic Unit 12090201, near left bank at downstream side of pier of bridge on U.S. Highway 190, 5.2 mi downstream from San Saba River, 9.2 mi east of San Saba, and at mile 474.3.

DRAINAGE AREA.--31,217 mi², approximately, of which 11,398 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1915 to October 1922 (published as "near Chadwick"), October 1923 to August 1930 (published as "near Tow"), September 1930 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 458: 1916. WSP 858: 1900(M), 1936(M). WDR TX-81-3: Drainage area. WSP 1512: 1916-18(M), 1936. WSP 1732: 1925-26(M).

GAGE.--Water-stage recorder. Datum of gage is 1,096.22 ft above National Geodetic Vertical Datum of 1929. See WSP 1922 for brief history of changes prior to May 23, 1940.

REMARKS.--No estimated daily discharges. Records good. There are many diversions above station for irrigation, municipal use, and for oilfield operation. Flow is affected by four reservoirs upstream from Winchell and one reservoir in the San Saba River and Pecan Bayou basins; combined capacity, 1,973,000 acre-ft. Flow is affected at times by discharge from the flood-detention pools of 187 floodwater-retarding structures with a combined capacity of 205,700 acre-ft. These structures control runoff from 944 mi². Gage-height telemeter at station.

AVERAGE DISCHARGE.--50 years (water years 1917-19, 1921-22, 1924-68) prior to completion of Robert Lee Dam, 1,340 ft³/s (970,100 acre-ft/yr); 19 years (water years 1969-87) partially regulated, 664 ft³/s (481,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 224,000 ft³/s July 23, 1938 (gage height, 63.2 ft, present site), based on floodmarks at site then in use; no flow Aug. 27-31, 1954; Aug. 3-13, 1963; July 20 to Aug. 8, Aug. 11-14, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage during period 1878 to July 22, 1938, 58.4 ft Sept. 25, 1900, discharge, 184,000 ft³/s present site, from floodmarks at former site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,600 ft³/s June 1 at 0830 hours (gage height, 16.93 ft); minimum daily, 263 ft³/s May 15.

DISCHARGE, IN 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	683	954	854	1080	496	5080	931	348	16900	781	709	893
2	722	940	750	998	485	6260	758	332	13800	1990	705	1030
3	697	923	672	929	483	5200	622	514	11200	2920	714	1560
4	991	1380	585	878	493	3680	584	435	9180	1580	693	1110
5	1240	1170	544	850	497	2780	555	365	5680	1130	675	882
6	5460	1290	519	779	531	2270	555	369	4240	931	668	869
7	7340	1890	518	739	576	1930	556	352	3720	817	660	878
8	12000	1570	496	721	621	1700	548	329	2960	723	651	894
9	10200	1270	493	711	1420	1520	529	318	2560	663	645	905
10	5800	1110	488	688	1340	1360	511	311	2920	618	648	1390
11	4600	1060	478	759	1110	1360	504	298	5940	589	650	1130
12	3930	1000	463	775	991	1820	495	290	11800	565	659	957
13	4260	964	458	733	917	2450	479	282	9070	547	671	890
14	3840	943	487	692	867	2470	454	274	6710	536	706	777
15	2880	915	495	665	828	2020	439	263	5710	521	691	581
16	2390	859	500	638	789	1720	432	1940	4120	507	815	553
17	2040	660	515	625	797	2420	411	8570	3080	644	1020	486
18	1810	526	593	629	783	2460	400	3310	2610	597	989	504
19	1490	456	639	619	757	3600	389	2000	2150	591	788	810
20	1320	421	1060	636	714	2650	376	1790	1870	560	708	1250
21	1240	402	1570	615	686	1920	469	3290	1670	517	677	1110
22	1190	390	2660	599	731	3380	794	3860	1490	495	666	1070
23	1170	380	3000	591	749	3480	494	2610	1350	475	672	749
24	1140	368	3010	599	793	2110	446	3640	1120	450	666	555
25	1150	451	2510	581	927	1590	404	5730	1030	429	650	461
26	1150	658	2280	571	1290	1300	408	3380	928	414	642	410
27	1120	1020	2070	561	1660	1160	401	2820	836	681	668	393
28	1080	1040	1750	546	2450	1080	396	2240	788	764	806	375
29	1050	1030	1520	531	---	1020	367	3960	743	741	871	843
30	1010	942	1330	512	---	980	357	7930	743	735	1000	668
31	983	---	1190	506	---	959	---	13500	---	722	899	---
TOTAL	85976	26982	34497	21356	24781	73729	15064	75650	136918	24233	22682	24983
MEAN	2773	899	1113	689	885	2378	502	2440	4564	782	732	833
MAX	12000	1890	3010	1080	2450	6260	931	13500	16900	2920	1020	1560
MIN	683	368	458	506	483	959	357	263	743	414	642	375
AC-FT	170500	53520	68420	42360	49150	146200	29880	150100	271600	48070	44990	49550

CAL YR 1986 TOTAL 392772 MEAN 1076 MAX 19900 MIN 19 AC-FT 779100
WTR YR 1987 TOTAL 566851 MEAN 1553 MAX 16900 MIN 263 AC-FT 1124000

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1941, September 1947 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to April 1982. Sediment analyses: May 1951 to October 1962, October 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1947 to current year.
WATER TEMPERATURE: September 1947 to current year.
SUSPENDED SEDIMENT DISCHARGE: December 1950 to September 1962.

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, 5,660 microsiemens June 28, 1962; minimum daily, 150 microsiemens Sept. 14, 1981, and Jan. 1, 1985.
WATER TEMPERATURE: Maximum daily, 37.0°C Aug. 3, 1956; minimum daily, 0.0°C Jan. 29, 1948, Jan. 30, 1951.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,500 microsiemens July 3; minimum daily, 475 microsiemens May 25.
WATER TEMPERATURE: Maximum daily, 35.0°C on several days during June and August; minimum daily, 9.0°C Dec. 11, Jan. 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 06...	1025	1200	1730	8.00	16.5	51	9.8	108	0.8	1000	3700
JAN 29...	1045	547	1150	7.70	10.5	11	13.5	125	1.4	42	54
MAR 31...	1120	959	852	7.90	11.5	35	11.5	109	1.7	62	72
MAY 28...	1205	2210	822	8.20	24.0	91	8.8	109	2.5	360	2100
JUL 08...	1440	715	1640	8.10	29.0	36	7.4	100	2.0	88	110
AUG 21...	1040	658	3560	7.80	29.5	29	7.7	105	3.9	84	80

DATE	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 06...	420	270	92	46	200	4	9.0	150	260	320	0.40
JAN 29...	390	170	92	38	85	2	4.1	216	140	160	0.30
MAR 31...	300	120	79	25	59	2	4.5	181	94	110	0.20
MAY 28...	260	130	69	20	60	2	5.8	125	72	140	0.40
JUL 08...	400	240	84	46	170	4	10	158	240	270	0.40
AUG 21...	720	570	130	96	480	8	17	151	650	760	0.50

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 06...	6.9	1050	1000	--	--	<0.010	<0.010	0.100	0.120	0.020
JAN 29...	5.6	668	660	1.19	--	0.010	<0.010	1.20	1.20	0.060
MAR 31...	6.7	501	490	0.490	0.580	0.010	0.010	0.500	0.590	0.030
MAY 28...	8.9	482	450	0.590	--	0.010	<0.010	0.600	0.510	0.040
JUL 08...	11	995	930	1.37	1.38	0.030	0.020	1.40	1.40	0.040
AUG 21...	6.8	2290	2200	--	--	<0.010	<0.010	0.200	0.210	0.050

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 06...	<0.010	1.1	1.1	0.060	0.010	<0.010	--	79	256	91
JAN 29...	0.030	1.1	1.2	0.030	0.020	0.010	0.03	21	31	99
MAR 31...	0.050	1.2	1.2	0.110	0.030	0.010	0.03	50	129	95
MAY 28...	0.030	1.9	1.9	0.170	0.040	0.020	0.06	261	1560	99
JUL 08...	0.020	1.1	1.1	0.100	0.040	0.030	0.09	96	185	100
AUG 21...	0.020	0.65	0.70	0.090	0.010	<0.010	--	103	183	100

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 06...	<10	2	170	<0.5	1	<1	<3	1	3	<5
JAN 29...	<10	<1	120	<0.5	1	<1	<3	1	6	<5
MAR 31...	--	--	--	--	--	--	--	--	--	--
MAY 28...	10	3	140	<0.5	<1	<1	<3	2	16	<5
JUL 08...	--	--	--	--	--	--	--	--	--	--
AUG 21...	10	2	200	<10	<1	<1	<1	2	<10	<5

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 06...	39	<1	0.1	<10	3	<1	<1	1300	<6	7
JAN 29...	33	6	<0.1	<10	<1	1	<1	1300	<6	14
MAR 31...	--	--	--	--	--	--	--	--	--	--
MAY 28...	18	2	0.2	<10	2	<1	<1	830	<6	9
JUL 08...	--	--	--	--	--	--	--	--	--	--
AUG 21...	70	<10	<0.1	10	<1	1	<1	2300	21	<10

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	85976	1260	727	169000	220	51800	170	39700	380
NOV.	1986	26982	2190	1310	95700	530	39000	450	32800	510
DEC.	1986	34497	977	554	51600	140	13000	97	9060	330
JAN.	1987	21356	1030	585	33700	150	8560	100	6020	350
FEB.	1987	24781	1240	710	47500	200	13600	150	10200	390
MAR.	1987	73729	886	500	99600	120	23700	81	16100	310
APR.	1987	15064	1140	648	26400	170	7100	130	5140	370
MAY	1987	75650	671	375	76700	80	16400	51	10400	240
JUNE	1987	136918	801	453	167000	110	40000	74	27300	280
JULY	1987	24233	2960	1850	121000	930	61100	830	54100	480
AUG.	1987	22682	3540	2240	137000	1200	74100	1100	66600	470
SEPT	1987	24983	2500	1520	103000	680	46100	590	39700	510
TOTAL		566851	**	**	1128000	**	394000	**	317000	**
WTD.AVG.		1553	1250	737	**	260	**	210	**	340

08147000 COLORADO RIVER NEAR SAN SABA, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2620	1840	1180	932	1120	907	942	1050	610	3100	4100	3170
2	2760	1860	1260	967	1140	775	917	1070	653	3650	4190	3250
3	3200	1890	1100	990	1130	816	959	800	566	4500	4140	3280
4	2910	1340	1080	995	1150	872	968	1030	635	3030	3980	3030
5	2460	1560	1090	1020	1180	893	1030	1110	644	2460	3960	3060
6	1730	1870	1120	1000	1200	887	1020	1290	850	2180	3930	3200
7	1650	2600	1180	969	1190	878	1090	1270	1030	1950	3930	3160
8	1220	3000	1190	975	1190	886	1100	1290	1140	1640	3870	2650
9	730	3190	1200	1000	1380	887	1110	1350	1130	1600	3810	2160
10	686	2980	1180	1000	1630	916	1120	1360	1020	1550	3780	2630
11	748	2310	1230	1040	1620	924	1130	1270	735	1650	3760	3250
12	838	1890	1240	1000	1570	887	1120	1220	671	1700	3640	3180
13	870	2000	1220	1020	1610	940	1160	1170	620	1770	3600	3190
14	910	2410	1240	1040	1600	923	1180	1240	740	1930	3540	3000
15	1120	2680	1230	1050	1590	972	1180	1240	888	2170	3580	2490
16	1280	2720	1240	1030	1580	983	1190	1030	970	2420	3660	2520
17	1210	2580	1200	1020	1600	891	1170	750	1050	2410	3630	2360
18	1060	2530	1220	995	1370	900	1220	620	1090	2720	3600	2170
19	1120	2470	1240	1000	1220	1030	1240	586	892	2820	3560	2220
20	1330	2410	1150	1030	1080	1220	1250	628	964	2580	3580	2000
21	1440	2400	950	1050	1050	1350	1280	612	1030	2770	3640	1710
22	1510	2380	800	1040	1030	747	1490	520	1100	2920	3330	2020
23	1550	2330	720	1060	1020	752	1430	600	1180	3000	3000	1760
24	1610	2330	800	1100	980	700	1440	690	1200	3020	3140	1590
25	1660	2140	820	1120	990	728	1230	475	1290	3090	2540	1650
26	1680	2430	850	1110	980	792	1020	502	1470	3180	2620	1260
27	1700	1760	960	1120	960	767	1050	573	1740	3630	2980	1250
28	1740	1530	1080	1130	820	826	1100	823	2170	3730	3370	1460
29	1800	1270	1020	1140	---	848	1120	750	2540	3800	3380	920
30	1820	1330	950	1120	---	857	1060	630	2800	3790	3000	1300
31	1800	---	900	1140	---	886	---	600	---	3830	3040	---
MEAN	1570	2200	1090	1040	1250	892	1140	908	1110	2730	3540	2360

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	22.0	15.0	15.0	19.0	15.0	20.0	28.0	26.0	33.0	33.0	---
2	29.0	---	15.0	10.0	19.0	16.0	18.0	---	24.0	33.0	33.0	---
3	30.0	22.0	15.0	13.0	20.0	15.0	18.0	29.0	25.0	32.0	33.0	26.0
4	---	21.0	15.0	11.0	21.0	18.0	19.0	30.0	23.0	33.0	35.0	29.0
5	24.0	21.0	15.0	14.0	---	18.0	18.0	---	26.0	29.0	34.0	28.0
6	20.0	18.0	15.0	15.0	14.0	18.0	16.0	29.0	26.0	31.0	35.0	28.0
7	21.0	22.0	17.0	14.0	18.0	18.0	19.0	27.0	28.0	33.0	34.0	27.0
8	22.0	23.0	13.0	---	19.0	20.0	21.0	25.0	26.0	32.0	35.0	28.0
9	24.0	20.0	---	16.0	16.0	17.0	22.0	28.0	27.0	---	35.0	29.0
10	24.0	19.0	11.0	13.0	17.0	17.0	22.0	30.0	28.0	33.0	33.0	29.0
11	25.0	18.0	9.0	15.0	18.0	18.0	26.0	28.0	28.0	32.0	34.0	26.0
12	20.0	16.0	14.0	---	19.0	17.0	---	29.0	29.0	31.0	35.0	27.0
13	22.0	13.0	13.0	14.0	19.0	---	25.0	29.0	28.0	32.0	---	29.0
14	22.0	15.0	12.0	15.0	18.0	24.0	24.0	28.0	31.0	32.0	31.0	28.0
15	22.0	15.0	14.0	15.0	16.0	20.0	26.0	29.0	27.0	31.0	33.0	29.0
16	22.0	18.0	14.0	13.0	15.0	21.0	27.0	25.0	33.0	31.0	33.0	30.0
17	23.0	19.0	13.0	12.0	15.0	20.0	---	27.0	33.0	31.0	35.0	29.0
18	23.0	20.0	11.0	---	17.0	20.0	29.0	28.0	33.0	33.0	33.0	26.0
19	21.0	18.0	12.0	10.0	---	21.0	29.0	26.0	32.0	33.0	35.0	25.0
20	22.0	19.0	14.0	12.0	13.0	21.0	29.0	27.0	32.0	33.0	33.0	25.0
21	---	19.0	13.0	9.0	13.0	---	27.0	29.0	33.0	32.0	34.0	26.0
22	22.0	21.0	10.0	10.0	15.0	20.0	24.0	29.0	31.0	34.0	---	25.0
23	23.0	16.0	13.0	10.0	13.0	20.0	27.0	---	32.0	33.0	33.0	24.0
24	24.0	13.0	15.0	15.0	18.0	21.0	22.0	28.0	34.0	34.0	32.0	26.0
25	22.0	14.0	---	11.0	13.0	20.0	---	28.0	35.0	33.0	31.0	25.0
26	23.0	16.0	15.0	15.0	15.0	19.0	28.0	26.0	33.0	34.0	26.0	25.0
27	23.0	14.0	15.0	18.0	16.0	20.0	29.0	28.0	33.0	33.0	30.0	26.0
28	23.0	15.0	10.0	18.0	16.0	19.0	29.0	29.0	33.0	32.0	32.0	25.0
29	23.0	16.0	15.0	15.0	---	15.0	29.0	25.0	30.0	34.0	27.0	25.0
30	23.0	15.0	15.0	17.0	---	17.0	28.0	25.0	33.0	34.0	28.0	24.0
31	23.0	---	15.0	17.0	---	18.0	---	18.0	---	32.0	---	---
MEAN	23.0	18.0	13.5	13.5	16.5	18.5	24.0	27.5	29.5	32.5	32.5	27.0

08148000 LAKE BUCHANAN NEAR BURNET, TX

LOCATION.--Lat 30°45'04", long 98°25'06", Burnet County, Hydrologic Unit 12090201, in powerhouse at Buchanan Dam on Colorado River, 1.3 mi upstream from bridge on State Highway 29, 11 mi west of Burnet, and at mile 413.6.

DRAINAGE AREA.--31,910 mi², approximately, of which 11,398 mi² probably is noncontributing.

PERIOD OF RECORD.--May 1937 to current year. Prior to Oct. 1, 1968, published as Buchanan Reservoir.

REVISED RECORDS.--WSP 1118: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 0.48 ft above National Geodetic Vertical Datum of 1929 (levels by Lower Colorado River Authority). Prior to July 1938, temporary staff and float gages at same site and datum.

REMARKS.--The lake is formed by two reinforced concrete multiple-arch sections, three banks of tainter gates, a 1,100-foot uncontrolled emergency concrete spillway, and natural ground. A net opening of 1,270 ft is controlled by thirty 33- by 15-foot and by seven 40- by 15-foot tainter gates. The dam was completed and storage began May 20, 1937. Water is used for power development and for irrigation below Columbus. The power generating features consist of three generating units, each with a 12,677 kilowatt capacity. A pump-back unit, with a capacity of 840 ft³/s, returns water from Inks Lake to Lake Buchanan during off-peak power demand periods. Inflow is largely regulated by twelve major reservoirs with a combined capacity of 2,438,000 acre-ft, of which 1,091,000 acre-ft is for flood control. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08147000. The capacity table is based on a 1925 survey. 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	1,025.5	-
Crest of gravity overflow spillway (top of conservation storage)	1,020.0	992,000
Crest of spillway (15 ft gates)	1,005.0	678,000
Crest of spillway (25 ft gates)	995.0	505,000
Invert of three 12-foot-diameter penstocks	937.0	36,800

COOPERATION.--Capacity curve and gage-height record were furnished by the Lower Colorado River Authority.

EXTREMES (AT 2400) FOR PERIOD OF RECORD.--Maximum contents, 1,010,000 acre-ft Jan. 24, 1968 (gage height, 1,020.8 ft); minimum after initial filling of lake in July 1938, 340,800 acre-ft Sept. 8-10, 1952 (gage height, 983.4 ft).

EXTREMES (AT 2400) FOR CURRENT YEAR.--Maximum contents observed, 990,200 acre-ft Oct. 11 (gage height, 1,019.92 ft); minimum, 931,700 acre-ft Sept. 27 (gage height, 1,017.35 ft).

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

1,017.0	924,000	1,019.0	969,000
1,018.0	946,000	1,020.0	992,000

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	963300	970800	937600	967400	953100	978200	953800	959800	988800	961000	944500	954500
2	960500	969500	939200	967200	954500	982600	953800	960300	986000	961900	945800	955400
3	956400	967900	940500	966900	955400	985300	952400	960700	984200	961900	946700	955700
4	952400	973600	941800	966200	956600	985300	950800	962100	982100	966900	945300	956800
5	956400	972500	942900	965600	958200	983300	949500	960500	981000	956800	945600	959100
6	969000	970200	943800	965600	959600	980000	948100	959300	981900	953600	946000	961000
7	977500	969500	945100	965100	960300	979400	948300	957700	981200	950100	961000	961900
8	987900	968300	946500	964400	961900	978000	948500	958700	983000	951800	961900	960300
9	989900	967400	947400	966200	963300	976600	949500	959100	982600	952700	960300	958000
10	988300	966900	950600	968100	966700	974800	950600	959600	984000	953600	958000	956400
11	990200	964200	951800	969500	969200	974100	951500	960000	983700	954300	956400	954500
12	989700	963500	952400	971500	971300	973800	952700	959800	986300	954300	954500	952000
13	987600	960500	953400	973100	973400	974800	955400	959800	989000	955200	952000	949700
14	987200	958700	956400	975200	974800	974800	955700	959800	986300	953800	943400	946500
15	987900	958400	958700	977300	977100	974300	956100	959800	989000	952700	942500	945300
16	987600	958000	959800	978700	977500	974500	957000	958700	988600	951100	942700	942500
17	986700	957300	959800	980500	975200	975200	957700	968100	987200	945300	942300	939400
18	985300	955900	959600	981400	975000	975900	957000	970200	986900	941600	942000	942500
19	984200	954100	959100	978700	975200	978000	957000	973100	983000	940100	943100	940300
20	985100	952400	958900	975900	974100	979400	955700	969700	982800	940900	944000	938300
21	985300	950800	961200	972200	974500	980500	956800	970600	981400	942500	944700	937900
22	984900	949700	969900	968500	975700	979800	958000	972700	978400	943100	945800	936500
23	989200	948300	975400	964600	976800	985100	957500	973600	977500	943800	946700	935400
24	985800	945800	975400	961600	979400	977700	958400	973600	975000	944500	947400	933500
25	982600	944700	974100	959100	978700	973400	959300	976800	972900	945100	946000	932100
26	980500	942300	972000	959600	977700	968500	960000	976400	968500	945300	946000	932400
27	978200	940300	969500	956600	977100	967400	959800	974500	964600	944700	947400	931700
28	978000	938300	968800	953800	976600	965600	959600	973800	960500	944500	948800	931900
29	976600	937000	967400	950400	---	962600	959300	972700	956800	944200	950100	932600
30	975000	935400	966200	950600	---	957000	959600	978200	959800	945300	952700	933200
31	972900	---	967400	951800	---	955400	---	986000	---	946500	953400	---
MAX	990200	973600	975400	981400	979400	985300	960000	986000	989000	966900	961900	961900
MIN	952400	935400	937600	950400	953100	955400	948100	957700	956800	940100	942000	931700
(†)	1019.17	1017.52	1018.93	1018.25	1019.33	1018.41	1018.59	1019.74	1019.74	1018.02	1018.32	1017.42
(Φ)	+9600	-37500	+32000	-15600	+24800	-21200	+4200	+26400	-26200	-13300	+6900	-20200

CAL YR 1986 MAX 991100 MIN 754600 (Φ) +209000
WTR YR 1987 MAX 990200 MIN 931700 (Φ) -30100

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

08150000 LLANO RIVER NEAR JUNCTION, TX

LOCATION.--Lat 30°30'15", long 99°44'03", Kimble County, Hydrologic Unit 12090204, on right bank 960 ft upstream from low-water crossing, 1.0 mi east of Junction, 2.6 mi downstream from bridge on Interstate Highway 10, 2.8 mi downstream from confluence of North and South Llano Rivers, 5.3 mi upstream from Johnson Fork, and 114.8 mi upstream from mouth.

DRAINAGE AREA.--1,854.14 mi², of which 5.14 mi² probably is noncontributing.

PERIOD OF RECORD.--September 1915 to current year.

REVISED RECORDS.--WSP 568: 1915-16, 1918-20, 1922. WDR TX-81-3: Drainage area. WSP 1922: 1920, 1923.

GAGE.--Water-stage recorder. Datum of gage is 1,636.32 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 14, 1925, nonrecording gage, and Aug. 14, 1925, to May 17, 1940, and Aug. 18, 1944, to Oct. 12, 1981, water-stage recorder at site 5,330 ft downstream at datum 6.0 ft lower, designated as regular gage (destroyed by flood of Oct. 13, 1981).

REMARKS.--Estimated daily discharges: June 14-21. Records good. There are diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--72 years, 194 ft³/s (1.42 in/yr), 140,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 319,000 ft³/s June 14, 1935 (gage height, 43.3 ft at regular gage, 41.4 ft at former gage 5,330 ft downstream, from floodmarks), from rating curve extended above 54,000 ft³/s on basis of slope-area measurements of 154,000 and 319,000 ft³/s; minimum, 3.1 ft³/s Aug. 16, 17, 1956.
Maximum stage since at least 1875, that of June 14, 1935.

EXTREMES OUTSIDE PERIOD OF RECORD.--There was a major flood in 1889 which was the highest known prior to June 14, 1935.

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)
Oct. 6	0800	8,090	9.26	June 12	0730	12,500	11.95
Oct. 12	2130	1,900	4.96	June 14	0400	6,940	8.50
June 3	2330	*12,700	*12.02				

Minimum daily discharge, 156 ft³/s May 2.

DISCHARGE, IN 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	315	256	192	292	243	216	195	159	884	445	262	275
2	293	250	190	290	242	210	191	156	445	398	259	257
3	281	244	188	284	237	207	190	472	2600	378	254	246
4	272	268	190	282	237	204	189	372	4130	364	246	238
5	2180	297	194	281	241	202	194	264	1130	355	243	234
6	4410	272	195	281	261	201	197	243	730	341	239	230
7	1560	256	199	283	250	200	192	231	598	338	235	231
8	883	245	194	285	240	199	187	225	547	334	230	228
9	618	239	192	290	232	202	185	220	543	331	228	224
10	499	234	196	290	229	204	185	213	540	327	228	224
11	702	228	200	286	226	224	189	209	581	321	228	243
12	1310	222	198	280	222	222	186	206	4580	316	244	237
13	1100	219	190	279	221	221	184	203	761	312	254	230
14	605	220	192	278	222	220	178	197	2320	308	251	227
15	456	217	195	276	218	232	174	194	671	307	239	239
16	398	210	193	278	215	211	171	196	581	312	232	273
17	365	210	187	281	213	218	169	202	559	366	225	255
18	339	209	202	281	211	209	163	193	533	335	222	253
19	327	204	199	274	210	204	160	220	515	311	220	253
20	318	201	195	268	214	205	158	211	491	296	215	243
21	311	200	196	266	213	208	233	197	473	291	212	237
22	304	201	232	261	210	208	194	196	456	293	210	233
23	389	202	304	254	205	204	176	190	435	298	208	228
24	538	201	365	252	217	200	167	257	425	288	207	226
25	355	219	330	248	216	200	268	233	415	287	203	224
26	317	210	322	246	231	204	247	207	405	284	203	222
27	305	203	314	245	227	204	200	199	392	297	208	221
28	294	197	309	245	228	201	179	197	384	286	240	234
29	282	195	305	235	---	197	168	198	370	275	310	296
30	273	195	299	231	---	197	161	489	409	271	318	247
31	263	---	295	236	---	198	---	363	---	266	290	---
TOTAL	20862	6724	7152	8358	6331	6432	5630	7312	27903	9931	7363	7208
MEAN	673	224	231	270	226	207	188	236	930	320	238	240
MAX	4410	297	365	292	261	232	268	489	4580	445	318	296
MIN	263	195	187	231	205	197	158	156	370	266	203	221
CFSM	.36	.12	.12	.15	.12	.11	.10	.13	.50	.17	.13	.13
IN.	.42	.13	.14	.17	.13	.13	.11	.15	.56	.20	.15	.14
AC-FT	41380	13340	14190	16580	12560	12760	11170	14500	55350	19700	14600	14300

CAL YR 1986	TOTAL	75103	MEAN	206	MAX	5610	MIN	47	CFSM	.11	IN. 1.51	AC-FT 149000
WTR YR 1987	TOTAL	121206	MEAN	332	MAX	4580	MIN	156	CFSM	.18	IN. 2.43	AC-FT 240400

08150700 LLANO RIVER NEAR MASON, TX

LOCATION.--Lat 30°39'38", long 99°06'32", Mason County, Hydrologic Unit 12090204, on right bank 98 ft downstream from downstream bridge on U.S. Highway 87, 1.0 mi upstream from Beaver Creek, 9.1 mi southeast of Mason, 10.2 mi downstream from James River, and 61.1 mi upstream from mouth.

DRAINAGE AREA.--3,247.14 mi², of which 5.14 mi² probably is noncontributing.

PERIOD OF RECORD.--March 1968 to current year.

REVISED RECORD.--WDR TX-75-3: 1968(P). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,230.36 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1971, at site 190 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several observations of water temperatures were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1969-87), 336 ft³/s (1.41 in/yr), 243,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 260,000 ft³/s Sept. 8, 1980 (gage height, 37.00 ft, from floodmark), from rating curve extended above 151,000 ft³/s on basis of slope-area measurement and discharge measurement of 145,000 ft³/s; minimum, 16 ft³/s July 23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, about 46 ft June 14, 1935, from information by State Department of Highways and Public Transportation; discharge, about 380,000 ft³/s; at site 17.0 mi downstream discharge was 388,000 ft³/s by slope-area measurement.

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)
Oct. 6	1900	8,920	8.25	June 12	1400	14,400	9.90
May 30	1130	7,700	7.86	June 14	1300	7,670	7.85
June 4	0630	*24,900	*12.35	Sept. 15	2400	3,610	5.92
June 10	0030	5,100	6.87				

Minimum daily discharge, 198 ft³/s Oct. 4.

DISCHARGE, IN 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	e278	411	294	532	315	547	303	267	991	644	365	485
2	e232	398	289	510	320	425	299	265	1370	633	356	413
3	e205	384	284	496	314	383	288	297	1420	570	350	359
4	e198	625	282	481	308	359	284	601	11800	530	345	335
5	e262	539	278	471	309	345	288	601	3880	505	334	321
6	e4630	484	279	461	339	336	301	382	1770	487	331	310
7	e3080	472	288	460	343	328	301	321	1240	478	323	310
8	e1900	429	289	452	337	324	291	301	1030	470	310	304
9	e1110	404	286	462	321	323	285	294	1240	461	303	308
10	e813	381	286	458	320	322	272	287	2640	457	304	311
11	e754	375	315	436	319	341	267	285	1890	444	306	352
12	e2010	367	311	426	315	403	260	278	5530	436	323	385
13	e2150	357	302	414	311	385	268	275	2790	432	333	453
14	e1360	363	311	410	308	363	265	840	3330	428	359	347
15	e860	366	343	402	305	348	252	360	1840	428	337	502
16	e693	356	336	395	301	341	245	296	1200	428	327	1420
17	e612	347	321	396	293	368	242	308	993	468	310	490
18	e560	340	373	405	290	401	242	280	894	550	292	1090
19	e515	331	401	398	291	361	238	429	820	470	283	943
20	481	324	370	386	287	343	236	450	766	432	278	504
21	459	313	356	384	298	341	263	299	715	411	273	425
22	455	309	805	388	304	337	319	244	709	403	266	383
23	853	304	1060	372	304	330	330	222	671	410	260	356
24	1370	303	885	363	296	316	296	239	654	409	259	344
25	933	330	826	352	317	313	276	290	628	408	255	333
26	656	341	697	346	326	308	308	288	607	408	253	325
27	564	329	646	342	403	316	376	245	586	407	263	332
28	511	313	614	335	446	319	330	226	575	408	308	1060
29	479	305	596	331	---	308	295	222	560	402	327	584
30	452	299	571	324	---	307	277	2110	601	388	496	440
31	427	---	552	310	---	303	---	1380	---	373	493	---
TOTAL	29862	11199	13846	12698	8940	10844	8497	13182	53740	14178	9922	14524
MEAN	963	373	447	410	319	350	283	425	1791	457	320	484
MAX	4630	625	1060	532	446	547	376	2110	11800	644	496	1420
MIN	198	299	278	310	287	303	236	222	560	373	253	304
AC-FT	59230	22210	27460	25190	17730	21510	16850	26150	106600	28120	19680	28810
CFSM	.30	.11	.14	.13	.10	.11	.09	.13	.55	.14	.10	.15
IN.	.34	.13	.16	.15	.10	.12	.10	.15	.62	.16	.11	.17

CAL YR 1986	TOTAL	112328	MEAN	308	MAX	4920	MIN 63	AC-FT	222800	CFSM	.09	IN. 1.29
WTR YR 1987	TOTAL	201432	MEAN	552	MAX	11800	MIN 198	AC-FT	399500	CFSM	.17	IN. 2.31

e Estimated.

08150800 BEAVER CREEK NEAR MASON, TX

LOCATION.--Lat 30°38'36", long 99°05'44", Mason County, Hydrologic Unit 12090204, on left bank at downstream side of downstream bridge on U.S. Highway 87, 1.8 mi upstream from Llano River, 6.4 mi downstream from Spring Creek, and 11.1 mi southeast of Mason.

DRAINAGE AREA.--215 mi².

PERIOD OF RECORD.--July 1963 to current year.

REVISED RECORDS.--WSP 2122: 1964-65. WRD TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,253.24 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 3, 1978, at site 300 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There is no known regulation or diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years, 18.2 ft³/s (1.15 in/yr), 13,190 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,900 ft³/s Aug. 3, 1978 (gage height, 24.0 ft, from floodmarks), from rating curve extended above 7,400 ft³/s on basis of slope-area measurements of 20,100 and 66,900 ft³/s; no flow at times most years.

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 19	2000	1,230	3.94	June 13	2215	*5,110	*6.55
June 4	1400	4,220	6.07				

Minimum daily discharge, 0.57 ft³/s Oct. 2, 3, 11.

DISCHARGE, IN 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	.84	11	7.7	29	14	32	19	9.1	215	65	10	14
2	.57	11	7.1	26	14	27	17	9.1	65	45	9.6	11
3	.57	11	7.1	25	14	24	17	42	409	39	8.3	8.6
4	e.70	19	7.1	23	14	23	17	60	2200	35	7.6	6.9
5	e1.8	23	7.1	23	14	21	17	33	578	32	7.6	6.4
6	e29	14	7.1	23	18	22	19	18	232	30	7.4	6.0
7	e13	13	7.1	23	18	21	19	14	154	27	7.1	5.8
8	e3.6	12	7.3	23	16	20	17	13	121	25	6.8	5.8
9	e1.4	12	7.6	23	15	20	17	12	172	25	6.5	5.8
10	e.70	11	8.3	23	15	20	16	11	302	24	6.2	5.7
11	e.57	11	12	20	15	31	15	11	452	23	6.2	8.2
12	e100	11	13	20	14	28	14	11	196	22	6.2	12
13	e33	11	11	20	14	25	14	10	1910	20	6.2	10
14	e17	11	13	20	14	23	14	9.9	998	20	6.2	8.4
15	e11	12	25	19	14	22	13	9.0	357	20	6.1	9.0
16	e7.1	11	23	19	13	21	13	74	230	21	5.1	12
17	e9.6	9.6	19	19	13	41	13	67	169	21	4.6	9.6
18	e17	9.4	26	23	13	33	13	21	138	24	4.6	49
19	e20	8.6	29	21	13	27	11	322	118	20	4.5	19
20	e13	8.5	24	20	14	25	11	159	103	18	4.3	11
21	12	8.0	23	18	15	25	12	39	95	17	4.2	9.2
22	12	8.0	135	18	15	24	16	25	84	17	3.6	8.2
23	35	7.8	151	18	14	24	16	21	77	16	3.6	7.4
24	48	7.6	80	17	17	22	14	20	72	16	3.6	6.6
25	22	11	60	17	18	22	13	20	65	15	3.4	5.8
26	19	12	48	16	34	21	13	18	58	14	3.2	5.8
27	16	9.4	43	15	45	21	11	16	53	14	4.1	6.9
28	14	8.9	39	15	62	21	11	16	50	13	12	44
29	14	8.4	36	15	---	19	11	90	48	12	16	12
30	12	8.0	32	15	---	19	9.7	59	75	11	51	8.5
31	11	---	31	14	---	19	---	78	---	11	22	---
TOTAL	495.45	329.2	946.5	620	509	743	432.7	1317.1	9796	712	257.8	338.6
MEAN	16.0	11.0	30.5	20.0	18.2	24.0	14.4	42.5	327	23.0	8.32	11.3
MAX	100	23	151	29	62	41	19	322	2200	65	51	49
MIN	.57	7.6	7.1	14	13	19	9.7	9.0	48	11	3.2	5.7
AC-FT	983	653	1880	1230	1010	1470	858	2610	19430	1410	511	672
CFSM	.07	.05	.14	.09	.08	.11	.07	.20	1.52	.11	.0	.05
IN.	.09	.06	.16	.11	.09	.13	.07	.23	1.69	.12	.0	.06

CAL YR 1986	TOTAL 8035.09	MEAN 22.0	MAX 996	MIN .00	AC-FT 15940	CFSM .10	IN. 1.39
WTR YR 1987	TOTAL 16497.30	MEAN 45.2	MAX 2200	MIN .57	AC-FT 32720	CFSM .21	IN. 2.85

e Estimated.

08151500 LLANO RIVER AT LLANO, TX

LOCATION.--Lat 30°45'04", long 98°40'10", Llano County, Hydrologic Unit 12090204, on right bank in Llano, 0.4 mi downstream from bridge on State Highway 16, 7 mi upstream from Little Llano River, and 29.3 mi upstream from mouth.

DRAINAGE AREA.--4,197.14 mi², of which 5.14 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1939 to current year.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 970.01 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. There are many small diversions above station. Part of low flow of Llano River disappears into various formations, many of which are faulted, between stations near Junction and Llano. Gage-height telemeter and rain gage at station.

AVERAGE DISCHARGE.--48 years, 363 ft³/s (1.18 in/yr), 263,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 232,000 ft³/s Sept. 10, 1952 (gage height, 32.6 ft), from rating curve extended above 129,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1952-56, 1964, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, 41.5 ft June 14, 1935 (discharge, 380,000 ft³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 7	0145	10,300	8.59	June 13	2100	9,130	7.98
June 4	1215	*35,200	*14.04	June 14	2115	8,640	7.80
June 12	2115	14,700	9.70				

Minimum daily discharge, 227 ft³/s Aug. 26.

DISCHARGE, IN 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	458	502	361	683	423	911	367	320	1450	822	401	678
2	374	477	347	648	427	675	355	350	1410	814	388	645
3	324	455	344	626	425	609	346	362	2060	757	375	558
4	290	1190	337	599	417	561	337	465	17400	682	368	494
5	315	1090	336	578	412	528	346	740	8500	638	365	461
6	2660	671	342	568	456	455	383	602	3470	607	351	438
7	6340	611	362	562	483	437	391	451	2020	589	339	425
8	2840	568	375	561	469	419	375	386	1530	569	335	425
9	1610	518	379	596	447	408	366	368	2440	560	318	419
10	1050	477	382	639	420	407	350	343	3410	558	311	437
11	1170	453	423	579	410	524	338	333	4520	551	317	432
12	2370	438	480	546	399	622	324	324	5280	542	318	484
13	2950	415	455	534	401	548	342	313	7340	532	352	550
14	2330	410	562	528	401	501	345	311	6270	528	366	595
15	1280	415	941	528	401	466	329	806	4060	528	403	545
16	914	420	687	519	387	456	309	403	2080	529	383	1750
17	758	408	583	524	372	868	292	419	1580	630	362	1060
18	673	400	854	589	359	746	286	417	1350	663	339	2100
19	615	393	876	573	349	567	282	521	1210	667	325	2520
20	574	382	673	534	386	506	279	940	1090	583	308	921
21	548	375	606	522	401	482	288	616	1010	529	299	641
22	545	378	3110	528	401	477	334	454	948	487	297	533
23	2020	379	3710	515	385	463	398	368	909	455	286	471
24	2490	375	1700	491	439	435	407	347	873	464	279	430
25	1480	476	1320	471	488	403	369	354	831	470	283	404
26	969	494	1110	459	1030	393	338	392	794	450	277	384
27	760	457	946	452	1020	412	364	389	755	436	281	367
28	661	421	855	441	1710	397	431	351	731	434	353	1000
29	603	396	808	439	---	403	379	512	714	437	427	993
30	556	377	765	431	---	387	343	1400	723	438	634	615
31	526	---	717	420	---	375	---	2360	---	419	754	---
TOTAL	41053	14821	25746	16683	14118	15841	10393	16717	86758	17368	11194	21775
MEAN	1324	494	831	538	504	511	346	539	2892	560	361	726
MAX	6340	1190	3710	683	1710	911	431	2360	17400	822	754	2520
MIN	290	375	336	420	349	375	279	311	714	419	277	367
AC-FT	81430	29400	51070	33090	28000	31420	20610	33160	172100	34450	22200	43190
CFSM	.32	.12	.20	.13	.12	.12	.08	.13	.69	.13	.09	.17
IN.	.36	.13	.23	.15	.13	.14	.09	.15	.77	.15	.10	.19

CAL YR 1986 TOTAL 157714 MEAN 432 MAX 6340 MIN 34 AC-FT 312800 CFSM .10 IN. 1.40
WTR YR 1987 TOTAL 292467 MEAN 801 MAX 17400 MIN 277 AC-FT 580100 CFSM .19 IN. 2.59

08152000 SANDY CREEK NEAR KINGSLAND, TX

LOCATION (REVISED).--Lat 30°33'26", long 98°28'16", Llano County, Hydrologic Unit 12090201, on right bank 73 ft downstream and 168 ft right of the right downstream end of bridge on State Highway 71, 6.6 mi upstream from mouth, and 7.3 mi south of Kingsland.

DRAINAGE AREA.--346 mi².

PERIOD OF RECORD.--October 1966 to current year.
Water-quality records.--Sediment records: January 1968 to September 1975.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 862.31 ft above National Geodetic Vertical Datum of 1929. Prior to October 1986, at site 650 ft to the left at same datum.

REMARKS.--No estimated daily discharges. Records fair. Some diversions above station for irrigation (amount unknown). Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--21 years, 64.8 ft³/s (2.54 in/yr), 46,950 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft³/s June 16, 1981 (gage height, 17.63 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Sept. 11, 1952, the highest since at least 1881, reached a stage of 34.2 ft (discharge, 163,000 ft³/s), from slope-area measurement at gage site.

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)
Oct. 12	0600	7,630	9.98	June 11	1330	9,200	10.49
Dec. 23	0100	4,280	8.87	June 12	2330	2,850	8.30
June 4	1330	6,610	9.66	June 14	0100	4,530	8.95
June 10	2400	*9,820	*10.68				

Minimum daily discharge, 0.01 ft³/s Oct. 3.

DISCHARGE, IN 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	.02	28	48	258	71	237	61	32	634	58	11	33
2	.02	29	46	199	71	122	58	32	190	55	9.1	21
3	.01	30	44	138	69	91	56	38	271	55	8.4	15
4	.08	164	43	141	67	74	56	50	3190	60	7.4	11
5	1.0	142	44	144	69	95	57	37	1600	55	7.5	8.0
6	21	59	47	108	76	87	58	31	735	52	7.3	6.9
7	40	46	48	109	77	86	52	27	516	47	6.5	13
8	38	42	45	101	67	75	55	25	401	45	6.1	29
9	25	40	46	233	62	65	53	22	1350	46	6.0	19
10	16	37	50	260	59	67	50	18	1350	43	6.1	28
11	121	36	79	117	61	95	43	18	5850	41	6.1	62
12	2180	35	71	96	63	95	40	18	1990	36	13	43
13	524	36	63	90	62	75	37	18	2170	35	17	29
14	151	35	161	87	65	67	31	153	2120	36	6.9	18
15	57	36	664	88	65	64	30	80	807	36	4.9	13
16	40	37	326	82	64	68	37	51	538	38	3.1	15
17	27	37	213	134	64	189	51	329	358	60	1.6	11
18	25	35	469	257	61	129	53	68	301	61	1.1	88
19	23	32	350	125	63	85	51	221	280	49	.70	50
20	17	30	150	92	69	74	51	218	195	36	.50	32
21	22	28	127	88	75	69	48	44	177	30	.45	22
22	34	29	2160	94	66	64	47	30	150	27	.38	13
23	206	31	2370	94	54	60	44	27	118	25	.22	8.1
24	228	34	954	92	77	57	41	55	96	24	.17	7.2
25	60	67	645	83	84	59	40	85	77	27	.12	7.1
26	45	60	489	78	591	59	40	32	62	22	.11	6.6
27	42	52	419	75	426	56	39	31	61	19	.19	7.2
28	36	46	375	72	418	56	39	29	59	17	18	8.0
29	30	45	358	71	---	59	33	98	144	16	14	7.7
30	30	48	294	71	---	62	32	219	83	15	13	6.3
31	29	---	307	65	---	63	---	353	---	13	53	---
TOTAL	4068.13	1406	11505	3742	3116	2604	1383	2489	25873	1179	229.94	638.1
MEAN	131	46.9	371	121	111	84.0	46.1	80.3	862	38.0	7.42	21.3
MAX	2180	164	2370	260	591	237	61	353	5850	61	53	88
MIN	.01	28	43	65	54	56	30	18	59	13	.11	6.3
AC-FT	8070	2790	22820	7420	6180	5170	2740	4940	51320	2340	456	1270
CFSM	.38	.14	1.07	.35	.32	.24	.13	.23	2.49	.11	.0	.06
IN.	.44	.15	1.24	.40	.34	.28	.15	.27	2.78	.13	.0	.07

CAL YR 1986	TOTAL	28244.55	MEAN	77.4	MAX	2370	MIN	.00	AC-FT	56020	CFSM	.22	IN.	3.04
WTR YR 1987	TOTAL	58233.05	MEAN	160	MAX	5850	MIN	.01	AC-FT	115500	CFSM	.46	IN.	6.26

08152900 PEDERNALES RIVER NEAR FREDERICKSBURG, TX

LOCATION.--Lat 30°13'13", long 98°52'10", Gillespie County, Hydrologic Unit 12090206, on left bank at downstream side of bridge on U.S. Highway 87, 2.0 mi upstream from Mueseback Creek, 3.8 mi south of Fredericksburg, and 88.7 mi upstream from mouth.

DRAINAGE AREA.--369 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 1,564.96 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--8 years, 54.7 ft³/s (39,630 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s June 4, 1981 (gage height, 23.23 ft); no flow July 13-18, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of Aug. 2, 1978, which is the highest since 1907, reached a stage of 41.6 ft (discharge not determined). The highest known discharge was 64,000 ft³/s June 1, 1979 (gage height, 34.4 ft, from floodmark), from rating curve extended above a discharge measurement of 42,300 ft³/s June 1, 1979.

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)
Oct. 12	0900	2,430	10.34	June 12	0230	4,050	12.79
May 29	2300	8,740	18.71	June 13	0530	4,040	12.78
May 31	2230	1,790	9.21	June 14	0300	2,130	9.83
June 4	0500	7,380	17.14	July 17	0930	*9,130	*19.14
June 10	2030	1,900	9.41				

Minimum daily discharge, 13 ft³/s Oct. 2-4.

DISCHARGE, IN 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	14	29	36	114	65	75	61	43	740	190	82	65
2	13	29	35	108	63	67	60	55	404	160	76	52
3	13	29	35	104	59	61	58	97	1050	155	71	46
4	13	405	34	98	61	60	59	70	3200	144	67	43
5	16	205	35	97	64	58	59	57	852	132	63	41
6	56	104	35	99	97	59	66	50	576	122	60	39
7	76	76	39	97	77	59	63	48	487	115	55	40
8	99	61	41	93	63	58	60	46	443	109	50	40
9	73	54	41	105	59	56	59	45	465	107	48	41
10	54	50	62	97	58	57	57	45	688	113	47	39
11	146	48	96	81	57	83	57	43	923	103	44	74
12	1080	47	75	74	57	74	57	42	1530	95	41	79
13	237	47	63	72	55	63	55	41	2010	88	46	56
14	92	45	104	74	54	59	52	66	1070	85	47	47
15	54	45	157	77	55	60	51	89	541	84	41	43
16	44	44	122	72	51	63	51	85	456	83	40	43
17	38	43	106	103	48	151	51	78	397	2100	38	41
18	34	42	129	105	46	108	50	55	359	310	35	41
19	32	41	126	86	46	87	49	279	331	197	34	41
20	33	41	105	79	50	78	49	425	306	160	32	42
21	32	40	101	83	51	78	50	101	286	142	30	40
22	35	38	677	83	49	76	51	72	269	137	29	38
23	99	39	544	76	45	74	52	60	253	128	28	36
24	76	38	301	74	51	63	51	173	239	117	26	32
25	51	46	236	69	55	62	51	86	225	118	24	30
26	45	48	201	65	175	61	49	60	211	110	22	29
27	41	44	177	64	120	65	47	51	196	124	22	29
28	38	40	166	64	95	66	45	47	187	111	87	29
29	35	38	155	62	---	62	44	2520	180	97	88	29
30	33	36	140	59	---	73	43	1500	183	93	63	28
31	31	---	127	60	---	69	---	830	---	87	57	---
TOTAL	2733	1892	4301	2594	1826	2185	1607	7259	19057	5916	1493	1273
MEAN	88.2	63.1	139	83.7	65.2	70.5	53.6	234	635	191	48.2	42.4
MAX	1080	405	677	114	175	151	66	2520	3200	2100	88	79
MIN	13	29	34	59	45	56	43	41	180	83	22	28
AC-FT	5420	3750	8530	5150	3620	4330	3190	14400	37800	11730	2960	2520

CAL YR 1986 TOTAL 19895 MEAN 54.5 MAX 1250 MIN 1.6 AC-FT 39460
WTR YR 1987 TOTAL 52136 MEAN 143 MAX 3200 MIN 13 AC-FT 103400

08153500 PEDERNALES RIVER NEAR JOHNSON CITY, TX

LOCATION.--Lat 30°17'30", long 98°23'57", Blanco County, Hydrologic Unit 12090206, near left downstream end of bridge on U.S. Highway 281, 0.2 mi downstream from Towhead Creek, 1.1 mi northeast of Johnston City, 3.4 mi downstream from Buffalo Creek, and 48.0 mi upstream from mouth.

DRAINAGE AREA.--901 mi².

PERIOD OF RECORD.--May 1939 to current year.
Water-quality records.--Chemical analyses: April 1948 to September 1950, October 1971 to September 1985.

REVISED RECORDS.--WSP 1632: 1953(M), 1957, 1958(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,096.70 ft above National Geodetic Vertical Datum of 1929. May 4 to Sept. 13, 1939, nonrecording gage, and Sept. 14, 1939, to Sept. 10, 1952, water-stage recorder at upstream side of bridge at same datum. Sept. 11, 1952, to June 29, 1953, nonrecording gage, and June 30, 1953, to Oct. 7, 1954, water-stage recorder at site 360 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records fair. There are diversions above station for irrigation. During the year, the city of Fredericksburg discharged varying amounts of sewage effluent into the river upstream from station. The city of Johnson City diverts varying amounts of water from the pool at gage and discharge sewage effluent into the gage. Flow is affected at times by discharge from the flood-detention pools of four floodwater-retarding structures with a combined detention capacity of 4,580 acre-ft. These structures control runoff from 15.6 mi² in the Williamson Creek drainage basin. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--48 years (water years 1940-87), 187 ft³/s (135,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s Sept. 11, 1952 (gage height, 42.5 ft, from floodmark), from rating curve extended above 116,000 ft³/s on basis of slope-area measurement of 441,000 ft³/s; no flow at times in 1951-52, 1954, 1956-57, 1963-64, 1967-68, 1971, and 1984-85.
Maximum stage since at least 1859, 42.5 ft Sept. 11, 1952.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1869 reached a stage of 33 ft from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 12	0800	8,740	13.22	June 4	1400	17,300	14.74
Dec. 22	1430	8,610	13.19	June 10	2400	12,900	14.03
May 16	1700	5,150	12.37	June 11	1630	23,200	15.57
May 29	2330	12,400	13.94	June 12	1200	6,600	12.73
May 31	2030	10,900	13.75	June 13	1700	33,300	16.79
June 2	1830	19,200	15.09	July 17	1200	*44,800	*17.98

Minimum daily discharge, 45 ft³/s Oct. 3-5.

DISCHARGE, IN 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	57	174	165	650	294	538	248	153	3210	517	257	228
2	51	162	159	582	300	458	233	156	5660	496	252	184
3	45	159	159	469	294	423	219	159	2630	447	238	162
4	45	683	159	474	294	399	228	192	9000	408	234	149
5	45	931	159	472	294	356	224	274	3430	393	216	145
6	86	356	159	446	321	349	242	250	1720	379	203	139
7	132	293	176	454	355	349	255	195	1350	363	197	141
8	145	271	187	454	309	347	235	177	1200	342	178	153
9	143	255	192	467	294	334	233	175	2130	340	175	141
10	120	239	471	507	294	334	217	164	4070	349	167	146
11	283	193	756	466	294	415	217	159	14500	340	167	365
12	4150	192	483	416	294	456	212	162	4940	312	167	209
13	1060	187	362	408	294	393	195	159	11600	299	167	175
14	386	186	784	408	293	361	177	161	4820	269	167	152
15	242	192	1300	400	253	349	181	166	2300	273	163	143
16	193	192	728	385	256	347	182	1200	1840	281	152	139
17	164	192	570	477	244	582	182	936	1550	13700	147	136
18	149	187	690	573	235	548	182	356	1370	1710	145	158
19	132	182	663	446	235	398	186	902	1250	907	142	145
20	128	182	499	395	257	334	173	1410	1110	708	139	139
21	134	182	451	378	289	334	174	507	983	592	139	139
22	308	182	5500	373	278	334	174	298	1010	571	135	139
23	2220	176	3800	363	266	294	173	241	883	433	135	121
24	901	163	1630	346	356	281	176	224	817	390	134	126
25	436	334	1260	320	417	282	182	276	765	385	126	126
26	326	290	1080	320	1800	282	182	231	711	346	117	121
27	288	218	945	307	914	280	182	191	653	321	117	115
28	231	206	837	312	792	273	175	180	590	320	167	115
29	223	192	811	307	---	257	168	2750	543	300	181	120
30	192	183	754	299	---	237	159	5730	517	283	216	112
31	177	---	704	296	---	246	---	3830	---	266	284	---
TOTAL	13192	7534	26593	12970	10816	11170	5966	21964	87152	27040	5424	4583
MEAN	426	251	858	418	386	360	199	709	2905	872	175	153
MAX	4150	931	5500	650	1800	582	255	5730	14500	13700	284	365
MIN	45	159	159	296	235	237	159	153	517	266	117	112
AC-FT	26170	14940	52750	25730	21450	22160	11830	43570	172900	53630	10760	9090

CAL YR 1986 TOTAL 117120 MEAN 321 MAX 6790 MIN 24 AC-FT 232300
WTR YR 1987 TOTAL 234404 MEAN 642 MAX 14500 MIN 45 AC-FT 464900

08154500 LAKE TRAVIS NEAR AUSTIN, TX

LOCATION.--Lat 30°23'29", long 97°54'24", Travis County, Hydrologic Unit 12090205, in powerhouse at Mansfield Dam on Colorado River, 7.3 mi downstream from Sandy Creek, 12 mi northwest of Austin, and at mile 318.0.

DRAINAGE AREA.-38,755 mi², approximately, of which 11,403 mi² probably is noncontributing.

PERIOD OF RECORD.--September 1940 to current year. Prior to October 1948, published as Marshall Ford Reservoir near Austin.

REVISED RECORDS.--WSP 1342: Drainage area. WDR TX-83-3: 1982.

GAGE.--Nonrecording gage. Datum of gage is 0.12 ft above National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Dec. 26, 1940, staff gages on left bank near dam, datum is National Geodetic Vertical Datum of 1929, unadjusted. Dec. 26, 1940, to February 1942, mercury manometer in powerhouse, datum is National Geodetic Vertical Datum of 1929, unadjusted.

REMARKS.--The lake is formed by a 7,098-foot-long concrete gravity, earth, and rockfill dam. Storage began Sept. 9, 1940, and dam was completed in early 1942. Capacity curve is based on an October 1939 survey. Capacity between gage heights 681.0 and 714.0 ft is 778,000 acre-ft and is reserved for flood control. Water is used for power development and for irrigation below Columbus. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08153500. Diversion for municipal and irrigation purposes are pumped from lake, and minor amounts of sewage effluent are discharged into the lake. 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 (roadway)	750.1	-
Design flood	748.9	3,223,000
Crest of spillway	714.0	1,950,000
Top of power storage	681.0	1,172,000
Lowest gated outlet (invert)	535.8	27,900

COOPERATION.--Records of daily gage heights and capacity curve furnished by Lower Colorado River Authority.

EXTREMES (at 2400) FOR PERIOD OF RECORD.--Maximum contents, 1,770,000 acre-ft May 18, 1957 (gage height, 707.4 ft); minimum, 332,600 acre-ft Aug. 13, 14, 1951 (gage height, 614.2 ft).

EXTREMES (at 2400) FOR CURRENT YEAR.--Maximum contents, 1,428,000 acre-ft June 14; maximum gage height, 693.48 ft June 14; minimum contents, 1,074,000 acre-ft Sept. 30 (gage height, 675.66 ft).

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

675.0	1,062,900	686.0	1,272,000	692.0	1,395,000
680.0	1,152,000	688.0	1,312,000	694.0	1,439,000
684.0	1,232,000	690.0	1,352,000		

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1083000	1220000	1167000	1290000	1198000	1203000	1195000	1144000	1258000	1245000	1165000	1109000
2	1086000	1214000	1170000	1288000	1192000	1207000	1192000	1141000	1274000	1239000	1164000	1086000
3	1088000	1213000	1166000	1286000	1188000	1211000	1190000	1142000	1281000	1237000	1163000	1101000
4	1088000	1216000	1160000	1281000	1186000	1216000	1187000	1142000	1281000	1238000	1163000	1097000
5	1087000	1217000	1156000	1278000	1181000	1220000	1187000	1145000	1357000	1234000	1161000	1094000
6	1094000	1217000	1151000	1275000	1177000	1220000	1185000	1145000	1342000	1232000	1159000	1089000
7	1108000	1215000	1149000	1272000	1173000	1219000	1179000	1145000	1323000	1230000	1156000	1091000
8	1121000	1212000	1147000	1268000	1168000	1219000	1174000	1143000	1297000	1219000	1152000	1089000
9	1138000	1208000	1145000	1261000	1163000	1217000	1169000	1143000	1290000	1213000	1150000	1089000
10	1152000	1206000	1145000	1256000	1158000	1215000	1166000	1142000	1289000	1209000	1149000	1090000
11	1166000	1202000	1145000	1250000	1154000	1211000	1163000	1140000	1324000	1206000	1148000	1091000
12	1194000	1202000	1143000	1245000	1150000	1209000	1161000	1142000	1347000	1204000	1146000	1091000
13	1208000	1202000	1143000	1237000	1146000	1209000	1160000	1139000	1412000	1203000	1147000	1090000
14	1218000	1198000	1144000	1229000	1143000	1212000	1158000	1140000	1428000	1200000	1147000	1088000
15	1224000	1196000	1152000	1223000	1138000	1214000	1157000	1137000	1418000	1200000	1145000	1092000
16	1222000	1193000	1157000	1217000	1141000	1218000	1157000	1142000	1394000	1201000	1142000	1092000
17	1216000	1192000	1162000	1212000	1146000	1219000	1157000	1149000	1367000	1238000	1140000	1094000
18	1215000	1190000	1168000	1207000	1146000	1222000	1157000	1154000	1346000	1240000	1141000	1099000
19	1212000	1188000	1170000	1205000	1149000	1219000	1155000	1158000	1326000	1238000	1137000	1102000
20	1209000	1184000	1173000	1206000	1152000	1218000	1157000	1159000	1310000	1236000	1133000	1103000
21	1212000	1180000	1178000	1209000	1156000	1218000	1154000	1167000	1290000	1229000	1131000	1103000
22	1212000	1176000	1216000	1210000	1156000	1218000	1153000	1166000	1275000	1220000	1128000	1102000
23	1226000	1178000	1253000	1211000	1157000	1217000	1153000	1165000	1264000	1212000	1124000	1100000
24	1238000	1175000	1266000	1210000	1163000	1218000	1151000	1168000	1257000	1207000	1124000	1097000
25	1242000	1173000	1275000	1211000	1170000	1214000	1150000	1170000	1264000	1201000	1121000	1094000
26	1242000	1172000	1282000	1208000	1180000	1212000	1150000	1169000	1262000	1195000	1118000	1091000
27	1241000	1170000	1290000	1207000	1191000	1209000	1149000	1172000	1262000	1190000	1119000	1089000
28	1238000	1169000	1293000	1208000	1197000	1206000	1148000	1175000	1260000	1184000	1115000	1091000
29	1235000	1169000	1295000	1208000	---	1201000	1146000	1206000	1256000	1180000	1112000	1087000
30	1228000	1167000	1294000	1205000	---	1196000	1144000	1219000	1251000	1175000	1113000	1074000
31	1225000	---	1292000	1200000	---	1195000	---	1241000	---	1170000	1110000	---
MAX	1242000	1220000	1295000	1290000	1198000	1222000	1195000	1241000	1428000	1245000	1165000	1109000
MIN	1083000	1167000	1143000	1200000	1138000	1195000	1144000	1137000	1251000	1170000	1110000	1074000
(†)	683.63	680.77	687.01	682.42	682.26	682.17	679.58	684.45	684.97	680.88	677.65	675.66
(ϕ)	+145000	-58000	+125000	-92000	-3000	-2000	-51000	+97000	+10000	-81000	-60000	-36000

CAL YR 1986 MAX 1295000 MIN 997300 (ϕ) +181000
WTR YR 1987 MAX 1428000 MIN 1074000 (ϕ) -6000

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

08154510 COLORADO RIVER BELOW MANSFIELD DAM, AUSTIN, TX

LOCATION.--Lat 30°23'30", long 97°54'28", Travis County, Hydrologic Unit 12090205, at the downstream side of Mansfield Dam, 12.9 mi northwest of the State Capitol at Austin, and at mile 318.0.

DRAINAGE AREA.--38,755 mi², approximately, of which 11,403 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

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

GAGE.--None. Daily discharge record is based on daily releases from Lake Travis.

REMARKS.--No estimated daily discharges. Records fair.

COOPERATION.--All records of releases were furnished by the Lower Colorado River Authority.

AVERAGE DISCHARGE.--13 years 1,574 ft³/s (1,140,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 25,300 ft³/s Apr. 17-19, 1977; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 6,590 ft³/s June 3, 4; no flow at times.

DISCHARGE, IN 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	885	5020	3290	5070	2760	3210	3370	1380	.00	5620	3560	2480
2	962	5020	2260	5070	3270	3210	3110	1480	6590	5210	1090	2500
3	896	3100	2380	5070	2810	3000	3410	1400	6590	5770	1390	2500
4	219	2870	2840	5070	3010	3160	3280	1340	6080	2990	1780	2520
5	847	3020	2540	5070	2990	4420	3020	1390	6300	4640	1380	2510
6	790	4560	2530	5070	3290	5170	3260	1470	6330	5300	1410	2580
7	1050	5070	1570	5070	2910	5080	3230	1270	6330	5600	1900	2670
8	1680	5070	1640	5070	3320	4960	3090	1060	6330	5470	1680	2430
9	2200	5070	1790	5070	3350	5020	3410	1130	6360	3910	1580	2080
10	1990	4040	2180	5070	3280	5090	2830	1110	6430	3360	1650	1940
11	2480	3220	1550	5070	3150	5080	2040	1190	6370	2500	1980	2620
12	2870	2620	1580	5070	3370	4640	1790	1140	6330	2440	1780	2590
13	3500	3300	1640	1070	3240	3340	1710	1200	6280	3220	1590	2640
14	3410	3440	1520	5540	3260	3160	1640	1180	6210	2710	1820	2400
15	4020	3110	1430	4790	3060	2030	977	1150	6210	2320	1830	2440
16	4950	3370	1500	5130	.00	1600	1260	1270	6290	2330	1780	2560
17	5030	3090	1500	4190	1280	4340	1110	1320	6330	3870	1700	2180
18	4340	3180	2340	5070	515	4940	1390	1270	6330	5240	1830	2290
19	3050	3240	2240	4070	68	5090	1300	1820	6330	4980	1960	2550
20	3010	3250	2290	3550	226	4140	2020	3700	6330	4980	1390	2370
21	2920	3350	2440	3200	386	3060	1430	3020	6330	5260	1630	1880
22	2980	3260	1440	3110	.00	3240	1220	3440	6250	5020	1580	2570
23	3820	3210	5330	3080	325	4630	1050	3280	6330	4660	1740	2480
24	4950	2980	5070	3270	.00	5420	1390	3340	6260	3340	1750	2470
25	4950	3490	5070	3100	966	5350	748	3120	5200	3240	1660	2530
26	5160	3390	5070	3040	2440	5530	1320	3340	5400	3410	1680	1570
27	4950	3250	5070	3170	2910	5460	1320	3260	5510	3040	1470	1970
28	4980	3270	5070	3330	3160	5410	1390	3290	5320	3560	1510	2100
29	5020	3270	5070	3320	---	5410	1120	3520	5280	3200	1570	1480
30	5020	3300	5070	3080	---	4450	1220	4960	5490	3260	1480	1630
31	5020	---	5070	3290	---	3640	---	5970	---	3490	1540	---
TOTAL	97949	107430	90380	129240	59346.00	132280	59455	68810	177720.00	123940	52690	69530
MEAN	3160	3581	2915	4169	2119	4267	1982	2220	5924	3998	1700	2318
MAX	5160	5070	5330	5540	3370	5530	3410	5970	6590	5770	3560	2670
MIN	219	2620	1430	1070	.00	1600	748	1060	.00	2320	1090	1480
AC-FT	194300	213100	179300	256300	117700	262400	117900	136500	352500	245800	104500	137900

CAL YR 1986	TOTAL	658890.0	MEAN	1805	MAX	5330	MIN	.00	AC-FT	1307000	
WTR YR 1987	TOTAL	1168770.0	MEAN	3202	MAX	6590	MIN	.00	AC-FT	2318000	

08154510 COLORADO RIVER BELOW MANSFIELD DAM, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1980 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3
FEB 27...	0900	522	7.70	11.5	9.7	90	0.4	190	46
MAY 13...	1100	508	7.80	14.5	8.0	79	0.1	200	43
JUL 15...	1215	549	7.60	24.0	4.5	54	0.3	210	50
AUG 20...	1320	539	7.40	25.5	2.0	25	1.1	200	52

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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
FEB 27...	46	19	28	0.9	3.8	147	37	49	0.20
MAY 13...	46	20	29	0.9	3.6	154	37	48	0.20
JUL 15...	50	20	33	1	3.3	157	42	53	0.20
AUG 20...	50	19	31	1	3.7	151	41	52	0.20

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
FEB 27...	7.5	280	<0.010	0.300	<0.010	--	0.70	0.010	4.2
MAY 13...	7.2	280	<0.010	0.200	<0.010	--	0.70	0.010	--
JUL 15...	8.5	300	<0.010	0.200	0.010	0.29	0.30	0.010	--
AUG 20...	10	300	<0.010	0.200	0.010	0.69	0.70	0.010	--

08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX

LOCATION.--Lat 30°22'19", long 97°47'04", Travis County, Hydrologic Unit 12090205, on right bank at downstream side of bridge at Loop 360, 1.0 mi upstream from West Fork Bull Creek and Farm Road 2222, and 7.1 mi northwest of the State Capitol Building in Austin.

DRAINAGE AREA.--22.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1976 to July 1978 (operated as a flood-hydrograph partial-record station only), July 1978 to current year.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 534.08 ft above National Geodetic Vertical Datum of 1929 (levels from city of Austin benchmark).

REMARKS.-- Records good except those for estimated daily discharges, which are fair. No known regulation or diversion above station. There are two recording rain gages in the watershed. This station is part of a hydrologic research project to study the rainfall-runoff relationship for the Austin urban-rural areas.

AVERAGE DISCHARGE.--9 years, 13.3 ft³/s (8.10 in/yr), 9,640 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s May 13, 1982 (gage height, 11.96 ft); no flow for several days in 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 300 (revised) ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 22	0415	315	4.30	June 9	2000	524	4.68
Oct. 23	0900	2400	6.51	June 11	1415	413	4.49
Dec. 22	2315	564	4.74	June 12	0245	1140	5.48
May 29	0630	*5920	*8.89	June 13	1300	458	4.57
June 2	1600	2680	6.71	June 25	1730	616	4.82
June 3	2130	574	4.76	July 17	0930	710	4.95
June 4	0900	945	5.27	Sept 18	1615	1240	5.59

Minimum daily discharge, 0.14 ft³/s Oct. 4, 5.

DISCHARGE, IN 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	.18	e10	7.5	32	13	27	13	2.6	43	48	5.6	5.5
2	.19	e7.5	7.2	31	12	24	13	2.3	413	32	4.9	4.2
3	.21	e6.2	6.8	30	11	26	11	2.3	267	19	4.6	3.3
4	.14	e31	6.3	27	11	25	11	.54	521	14	3.8	3.3
5	.14	e21	6.2	26	11	24	9.9	.66	216	11	3.2	3.0
6	6.9	e22	6.2	25	11	23	11	1.5	115	9.9	2.9	3.0
7	6.3	e16	6.2	25	11	23	11	1.4	79	10	2.5	5.4
8	3.0	e16	7.9	24	10	23	11	1.7	68	10	2.3	5.8
9	1.7	e15	11	24	10	21	11	1.9	282	15	2.1	3.8
10	2.2	e13	37	22	10	21	10	2.0	253	15	1.9	3.9
11	10	e13	33	20	10	25	8.8	2.4	282	9.9	1.7	7.3
12	71	e13	25	19	11	22	7.9	2.4	421	8.3	1.7	5.9
13	22	e12	21	18	10	21	12	2.3	267	8.2	1.7	4.2
14	14	e11	39	20	9.7	20	10	2.5	176	7.3	1.7	2.6
15	11	e10	75	20	9.7	21	7.5	2.6	123	6.2	1.6	2.3
16	9.5	e8.9	50	17	9.4	21	5.6	3.0	91	6.2	1.1	2.0
17	8.1	e8.9	39	30	8.8	37	5.6	2.7	75	140	1.0	1.7
18	6.8	8.2	65	24	8.0	25	5.6	2.6	66	22	.96	281
19	6.1	7.7	46	23	7.8	23	5.8	2.9	56	15	.91	51
20	4.9	6.4	38	19	16	23	6.0	3.6	48	13	.75	17
21	11	6.7	34	19	12	21	6.4	3.2	42	9.8	1.2	13
22	74	6.8	284	18	11	21	6.2	3.7	35	11	1.8	6.7
23	630	7.6	288	18	9.4	23	6.2	3.0	31	11	1.6	4.6
24	86	11	116	18	21	22	6.0	12	26	11	1.8	3.9
25	47	28	82	16	19	22	5.8	7.2	96	8.5	1.9	3.0
26	40	13	69	14	59	18	5.6	3.7	41	10	2.0	2.7
27	29	10	55	14	36	16	5.6	3.1	26	7.0	14	2.4
28	26	10	49	13	37	16	6.5	3.2	22	9.1	6.1	2.6
29	22	8.8	41	13	---	15	6.7	1040	19	7.8	4.8	2.3
30	19	7.5	37	13	---	14	5.5	116	17	6.9	5.4	1.9
31	11	---	34	13	---	13	---	57	---	6.2	7.9	---
TOTAL	1179.36	366.2	1622.3	645	414.8	676	247.2	1296.00	4217	518.3	95.42	459.3
MEAN	38.0	12.2	52.3	20.8	14.8	21.8	8.24	41.8	141	16.7	3.08	15.3
MAX	630	31	288	32	59	37	13	1040	521	140	14	281
MIN	.14	6.2	6.2	13	7.8	13	5.5	.54	17	6.2	.75	1.7
AC-FT	2340	726	3220	1280	823	1340	490	2570	8360	1030	189	911
CFSM	1.71	.55	2.35	.93	.66	.98	.37	1.87	6.30	.75	.14	.69
IN.	1.97	.61	2.71	1.08	.69	1.13	.41	2.16	7.03	.86	.16	.77

CAL YR 1986 TOTAL 7399.22 MEAN 20.3 MAX 630 MIN .02 AC-FT 14680 CFSM .91 IN. 12.3
WTR YR 1987 TOTAL 11736.79 MEAN 32.2 MAX 1040 MIN .14 AC-FT 23280 CFSM 1.44 IN. 19.6

e Estimated.

08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1978 to current year. Pesticide analyses: June 1978 to September 1986. Radiochemical analyses: January to Arpil 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DEC												
08...	0857	9.7	635	8.30	16.0	2	0.30	8.6	89	0.4	200	K49
FEB												
17...	0920	18	607	7.90	10.5	3	0.20	10.6	97	0.7	130	53
MAY												
12...	0820	2.0	581	7.90	21.5	2	1.5	8.1	94	1.0	200	K640
29...	0928	919	308	7.80	19.5	55	87	9.4	105	3.3	16000	100000
JUL												
01...	1719	157	368	--	--	23	330	--	--	3.8	8400	53000
01...	1749	122	435	7.60	--	--	--	--	--	--	--	--
01...	1819	110	442	--	--	--	--	--	--	--	--	--
01...	1919	94	456	--	--	7	18	--	--	1.7	4000	3700
17...	1147	315	392	--	--	25	63	--	--	2.7	26000	22000
17...	1315	183	423	--	--	16	27	--	--	1.1	10000	5700
AUG												
05...	1110	5.6	539	8.00	27.5	2	0.60	7.9	103	0.4	56	540

DATE	HARD-NESS (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 WH WAT TOTAL 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)
DEC												
08...	--	--	--	--	--	--	--	233	--	--	--	--
FEB												
17...	270	48	74	21	20	0.5	1.0	223	48	38	0.20	6.3
MAY												
12...	--	--	--	--	--	--	--	--	--	--	--	--
29...	140	21	42	7.9	7.4	0.3	3.0	116	19	18	0.10	7.6
JUL												
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	200	27	56	14	15	0.5	1.8	170	30	21	0.20	9.3
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
05...	250	49	66	20	17	0.5	1.3	198	34	28	0.20	14

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
DEC												
08...	--	6	3	0.290	0.010	0.300	0.040	0.26	0.30	<0.010	3.1	--
FEB												
17...	340	3	2	--	<0.010	0.200	0.050	--	--	<0.010	1.5	<1
MAY												
12...	--	<1	<1	--	<0.010	0.100	0.030	1.1	1.1	0.010	3.0	--
29...	170	196	35	0.770	0.030	0.800	0.080	1.1	1.2	0.150	10	<1
JUL												
01...	--	735	80	0.280	0.020	0.300	0.100	1.8	1.9	0.260	18	--
01...	250	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	2
01...	--	24	12	0.370	0.030	0.400	0.080	0.52	0.60	0.040	5.0	--
17...	--	109	36	0.380	0.020	0.400	0.070	1.2	1.3	0.020	9.9	--
17...	--	39	35	0.290	0.010	0.300	0.060	0.64	0.70	4.10	6.9	--
AUG												
05...	300	34	17	--	<0.010	0.100	<0.010	--	0.50	0.020	2.4	<1

08154700 BULL CREEK AT LOOP 360 NEAR AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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											
08...	--	--	--	--	--	--	--	--	--	--	--
FEB											
17...	49	<1	<10	<1	4	<5	3	<0.1	<1	<1	5
MAY											
12...	--	--	--	--	--	--	--	--	--	--	--
29...	28	<1	<10	<1	33	<5	1	<0.1	<1	<1	8
JUL											
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	46	<1	40	<1	4	<5	32	<0.1	<1	<1	<3
01...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
AUG											
05...	49	<1	<10	<1	7	<5	3	0.4	<1	<1	<3

08154900 LAKE AUSTIN AT AUSTIN, TX

LOCATION.--Lat 30°18'53", long 97°47'10", Travis County, Hydrologic Unit 12090205, at city of Austin Waterplant No. 2 and 1.5 mi upstream from Tom Miller Dam on the Colorado River at Austin.

DRAINAGE AREA.--38,846 mi², of which 11,403 mi² probably is noncontributing.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1978 to current year.

301739097471601 - LAKE AUSTIN SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
19...	0920	1.00	511	8.20	14.0	9.4	93
19...	0922	10.0	511	8.20	14.0	9.4	93
19...	0924	20.0	511	8.20	14.0	9.4	93
19...	0926	30.0	511	8.20	14.0	9.4	93
19...	0928	36.0	511	8.20	14.0	9.4	93
MAY							
27...	0825	1.00	524	8.10	19.5	8.3	92
27...	0827	10.0	524	8.10	18.5	8.0	87
27...	0829	20.0	524	8.10	18.0	8.0	86
27...	0831	30.0	524	8.00	17.5	7.9	84
27...	0833	39.0	524	8.00	17.5	7.9	84
29...	1020	1.00	496	8.00	19.0	8.1	89
29...	1022	10.0	506	8.00	18.5	8.0	87
29...	1023	20.0	506	8.00	18.5	8.0	87
29...	1024	32.0	519	7.90	18.0	8.4	90
AUG							
27...	1225	1.00	544	7.40	27.0	4.9	62
27...	1227	10.0	544	7.40	27.0	4.6	59
27...	1229	22.0	544	7.40	27.0	4.4	56

301739097471201 - LAKE AUSTIN SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	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)
MAR												
19...	0830	1.00	511	8.20	14.0	1.80	2	3.8	9.4	93	0.2	K78
19...	0832	10.0	511	8.20	14.0	--	--	--	9.4	93	--	--
19...	0834	20.0	511	8.20	14.0	--	--	--	9.4	93	--	--
19...	0836	30.0	511	8.20	14.0	--	--	--	9.4	93	--	--
19...	0838	40.0	511	8.20	14.0	--	--	--	9.3	92	--	--
19...	0840	53.0	511	8.20	13.5	--	3	8.2	9.5	93	0.6	--
MAY												
27...	0837	1.00	526	8.10	19.0	1.10	2	1.6	8.2	90	0.6	K6
27...	0839	10.0	526	8.10	18.5	--	--	--	8.0	87	--	--
27...	0841	20.0	526	8.10	18.0	--	--	--	7.9	85	--	--
27...	0843	30.0	526	8.10	17.5	--	--	--	7.8	83	--	--
27...	0845	40.0	526	8.00	17.0	--	--	--	7.6	80	--	--
27...	0847	52.0	526	8.00	17.0	--	1	6.9	7.3	77	0.8	--
29...	1040	1.00	496	8.10	19.0	0.80	4	3.4	8.2	90	0.8	580
29...	1042	10.0	496	8.20	19.0	--	--	--	8.1	89	--	--
29...	1044	20.0	506	8.10	18.5	--	--	--	8.0	87	--	--
29...	1046	30.0	506	8.00	18.0	--	--	--	7.8	84	--	--
29...	1048	40.0	515	8.00	17.5	--	--	--	7.6	81	--	--
29...	1050	53.0	514	7.90	17.0	--	5	6.9	7.0	74	0.8	--
AUG												
27...	1045	1.00	545	7.50	27.5	1.30	4	3.1	5.0	65	0.4	K6
27...	1047	10.0	545	7.40	27.0	--	--	--	4.6	59	--	--
27...	1049	20.0	545	7.40	27.0	--	--	--	4.6	59	--	--
27...	1051	30.0	545	7.40	27.0	--	--	--	4.2	54	--	--
27...	1053	40.0	545	7.30	27.0	--	--	--	3.9	50	--	--
27...	1055	51.0	545	7.30	26.5	--	4	5.7	3.2	41	0.5	--

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 - LAKE AUSTIN SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
MAR												
19...	K6	200	41	48	19	28	0.9	3.5	157	37	47	0.20
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	200	41	48	19	28	0.9	3.4	157	37	48	0.20
MAY												
27...	K8	200	40	47	19	29	0.9	3.6	156	37	49	0.20
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	200	39	47	19	29	0.9	3.5	157	37	49	0.20
29...	800	190	39	45	18	27	0.9	3.5	148	35	48	0.20
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	200	40	47	19	28	0.9	3.6	156	35	49	0.20
AUG												
27...	36	190	43	48	18	30	1	3.8	151	41	53	0.20
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	190	38	48	18	30	1	3.8	156	39	54	0.20

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)
MAR												
19...	7.0	280	3	3	<0.010	0.200	0.050	0.35	0.40	0.010	2.2	<1
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	<0.010	0.200	0.050	0.25	0.30	0.010	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	7.1	280	17	17	<0.010	0.200	0.040	0.46	0.50	0.010	3.3	<1
MAY												
27...	7.0	290	10	4	<0.010	0.200	0.010	0.49	0.50	0.010	3.3	1
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	<0.010	0.200	<0.010	--	0.70	0.010	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	7.4	290	15	11	<0.010	0.200	0.020	1.1	1.1	0.020	3.3	1
29...	6.8	270	<1	<1	<0.010	0.200	0.020	0.48	0.50	0.010	3.2	<1
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	<0.010	0.200	0.030	0.47	0.50	0.010	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	7.2	280	15	7	<0.010	0.200	0.030	0.67	0.70	0.010	3.6	<1
AUG												
27...	10	290	3	1	<0.010	0.100	0.020	0.38	0.40	0.020	3.5	2
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	<0.010	0.100	0.040	0.46	0.50	0.020	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	11	300	20	4	<0.010	0.100	0.100	0.60	0.70	0.030	4.9	2

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 - LAKE AUSTIN SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COPPER, DISSOLVED (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)
MAR												
19...	--	68	<1	--	<10	--	1	--	3	--	<5	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	<10	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	11	68	<1	2	<10	10	1	10	3	7900	<5	60
MAY												
27...	--	73	<1	--	<10	--	1	--	10	--	<5	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	<10	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	3	73	<1	2	<10	70	1	8	6	4000	9	40
29...	--	69	<1	--	<10	--	<1	--	5	--	<5	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	<10	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	71	<1	--	<10	--	<1	--	5	--	<5	--
AUG												
27...	--	68	<1	--	<10	--	3	--	7	--	<5	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	<10	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
27...	6	69	<1	2	<10	230	2	10	6	7700	<5	40

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY DISSOLVED (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	BENZENE TOTAL (UG/L)	BROMOFORM TOTAL (UG/L)	CARBON-TETRACHLORIDE TOTAL (UG/L)
MAR											
19...	3	--	<0.1	--	<1	<1	<3	--	<3.0	<3.0	<3.0
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	<10	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	4	1400	<0.1	0.11	<1	<1	3	50	--	--	--
MAY											
27...	<1	--	<0.1	--	<1	<1	12	--	<3.0	<3.0	<3.0
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	<10	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	28	510	<0.1	0.70	<1	<1	5	20	--	--	--
29...	2	--	<0.1	--	<1	<1	5	--	<3.0	<3.0	<3.0
29...	--	--	--	--	--	--	--	--	--	--	--
29...	<10	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	14	--	<0.1	--	<1	<1	4	--	--	--	--
AUG											
27...	3	--	<0.1	--	1	<1	<3	--	<3.0	<3.0	<3.0
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	20	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	230	1400	<0.1	<0.10	1	<1	8	40	--	--	--

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 - LAKE AUSTIN SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CHLORO-BENZENE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	METHYL-CHLO-RIDE TOTAL (UG/L)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)
MAR											
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
MAY											
27...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
AUG											
27...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--

DATE	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)
MAR											
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
MAY											
27...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
AUG											
27...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

301739097471201 - LAKE AUSTIN SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	1,2-DIBROMO ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-BENZENE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE TOTAL (UG/L)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L)	1,2-TRANSDI CHLORO-ETHYL-ENE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)	XYLENE WATER WHOLE TOT REC (UG/L)
MAR											
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
MAY											
27...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
29...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
AUG											
27...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--

DATE	AME-TRYNE TOTAL	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
MAR											
19...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
19...	<0.10	<0.10	<0.10	--	<0.1	<0.1	<0.10	--	--	<0.10	<0.1
MAY											
27...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
29...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
AUG											
27...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--
27...	<0.10	<0.10	<0.10	--	<0.1	<0.1	<0.10	--	--	<0.10	<0.1

301739097470901 - LAKE AUSTIN SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
MAR							
19...	0940	1.00	511	8.20	14.0	9.4	93
19...	0942	14.0	511	8.20	13.5	9.6	94
MAY							
27...	0920	1.00	524	8.20	20.0	8.5	96
27...	0922	5.00	526	8.00	18.0	7.7	83
27...	0924	10.0	527	8.00	17.5	7.7	82
27...	0926	15.0	527	8.00	17.5	7.7	82
29...	1105	1.00	490	8.10	18.5	8.0	87
29...	1107	10.0	507	8.10	18.0	8.0	86
29...	1109	14.0	514	8.00	17.5	7.7	82
AUG							
27...	1030	1.00	545	7.40	28.0	5.8	76
27...	1032	10.0	545	7.30	27.0	4.5	58
27...	1034	22.0	545	7.20	27.0	4.0	51

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

302043097472401 - LAKE AUSTIN SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, NITRATE TOTAL (MG/L AS N)
MAR									
19...	1025	1.00	505	8.20	14.0	2.00	9.2	91	--
19...	1027	10.0	505	8.20	13.5	--	9.2	90	--
19...	1029	20.0	505	8.20	13.5	--	9.2	90	--
19...	1031	29.0	505	8.20	13.5	--	9.2	90	--
MAY									
27...	0945	1.00	528	8.20	18.5	1.70	8.3	91	--
27...	0947	10.0	528	8.20	18.5	--	8.3	91	--
27...	0949	20.0	528	8.10	17.0	--	7.7	81	--
27...	0951	30.0	528	8.10	17.0	--	7.7	81	--
29...	1130	1.00	460	8.10	17.5	0.20	8.0	85	0.290
29...	1132	10.0	481	8.10	17.5	--	7.8	83	--
29...	1134	20.0	499	8.10	17.0	--	7.7	81	--
29...	1136	27.0	498	8.00	17.0	--	7.6	80	--

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)
MAR								
19...	<0.010	0.200	0.030	0.27	0.30	0.010	<10	<10
19...	--	--	--	--	--	--	--	--
19...	<0.010	0.200	0.030	0.27	0.30	0.010	<10	<10
19...	<0.010	0.200	0.040	0.56	0.60	0.010	<10	<10
MAY								
27...	<0.010	0.200	<0.010	--	0.30	0.010	<10	<10
27...	<0.010	0.200	<0.010	--	0.90	0.010	<10	<10
27...	--	--	--	--	--	--	--	--
27...	<0.010	0.200	<0.010	--	1.0	0.010	<10	<10
29...	0.010	0.300	0.050	0.75	0.80	0.020	20	<10
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	<0.010	0.200	0.040	0.66	0.70	0.020	10	<10

302044097472301 - LAKE AUSTIN SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
19...	1015	1.00	505	8.20	14.0	9.3	92
19...	1017	10.0	505	8.20	13.5	9.2	90
19...	1019	20.0	505	8.20	13.5	9.2	90
MAY							
27...	1000	1.00	527	8.10	18.5	8.2	89
27...	1002	10.0	527	8.10	18.5	8.1	88
27...	1004	14.0	527	8.10	18.0	7.9	85
29...	1145	1.00	445	8.00	17.5	7.8	83
29...	1147	10.0	450	8.00	17.5	7.8	83
29...	1149	18.0	445	8.00	17.5	7.8	83

301926097502201 - LAKE AUSTIN SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR										
19...	1100	1.00	505	8.30	13.5	2.10	4	3.1	9.9	97
19...	1102	10.0	505	8.30	13.0	--	--	--	9.7	94
19...	1104	24.0	505	8.20	13.0	--	6	3.0	9.4	91
MAY										
27...	1030	1.00	527	8.20	17.5	1.90	4	1.3	7.8	83
27...	1032	10.0	527	8.20	17.0	--	--	--	8.0	85
27...	1034	20.0	527	8.20	17.0	--	--	--	7.8	82
27...	1036	24.0	527	8.10	17.0	--	2	1.4	7.6	80
29...	1320	1.00	495	8.00	16.0	0.30	3	17	8.2	85
29...	1322	10.0	496	7.90	16.0	--	--	--	8.1	84
29...	1324	21.0	496	7.80	16.0	--	6	13	8.4	87

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

301926097502201 - LAKE AUSTIN SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	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 (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
MAR									
19...	0.4	35	K6	190	39	46	19	28	0.9
19...	--	--	--	--	--	--	--	--	--
19...	0.3	--	--	190	37	45	19	27	0.9
MAY									
27...	0.6	K13	K13	190	36	46	19	29	0.9
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	0.8	--	--	190	36	46	19	28	0.9
29...	0.9	2500	3000	190	35	45	18	28	0.9
29...	--	--	--	--	--	--	--	--	--
29...	0.8	--	--	200	48	47	19	28	0.9

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
19...	3.6	154	38	51	0.20	7.0	290	<1	<1
19...	--	--	--	--	--	--	--	--	--
19...	3.6	154	36	47	0.20	6.8	280	<1	<1
MAY									
27...	3.6	157	37	49	0.20	6.8	280	1	<1
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	3.6	157	37	49	0.30	6.8	280	9	4
29...	3.6	151	35	48	0.20	6.9	280	29	9
29...	--	--	--	--	--	--	--	--	--
29...	3.6	148	34	46	0.20	7.1	270	25	21

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)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR									
19...	<0.010	0.200	0.040	0.26	0.30	0.010	1.9	17	4
19...	<0.010	0.200	0.030	0.37	0.40	<0.010	--	10	<10
19...	<0.010	0.200	0.050	0.55	0.60	0.010	0.7	7	2
MAY									
27...	<0.010	0.200	<0.010	--	0.70	0.010	3.0	<3	5
27...	<0.010	0.200	<0.010	--	0.70	0.020	--	<10	<10
27...	--	--	--	--	--	--	--	--	--
27...	<0.010	0.200	<0.010	--	0.40	0.010	3.1	<3	5
29...	<0.010	0.200	0.040	0.46	0.50	0.020	3.3	6	5
29...	<0.010	0.200	0.030	0.47	0.50	0.020	--	<10	<10
29...	<0.010	0.200	0.030	0.67	0.70	0.020	3.4	12	8

302021097540001 - LAKE AUSTIN SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)
MAR									
19...	1210	1.00	505	8.00	12.5	2.00	8.4	81	--
19...	1212	15.0	505	8.00	12.5	--	8.3	80	--
MAY									
27...	1105	1.00	529	8.10	16.0	2.70	6.8	70	--
27...	1107	10.0	529	8.10	15.5	--	6.8	70	--
27...	1109	15.0	529	8.00	15.5	--	6.7	69	--
29...	1355	1.00	410	8.00	15.5	0.20	8.1	83	0.290
29...	1357	10.0	425	8.00	15.5	--	7.9	81	--
29...	1359	14.0	418	8.00	15.5	--	7.6	78	0.180

08154900 LAKE AUSTIN AT AUSTIN, TX--Continued

302021097540001 - LAKE AUSTIN SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR								
19...	<0.010	0.200	0.030	0.27	0.30	0.010	<10	<10
19...	<0.010	0.200	0.030	0.27	0.30	0.010	<10	<10
MAY								
27...	<0.010	0.200	<0.010	--	0.70	0.010	<10	<10
27...	--	--	--	--	--	--	--	--
27...	<0.010	0.200	<0.010	--	0.60	0.010	<10	<10
29...	0.010	0.300	0.070	0.63	0.70	0.050	30	<10
29...	--	--	--	--	--	--	--	--
29...	0.020	0.200	0.090	0.61	0.70	0.050	20	<10

302314097544901 - LAKE AUSTIN SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
MAR										
19...	1145	1.00	505	8.10	12.5	2.00	4	2.2	8.9	86
MAY										
27...	1140	1.00	527	8.10	14.5	2.30	3	1.0	6.4	64
27...	1142	10.0	527	8.10	14.5	--	--	--	6.5	65
29...	1445	1.00	520	7.90	13.5	2.00	1	1.1	6.9	67
29...	1447	9.00	520	7.90	14.0	--	--	--	6.9	68

DATE	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 (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
MAR									
19...	0.4	47	K16	190	40	45	19	28	0.9
MAY									
27...	0.2	K1	K2	190	36	46	19	28	0.9
27...	--	--	--	--	--	--	--	--	--
29...	0.7	K28	K20	200	51	49	20	29	0.9
29...	--	--	--	--	--	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
MAR									
19...	3.6	151	37	48	0.20	7.2	280	<1	<1
MAY									
27...	3.6	157	37	49	0.20	7.0	280	6	1
27...	--	--	--	--	--	--	--	--	--
29...	3.6	154	37	49	0.20	7.5	290	<18	1
29...	--	--	--	--	--	--	--	--	--

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)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
MAR									
19...	<0.010	0.200	0.040	0.56	0.60	0.010	--	5	2
MAY									
27...	<0.010	0.300	<0.010	--	0.50	0.010	3.0	<3	5
27...	--	--	--	--	--	--	--	--	--
29...	<0.010	0.300	0.020	0.68	0.70	0.010	3.2	<3	5
29...	--	--	--	--	--	--	--	--	--

08155260 BARTON CREEK NEAR CAMP CRAFT ROAD, AUSTIN, TX

LOCATION.--Lat 30°16'12", long 97°49'43", Travis County, Hydrologic Unit 12090205, on left bank about 0.5 mi south of Camp Craft Road, 1.0 mi downstream from bridge on Lost Creek Blvd., and 5 mi west of the State Capitol Building in Austin.

DRAINAGE AREA.--109 mi².

PERIOD OF RECORD.--September 1982 to current year.
Water-quality records: Chemical, biochemical, and pesticide analysis: September 1982 to September 1986.

GAGE.--Water-stage recorder. Altitude of gage is 570 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair above 10 ft³/s and poor below. Daily discharges are not published above 250 ft³/s. There is one recording rain gage in the watershed upstream from the gage. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 13.18 ft (from floodmark) June 10, 1987 (discharge not determined); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 13.18 ft (from floodmark) June 13 (discharge not determined); minimum daily discharge 0.10 ft³/s Oct. 4.

DISCHARGE, IN 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	.37	94	41	---	103	210	89	17	---	118	29	15
2	.25	87	40	---	100	194	86	16	---	---	27	9.6
3	.15	82	39	222	98	188	81	16	---	130	25	5.7
4	.10	91	38	208	96	184	74	18	---	103	24	3.7
5	.11	97	38	195	94	179	69	19	---	88	23	3.2
6	.31	83	37	187	94	176	67	19	---	77	21	2.9
7	.51	81	38	182	96	169	63	17	---	67	20	2.9
8	.50	72	38	163	92	162	52	17	---	58	19	3.1
9	.47	67	39	160	89	156	47	17	---	53	18	2.7
10	.44	58	68	157	87	148	46	16	---	88	17	6.0
11	.63	50	173	143	87	152	43	15	---	62	16	24
12	90	48	135	133	86	147	41	14	---	47	14	32
13	133	46	121	128	84	138	41	13	---	44	11	21
14	44	45	152	128	84	135	39	13	---	43	8.4	16
15	31	44	---	125	84	132	36	13	---	42	5.2	13
16	25	44	---	122	82	129	35	14	---	41	4.2	10
17	22	42	---	132	78	---	34	14	---	---	3.8	5.6
18	21	41	---	138	73	170	32	15	---	---	3.4	3.7
19	19	39	---	128	68	143	30	16	---	57	3.1	5.5
20	18	39	---	123	87	136	28	19	---	44	3.0	11
21	18	37	---	121	105	132	26	17	---	42	2.9	11
22	27	37	---	120	92	129	26	17	---	44	2.9	6.7
23	---	37	---	117	85	126	24	16	---	43	2.8	3.7
24	---	37	---	116	95	120	23	15	---	40	2.6	2.8
25	208	73	---	114	118	115	22	14	208	41	2.6	2.7
26	179	73	---	111	---	111	21	14	190	39	2.4	2.6
27	155	47	---	108	---	107	20	13	168	37	3.6	2.5
28	131	44	---	108	237	104	19	12	151	36	3.8	2.6
29	121	43	---	107	---	100	19	---	135	34	2.9	2.5
30	110	42	---	105	---	96	18	---	125	32	2.8	2.3
31	101	---	---	101	---	91	---	204	---	30	12	---
TOTAL	---	1720	---	---	---	---	1251	---	---	---	336.4	236.0
MEAN	---	57.3	---	---	---	---	41.7	---	---	---	10.9	7.87
MAX	---	97	---	---	---	---	89	---	---	---	29	32
MIN	---	37	---	---	---	---	18	---	---	---	2.4	2.3
AC-FT	---	3410	---	---	---	---	2480	---	---	---	667	468

CAL YR 1986 TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1987 TOTAL - MEAN - MAX - MIN - AC-FT -

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX

LOCATION.--Lat 30°14'40", long 97°48'07", Travis County, Hydrologic Unit 12090205, on Loop 360, 0.9 mi west of the intersection of Ben White and Lamar Boulevards, and 4.3 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--116 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1975 to January 1977 (periodic gage heights and discharge measurements only), February 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 510.32 ft above National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation benchmark).

REMARKS.-- Records fair except those below 3 ft³/s, and estimated discharges which are poor. No known regulation or diversions. There is one recording rain gage located in the watershed above station.

AVERAGE DISCHARGE.--10 years, 50.0 ft³/s (5.85 in/yr), 36,220 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,100 ft³/s May 25, 1981 (gage height, 15.03 ft); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--The flood of May 28, 1929, was probably the highest since that date (discharge 39,400 ft³/s), based on a slope-area measurement of peak flow at a site about 2 mi upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharge 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. 23	1145	1,520	6.30	June 10	0300	2,630	7.04
Dec. 23	0400	4,940	8.40	June 11	1215	2,920	7.23
May 29	0915	3,210	7.41	June 12	0415	8,450	10.20
June 2	2115	3,500	7.58	June 13	2200	12,100	12.45
June 4	1115	*12,300	*12.61	June 18	1000	1,250	6.06

Minimum discharge, no flow for many days.

DISCHARGE, IN 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	65	21	269	46	170	60	.74	363	77	.65	.00
2	.00	59	19	250	43	154	56	.48	925	147	.37	.00
3	.00	53	17	217	40	143	52	.33	1180	88	.33	.00
4	.00	62	15	194	39	136	51	.78	6320	71	.25	.00
5	.00	70	13	179	36	128	49	2.2	1900	64	.00	.00
6	.00	56	13	165	35	122	49	1.8	855	51	.00	.00
7	.00	52	14	149	38	116	47	1.1	565	42	.00	.00
8	.00	47	15	137	34	110	44	.40	473	36	.00	.00
9	.00	42	20	132	30	104	40	1.2	940	34	.00	.00
10	.00	38	47	122	29	100	38	.39	1790	59	.00	3.1
11	.00	34	133	110	27	106	35	.10	1890	41	.00	.06
12	74	33	107	101	25	103	33	.02	4010	28	.00	.00
13	112	31	95	95	23	95	32	e.00	4800	21	.00	.00
14	33	31	130	92	22	91	29	e.00	2650	17	.00	.00
15	6.5	29	324	88	24	86	26	e.00	1220	14	.00	.00
16	.99	26	305	84	22	84	24	e.00	768	12	.00	.00
17	.15	23	250	97	20	194	22	e.00	549	125	.00	.00
18	e.10	19	319	104	18	141	20	.03	687	153	.00	.00
19	e.06	15	319	92	18	109	17	.11	442	65	.00	.00
20	e.03	12	264	84	27	101	15	.08	333	43	.00	.00
21	e.02	9.9	243	81	46	97	12	.02	266	35	.00	.00
22	1.3	9.4	2110	78	33	94	11	e.00	224	36	.00	.00
23	893	11	3060	74	25	93	11	e.00	201	34	.00	.00
24	394	14	1110	70	35	88	9.5	e.00	185	28	.00	.00
25	192	49	718	66	60	84	7.1	e.00	160	29	.00	.00
26	153	49	579	61	262	79	5.3	e.00	141	23	.00	.00
27	129	32	486	58	223	77	3.8	e.00	121	17	.00	.00
28	108	26	410	55	202	74	2.8	e.00	107	13	.00	.00
29	94	24	371	52	---	68	1.9	1220	96	7.1	.00	.00
30	83	23	382	49	---	66	1.3	327	87	3.4	.00	.00
31	73	---	296	46	---	63	---	161	---	1.5	.00	---
TOTAL	2347.15	1044.3	12205	3451	1482	3276	804.7	1717.78	34248	1415.0	1.60	3.16
MEAN	75.7	34.8	394	111	52.9	106	26.8	55.4	1142	45.6	.05	.11
MAX	893	70	3060	269	262	194	60	1220	6320	153	.65	3.1
MIN	.00	9.4	13	46	18	63	1.3	.00	87	1.5	.00	.00
AC-FT	4660	2070	24210	6850	2940	6500	1600	3410	67930	2810	3.2	6.3
CFSM	.65	.30	3.39	.96	.46	.91	.23	.48	9.84	.39	.0	.0
IN.	.75	.33	3.91	1.11	.48	1.05	.26	.55	11.0	.45	.0	.0

CAL YR 1986 TOTAL 25630.73 MEAN 70.2 MAX 3060 MIN .00 AC-FT 50840 CFSM .61 IN. 8.22
WTR YR 1987 TOTAL 61995.62 MEAN 170 MAX 6320 MIN .00 AC-FT 123000 CFSM 1.46 IN. 19.9

e Estimated.

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1979 to current year. Pesticide analyses: January 1979 to September 1986. Radiochemical analyses: April 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
14...	0950	92	494	8.30	12.0	1	0.20	10.2	96	0.1	K56	35
FEB												
19...	0850	17	474	7.80	11.0	2	0.30	10.4	96	0.3	K15	25
MAY												
29...	1210	2890	157	7.90	20.0	110	320	7.6	86	5.1	22000	46000
29...	1400	2340	155	--	--	110	240	--	--	--	23000	32000
29...	1500	2800	155	--	--	--	--	--	--	5.6	--	--
JUN												
18...	0855	923	432	--	--	1	85	--	--	3.3	12000	26000
18...	0930	1040	439	8.00	--	--	--	--	--	--	--	--
18...	1000	1040	457	--	--	9	52	--	--	0.9	8400	13000
18...	1100	848	467	--	--	--	--	--	--	--	--	--
18...	1200	728	466	--	--	7	37	--	--	3.0	4900	8400
AUG												
04...	1145	1.6	379	8.20	31.5	2	0.90	7.9	110	0.6	32	440

DATE	HARD-NESS (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 WH WAT TOTAL 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)
JAN												
14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
19...	230	36	62	19	8.9	0.3	1.0	197	28	17	0.20	7.3
MAY												
29...	79	13	25	4.0	2.4	0.1	2.1	66	14	4.4	0.10	5.2
29...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	230	25	69	15	6.9	0.2	1.4	209	18	9.7	0.20	10
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
04...	180	22	45	16	8.7	0.3	1.4	156	19	13	0.20	12

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
JAN												
14...	--	1	1	0.390	0.010	0.400	0.041	0.66	0.70	0.010	2.8	--
FEB												
19...	260	4	2	--	<0.010	<0.100	0.040	0.86	0.90	<0.010	1.2	<1
MAY												
29...	97	1040	138	0.230	0.070	0.300	0.150	--	--	0.260	28	<1
29...	--	409	75	0.220	0.080	0.300	0.130	--	--	0.100	14	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
18...	--	106	33	0.290	0.010	0.300	0.100	0.80	0.90	0.700	6.9	--
18...	260	--	--	--	--	--	--	--	--	--	--	--
18...	--	93	66	--	<0.010	0.300	0.020	0.28	0.30	0.040	4.5	--
18...	--	--	--	--	--	--	--	--	--	--	--	2
18...	--	75	24	--	<0.010	0.300	0.020	0.68	0.70	0.030	3.9	--
AUG												
04...	210	18	11	--	<0.010	<0.100	<0.010	--	0.30	0.010	2.0	<1

08155300 BARTON CREEK AT LOOP 360, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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											
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
19...	24	<1	<10	<1	<3	<5	<1	<0.1	<1	<1	5
MAY											
29...	11	<1	<10	<1	46	<5	<1	<0.1	<1	<1	6
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUN											
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	26	<1	<10	<1	8	6	<1	<0.1	<1	<1	4
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
04...	22	<1	<10	<1	<3	<5	2	<0.1	1	<1	<3

08155500 BARTON SPRINGS AT AUSTIN, TX

LOCATION.--Lat 30°15'48", long 97°46'16", Travis County, Hydrologic Unit 12090205, at ground-water well (YD 58-42-903), on right bank 0.4 mi upstream from Barton Springs Road bridge over Barton Creek, 0.7 mi upstream from mouth, and 1.8 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--Not applicable. Only springflow is published for this station.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1894 to April 1917, and October 1918 to February 1978 (discharge measurements only), May 1917 to September 1918 (published as "Barton Creek at Austin, Texas"), and March 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage, at ground-water well (YD 58-42-903), is 462.34 ft above National Geodetic Vertical Datum of 1929. May 1917 to September 1918, nonrecording gage at site 1,000 ft downstream at different datum.

REMARKS.-- Records poor. Only springflow from the Edwards and associated limestones in the Balcones Fault Zone are published for this station. This station is part of an urban hydrologic project to study the ground-water resources in the Austin urban area.

AVERAGE DISCHARGE.--10 years (water years 1918, 1979-87), 58.3 ft³/s (42,240 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD (DISCHARGE MEASUREMENTS ONLY).--Maximum measured discharge, 166 ft³/s May 10, 1941; minimum measured, 9.6 ft³/s Mar. 29, 1956.

EXTREMES FOR PERIOD OF RECORD (1917-18 AND SINCE MARCH 1978).--Maximum daily spring discharge, 115 ft³/s June 28, 1987; minimum daily spring discharge, 12 ft³/s Feb. 25, 1918.

EXTREMES FOR CURRENT YEAR.--Maximum daily spring discharge, 115 ft³/s June 28; minimum daily, 43 ft³/s Oct. 16.

DISCHARGE, IN 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	49	76	76	79	83	99	e105	99	110	e110	113	102
2	49	73	75	79	80	98	e105	98	108	e110	112	102
3	48	72	74	79	80	99	e104	98	106	e109	102	102
4	48	70	73	78	80	103	e104	98	101	e108	106	101
5	48	69	73	78	80	e109	e104	98	96	e106	111	101
6	48	67	72	78	79	e110	e104	97	109	e104	101	101
7	48	66	72	77	79	e109	e103	97	114	e102	105	101
8	48	65	72	77	79	e109	e103	97	106	e100	110	100
9	48	63	72	77	78	e109	e102	96	111	e99	110	100
10	47	62	72	76	78	e109	e102	96	100	e98	110	100
11	47	60	73	75	78	e109	e102	96	95	e97	109	100
12	47	77	73	75	77	e108	e102	95	94	e96	109	100
13	48	77	72	74	77	e108	e102	95	90	e95	109	100
14	52	78	73	74	77	e108	e101	95	88	e94	108	99
15	46	78	76	74	76	e108	e101	94	98	e93	107	99
16	43	78	78	74	76	e108	e101	96	105	92	107	99
17	64	72	75	75	76	e107	e101	100	109	100	107	98
18	63	72	74	76	75	e107	e100	100	113	114	106	97
19	63	72	74	76	75	e107	e100	100	110	114	106	97
20	62	71	74	77	74	e107	e100	99	109	96	106	97
21	61	71	71	77	74	e107	e100	98	109	100	106	97
22	75	72	70	78	73	e106	100	94	108	114	106	97
23	89	76	111	78	73	e106	100	92	109	100	106	97
24	95	77	111	79	74	e106	100	92	111	97	106	96
25	100	79	97	79	78	e106	100	92	110	114	105	95
26	86	78	78	80	85	e106	100	92	113	114	105	95
27	79	78	78	80	94	e105	100	91	113	103	105	95
28	76	77	78	81	100	e105	100	90	114	108	104	95
29	76	77	80	81	---	e105	100	90	115	113	104	95
30	76	76	80	82	---	e105	100	90	e112	102	104	95
31	76	---	79	82	---	e105	---	105	---	100	103	---
TOTAL	1905	2179	2406	2405	2208	3293	3046	2970	3186	3202	3308	2953
MEAN	61.5	72.6	77.6	77.6	78.9	106	102	95.8	106	103	107	98.4
MAX	100	79	111	82	100	110	105	105	115	114	113	102
MIN	43	60	70	74	73	98	100	90	88	92	101	95
AC-FT	3780	4320	4770	4770	4380	6530	6040	5890	6320	6350	6560	5860

CAL YR 1986 TOTAL 25357 MEAN 69.5 MAX 111 MIN 43 AC-FT 50300
WTR YR 1987 TOTAL 33061 MEAN 90.6 MAX 115 MIN 43 AC-FT 65580

e Estimated.

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1903, June 1941 to February 1959. Chemical, biochemical, and pesticide analyses: December 1978 to current year. Radiochemical analyses: January to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
14...	0910	65	614	6.90	20.0	1	0.80	6.8	76	0.2	K73	K6
FEB												
19...	0805	84	622	6.90	19.5	1	0.50	7.2	80	0.1	K17	K3
MAY												
13...	0800	94	619	7.00	21.0	2	0.70	7.1	81	0.6	K11	47
JUN												
02...	1330	110	582	7.10	21.0	1	1.3	7.9	91	0.2	68	380
19...	1109	103	641	7.10	21.5	1	0.60	7.0	--	1.3	200	250
AUG												
06...	0820	109	636	7.00	22.0	1	0.90	8.4	98	0.1	K3	80

DATE	HARD-NESS (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 WH WAT TOTAL 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)
JAN												
14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
19...	310	40	89	21	13	0.3	1.2	269	26	25	0.20	11
MAY												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
02...	290	30	85	18	12	0.3	1.3	256	23	21	0.20	11
19...	310	32	95	17	14	0.4	1.1	275	26	20	0.20	12
AUG												
06...	320	39	92	21	14	0.4	1.4	277	27	21	0.20	12

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	SOLIDS, NON-VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN												
14...	--	1	1	0	1.39	0.010	1.40	0.050	0.45	0.50	0.021	1.3
FEB												
19...	350	10	3	7	--	<0.010	1.40	0.050	0.55	0.60	0.010	0.3
MAY												
13...	--	6	6	0	--	<0.010	1.40	0.020	--	<0.20	0.020	0.7
JUN												
02...	330	3	<1	--	--	<0.010	1.10	0.030	0.27	0.30	0.010	1.5
19...	350	3	<1	--	--	<0.010	1.30	0.020	0.88	0.90	0.020	1.2
AUG												
06...	350	16	16	0	--	<0.010	1.50	<0.010	--	0.40	0.010	0.5

DATE	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN												
14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
19...	<1	46	1	<10	1	<3	<5	<1	<0.1	<1	<1	8
MAY												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
02...	<1	43	<1	30	<1	<3	<5	<1	<0.1	<1	<1	8
19...	<1	49	<1	<10	<1	<3	<5	1	<0.1	<1	4	9
AUG												
06...	<1	48	<1	10	<1	<3	<5	<1	<0.1	1	<1	<3

08155500 BARTON SPRINGS AT AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	BENZENE TOTAL (UG/L)	BROMO-FORM TOTAL (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	METHYL-CHLO-RIDE TOTAL (UG/L)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)
JAN 14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
MAY 13...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 02...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
AUG 06...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

DATE	METHYL-BROMIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)
JAN 14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
MAY 13...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 02...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
AUG 06...	<3.0	<10	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

DATE	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	1,2-DIBROMO ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-BENZENE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE TOTAL (UG/L)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L)	1,2-TRANSDI CHLORO-ETHYL-ENE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)	XYLENE WATER WHOLE TOT REC (UG/L)
JAN 14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	--
MAY 13...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 02...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
19...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
AUG 06...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

DATE	AME-TRYNE TOTAL	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
FEB 19...	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	--	--	--	--	--	--	--	--	--	--	--
JUN 02...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
19...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
AUG 06...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX

LOCATION.--Lat 30°16'35", long 97°45'00", Travis County, Hydrologic Unit 12090205, on left bank at downstream side of bridge at 12th Street and 0.6 mi west of the State Capitol Building in Austin.

DRAINAGE AREA.--12.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to current year. Periodic discharge measurements, periodic QW sample collection and associated peak discharges along with annual maximum, November 1974 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 455.33 ft above National Geodetic Vertical Datum of 1929 (city of Austin benchmark). Apr. 2 1975 to Nov. 14, 1984, operated as a flood-hydrograph partial-record site at same location and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. There is no known regulation or diversion. The station is equipped with an automatic water-quality sampler.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 16,000 ft³/s May 24, 1981 (gage height, 23.22 ft); no flow at times.

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)
Oct. 12	0345	1,700	9.35	June 4	0630	1,320	8.41
Oct. 23	0600	1,650	9.25	June 13	1300	1,330	8.45
May 8	1630	3,450	12.78	June 25	1630	3,590	a13.01
May 29	0700	*6,870	*17.14	July 17	0915	1,780	9.54
June 2	1700	1,000	7.52	Sept. 18	0845	2,190	10.44

a From floodmark.

Minimum discharge, no flow at times.

DISCHARGE, IN 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	1.5	2.2	1.1	e1.0	.44	3.5	2.5	.00	22	24	.09	.16
2	3.5	2.1	.82	.90	.45	3.1	2.3	.00	121	9.4	.06	.01
3	2.5	2.0	.88	.82	.58	3.0	1.8	2.2	77	4.9	.03	.00
4	1.6	23	.85	.65	.78	2.7	1.8	19	266	3.7	.00	.00
5	1.3	3.2	.73	.60	.73	2.6	2.1	2.0	23	3.1	.00	.00
6	19	3.1	.88	.58	.61	2.4	3.6	4.2	11	2.5	.00	.00
7	5.0	3.1	2.3	.58	.55	2.1	2.2	1.3	8.3	6.1	.00	12
8	1.8	1.8	2.4	.58	.50	2.0	1.7	143	27	4.0	.00	1.0
9	1.0	1.6	21	8.3	.48	2.0	1.7	2.3	113	22	.00	.00
10	.45	1.3	42	.61	.40	2.0	1.5	e.50	31	10	.00	33
11	32	.92	6.3	.43	.43	13	1.2	e.10	94	3.7	.00	7.5
12	258	.92	3.2	.42	.44	2.4	.97	e.06	42	2.6	.00	.89
13	4.0	1.3	2.4	.46	.30	2.0	14	e.04	121	1.9	.00	.59
14	.53	1.1	38	.62	.29	1.9	2.8	e.03	28	1.3	.00	.00
15	.05	.80	27	.61	8.0	2.0	1.8	e.10	16	.99	.00	.00
16	.00	.77	5.7	1.1	.43	1.9	1.3	3.7	13	1.1	.00	.00
17	.00	.46	3.5	29	.33	56	.81	1.0	10	181	.00	.00
18	.00	.09	e45	3.3	.25	3.1	.32	.00	18	4.9	.00	162
19	.00	.00	e15	.70	1.6	2.6	.00	5.8	9.1	2.4	.00	13
20	.00	.00	e4.5	.59	13	2.2	.00	2.2	8.0	1.8	.00	2.6
21	33	.00	e3.0	.58	.61	2.1	.00	.00	8.3	2.2	.00	.79
22	63	.00	e250	.59	.33	2.0	.00	.00	8.0	1.9	.00	.63
23	246	26	e320	.58	.51	6.3	.00	.00	7.2	.79	.00	.49
24	e23	19	e25	.62	23	2.3	.00	16	7.0	36	.00	.31
25	e9.1	45	e5.0	.58	26	1.8	.00	.00	237	11	.00	.07
26	e5.0	2.6	e2.5	.58	39	1.6	.00	.00	23	4.8	.00	.00
27	3.7	1.7	e1.7	.58	18	1.5	.00	.00	10	7.0	16	49
28	3.2	1.4	e1.5	.51	15	8.7	.00	.00	8.6	6.6	3.9	9.1
29	3.0	1.3	e1.3	.51	---	5.5	.00	692	7.9	4.5	.31	1.7
30	2.8	1.3	e1.2	.52	---	2.9	.00	29	7.1	1.1	27	.84
31	2.6	---	e1.1	.53	---	2.8	---	17	---	.13	2.5	---
TOTAL	726.63	148.06	835.86	58.03	153.04	150.0	44.40	941.53	1382.5	367.41	49.89	295.68
MEAN	23.4	4.94	27.0	1.87	5.47	4.84	1.48	30.4	46.1	11.9	1.61	9.86
MAX	258	45	320	29	39	56	14	692	266	181	27	162
MIN	.00	.00	.73	.42	.25	1.5	.00	.00	7.0	.13	.00	.00
AC-FT	1440	294	1660	115	304	298	88	1870	2740	729	99	586
CFSM	1.91	.40	2.19	.15	.44	.39	.12	2.47	3.75	.96	.13	.80
IN.	2.20	.45	2.53	.18	.46	.45	.13	2.85	4.18	1.11	.15	.89

CAL YR 1986 TOTAL 3188.55 MEAN 8.74 MAX 320 MIN .00 AC-FT 6320 CFSM .71 IN. 9.64
WTR YR 1987 TOTAL 5152.99 MEAN 14.1 MAX 692 MIN .00 AC-FT 10220 CFSM 1.15 IN. 15.6

e Estimated.

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: February 1943, January 1975 to current year. Water temperature: January 1975 to current year. Radiochemical analyses: April 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
14...	0815	0.53	876	7.90	12.5	2	0.30	7.4	71	0.3	2700	320
FEB												
17...	0820	0.58	772	7.70	9.0	4	0.50	8.4	74	0.8	K1300	760
MAR												
17...	0215	142	--	--	--	--	--	--	--	18	27000	260000
17...	0230	261	231	7.40	--	--	--	--	--	--	--	--
17...	0245	364	--	--	--	--	--	--	--	--	--	--
17...	0300	472	--	--	--	39	800	--	--	--	--	--
17...	0315	561	--	--	--	--	--	--	--	29	29000	56000
17...	0330	511	--	--	--	--	--	--	--	--	--	--
17...	0345	413	--	--	--	140	720	--	--	--	--	--
17...	0400	310	--	--	--	--	--	--	--	26	24000	76000
MAY												
08...	1538	133	408	--	--	36	1300	--	--	--	560000	610000
08...	1553	470	184	--	--	--	--	--	--	33	--	--
08...	1607	1470	154	--	--	70	1900	--	--	--	K130000	K320000
08...	1622	2400	141	--	--	45	1000	--	--	--	70000	240000
08...	1637	1320	133	7.60	--	--	--	--	--	17	--	--
08...	1652	742	140	--	--	6	780	--	--	--	70000	200000
12...	1215	0.06	785	7.20	23.5	6	0.80	5.9	71	0.9	46000	4300
SEP												
01...	0820	0.50	566	6.90	23.5	4	0.70	7.3	87	0.8	8800	2900

DATE	HARD-NESS (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 WH WAT TOTAL 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)
JAN												
14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
17...	310	140	110	7.9	37	1	3.1	168	120	76	0.40	2.5
MAR												
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	94	26	34	2.2	9.2	0.4	2.8	68	26	16	0.10	2.6
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	58	15	21	1.4	2.3	0.1	2.2	43	17	2.8	0.20	2.3
08...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
01...	--	--	--	--	--	--	--	128	--	--	--	--

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
JAN												
14...	--	1	1	1.89	0.010	1.90	0.080	0.52	0.60	0.010	3.6	--
FEB												
17...	460	18	4	--	<0.010	0.600	0.070	0.73	0.80	0.010	4.6	<1
MAR												
17...	--	--	--	0.550	0.050	0.600	0.130	2.8	2.9	0.310	34	--
17...	130	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--	1
17...	--	2090	508	0.550	0.050	0.600	0.120	8.0	8.1	0.820	32	--
17...	--	--	--	0.410	0.090	0.500	0.180	2.9	3.1	0.450	32	--
17...	--	--	--	--	--	--	--	--	--	--	--	2
17...	--	1720	420	0.430	0.070	0.500	0.170	3.0	3.2	1.20	27	--
17...	--	--	--	0.400	0.100	0.500	0.200	5.1	5.3	0.870	17	--
MAY												
08...	--	5280	1480	0.070	0.230	0.300	1.40	2.1	3.5	5.70	140	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	3900	900	0.320	0.280	0.600	1.80	16	18	3.90	94	--
08...	--	3740	940	0.270	0.330	0.600	0.200	0.50	0.70	3.10	66	--
08...	75	--	--	--	--	--	--	--	--	--	--	--
08...	--	1640	760	0.370	0.230	0.600	1.10	1.9	3.0	1.60	38	--
12...	--	<1	<1	0.360	0.040	0.400	0.120	0.78	0.90	0.250	3.3	--
SEP												
01...	--	4	<1	--	<0.010	0.200	0.030	--	<0.20	0.030	3.5	--

08156800 SHOAL CREEK AT 12TH STREET, AUSTIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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											
14...	--	--	--	--	--	--	--	--	--	--	--
FEB											
17...	64	<1	<10	3	5	<5	7	<0.1	<1	<1	23
MAR											
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	100	<1	<10	2	60	<5	20	<0.1	<1	<1	20
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
17...	<100	<1	<10	3	50	10	50	<0.1	<1	<1	30
17...	--	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--	--
MAY											
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
SEP											
01...	--	--	--	--	--	--	--	--	--	--	--

08157900 TOWN LAKE AT AUSTIN, TX

LOCATION.--Lat 30°14'56", long 97°43'03", Travis County, Hydrologic Unit 12090205, at Longhorn Dam on the Colorado River at Austin, 1.5 mi downstream from Interstate Highway 35, and 2.3 mi southeast of the State Capitol in Austin.

DRAINAGE AREA.--39,003 mi², approximately, of which 11,403 mi² probably is noncontributing.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: February 1975 to current year.

301559097424801 - TOWN LAKE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
18...	0900	1.00	506	8.10	15.0	8.7	88
18...	0902	10.0	506	8.10	14.5	8.7	87
18...	0904	24.0	506	8.20	14.5	8.7	87
MAY							
26...	0920	1.00	525	7.90	19.5	7.6	84
26...	0922	10.0	525	7.90	19.0	7.4	81
26...	0924	22.0	525	7.90	19.0	7.2	79
AUG							
10...	1125	1.00	560	7.50	29.0	6.3	83
10...	1127	10.0	560	7.40	28.0	5.2	68
10...	1129	20.0	560	7.30	27.5	4.0	52
10...	1131	24.0	560	7.20	27.0	2.2	28

301500097424801 - TOWN LAKE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	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)
MAR												
18...	0920	1.00	503	8.20	15.0	1.90	3	3.9	8.7	88	0.8	210
18...	0922	10.0	503	8.20	15.0	--	--	--	8.7	88	--	--
18...	0924	20.0	503	8.20	14.5	--	--	--	8.7	87	--	--
18...	0926	28.0	503	8.20	14.5	--	5	4.7	8.7	87	0.7	--
MAY												
26...	0835	1.00	528	8.00	19.5	1.50	2	2.2	8.0	89	--	240
26...	0837	5.00	528	8.00	19.0	--	--	--	8.0	88	--	--
26...	0839	10.0	528	8.00	19.0	--	--	--	8.1	89	--	--
26...	0841	15.0	528	7.90	19.0	--	--	--	8.0	88	--	--
26...	0843	20.0	528	7.90	19.0	--	--	--	8.0	88	--	--
26...	0845	28.0	528	7.90	18.5	--	1	3.6	8.0	87	--	--
AUG												
10...	1140	1.00	560	7.50	29.0	2.20	3	0.30	6.3	83	0.9	34
10...	1144	10.0	560	7.40	28.0	--	--	--	5.2	68	--	--
10...	1146	15.0	560	7.40	27.5	--	--	--	4.6	59	--	--
10...	1148	20.0	560	7.40	27.5	--	--	--	3.5	45	--	--
10...	1150	25.0	564	7.30	27.0	--	--	--	0.5	6	--	--
10...	1152	31.0	572	7.20	25.5	--	4	0.50	0	0	1.4	--

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
MAR												
18...	88	210	45	51	19	27	0.8	3.3	161	37	45	0.20
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	210	44	51	19	29	0.9	3.4	162	37	45	0.20
MAY												
26...	160	200	48	49	19	28	0.9	3.4	153	37	48	0.20
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	200	42	48	19	28	0.9	3.5	156	36	48	0.20
AUG												
10...	59	210	53	54	19	31	1	3.9	160	37	51	0.20
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	210	43	54	19	31	1	3.8	170	34	52	0.20

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 - TOWN LAKE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, 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												
18...	7.1	290	5	5	<0.010	0.300	0.040	0.36	0.40	0.010	2.4	<1
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	<0.010	0.200	0.040	0.46	0.50	0.010	--	--
18...	7.2	290	5	5	<0.010	0.300	0.050	0.35	0.40	0.010	2.0	<1
MAY												
26...	7.3	280	<1	<1	<0.010	0.300	0.010	1.1	1.1	0.010	3.0	1
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	<0.010	0.300	0.010	0.69	0.70	0.010	--	--
26...	7.3	280	11	6	<0.010	0.300	0.010	0.69	0.70	0.020	3.6	1
AUG												
10...	10	300	2	<1	<0.010	0.200	<0.010	--	0.50	0.010	3.5	1
10...	--	--	--	--	<0.010	0.200	0.020	0.78	0.80	0.040	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	<0.010	0.200	0.070	0.93	1.0	0.040	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	12	310	18	<1	<0.010	<0.100	0.400	0.70	1.1	0.040	4.1	10

DATE	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COPPER, DIS-SOLVED (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)
MAR												
18...	--	67	<1	--	<10	--	2	--	3	--	<5	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	<10	--	--	--
18...	10	66	<1	2	<10	20	2	30	5	7900	<5	100
MAY												
26...	--	72	<1	--	<10	--	1	--	12	--	<5	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	<10	--	--	--
26...	8	72	<1	3	<10	110	2	40	6	8400	<5	100
AUG												
10...	--	68	<1	--	<10	--	<1	--	4	--	<5	--
10...	--	--	--	--	--	--	--	--	<10	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	<10	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	8	66	<1	2	<10	330	<1	20	460	6400	<5	70

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	MERCURY DIS-SOLVED (UG/L AS HG)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN)	BENZENE TOTAL (UG/L)	BROMO-FORM TOTAL (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)
MAR											
18...	4	--	<0.1	--	<1	<1	4	--	<3.0	<3.0	<3.0
18...	--	--	--	--	--	--	--	--	--	--	--
18...	<10	--	--	--	--	--	--	--	--	--	--
18...	4	1100	<0.1	0.15	<1	<1	<3	80	--	--	--
MAY											
26...	4	--	<0.1	--	<1	2	12	--	<3.0	<3.0	<3.0
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	<10	--	--	--	--	--	--	--	--	--	--
26...	7	970	<0.1	1.3	<1	<1	11	100	--	--	--
AUG											
10...	6	--	0.7	--	<1	<1	<3	--	<3.0	<3.0	<3.0
10...	<10	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	60	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	1300	640	0.2	0.71	<1	<1	14	70	--	--	--

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 - TOWN LAKE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	CHLORO-BENZENE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	METHYL-CHLO-RIDE TOTAL (UG/L)	CIS, 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)
MAR											
18...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
MAY											
26...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
AUG											
10...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<9.0
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--

DATE	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)
MAR											
18...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
MAY											
26...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
AUG											
10...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--

DATE	1,1,2,2 TETRA-CHLORO-ETHANE TOTAL (UG/L)	1,2-DIBROMO ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-BENZENE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-BENZENE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE TOTAL (UG/L)	1,4-DI-CHLORO-BENZENE TOTAL (UG/L)	1,2-TRANSDI CHLORO-ETHYL-ENE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)	XYLENE WATER WHOLE TOT REC (UG/L)
MAR											
18...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
MAY											
26...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
AUG											
10...	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301500097424801 - TOWN LAKE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	AME-TRYNE TOTAL	ATRA-ZINE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	METHO-MYL TOTAL (UG/L)	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)
MAR											
18...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
MAY											
26...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
AUG											
10...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	<0.10	<0.10	<0.10	<2.0	<0.1	<0.1	<0.10	<2.0	<2.0	<0.10	<0.1

301503097424701 - TOWN LAKE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
MAR							
18...	1000	1.00	503	8.20	15.0	8.7	88
18...	1002	10.0	503	8.20	14.5	8.7	87
18...	1004	16.0	503	8.20	14.5	8.7	87
MAY							
26...	0825	1.00	528	8.00	19.0	8.2	90
26...	0827	10.0	528	8.00	19.0	8.2	90
26...	0829	17.0	528	8.00	18.5	8.3	90
AUG							
10...	1226	1.00	556	7.60	29.5	6.9	92
10...	1228	10.0	556	7.60	28.5	6.2	82
10...	1230	17.0	556	7.50	28.0	4.6	60

301500097440801 - TOWN LAKE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAM-PLING DEPTH (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
MAR							
18...	1025	1.00	503	8.20	15.0	8.8	89
18...	1027	10.0	503	8.20	14.5	8.8	88
18...	1029	22.0	503	8.20	14.5	8.8	88
MAY							
26...	0945	1.00	526	7.90	18.5	7.7	84
26...	0947	10.0	526	7.90	18.5	7.7	84
26...	0949	17.0	526	7.90	18.5	7.7	84
AUG							
10...	1240	1.00	556	7.60	30.0	6.6	89
10...	1242	10.0	560	7.50	28.0	5.0	65
10...	1244	17.0	560	7.50	28.0	4.9	64

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301504097440901 - TOWN LAKE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
18...	1030	1.00	501	8.20	14.5	8.8	88
18...	1032	10.0	501	8.20	14.5	8.8	88
18...	1034	20.0	501	8.20	14.5	8.8	88
18...	1036	27.0	501	8.20	14.5	8.8	88
MAY							
26...	0935	1.00	526	7.90	18.5	7.6	83
26...	0937	10.0	526	7.90	18.5	7.6	83
26...	0939	20.0	526	7.90	18.5	7.6	83
26...	0941	26.0	526	7.90	18.5	7.6	83
AUG							
10...	1250	1.00	556	7.60	29.5	6.6	88
10...	1252	5.00	560	7.50	28.5	5.9	78
10...	1254	10.0	560	7.40	28.0	5.2	68
10...	1256	20.0	560	7.40	27.5	4.4	57
10...	1258	30.0	560	7.50	27.5	3.5	45

301544097445201 - TOWN LAKE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
18...	1050	1.00	502	8.20	14.5	8.9	89
18...	1052	8.00	502	8.20	14.5	8.9	89
MAY							
26...	1020	1.00	529	7.90	19.0	7.9	87
26...	1022	10.0	529	7.80	19.0	7.8	86
26...	1024	16.0	529	7.80	18.5	7.7	84
AUG							
10...	1305	1.00	562	7.50	28.5	6.3	83
10...	1307	10.0	571	7.40	27.5	6.1	79
10...	1309	17.0	575	7.40	27.0	5.8	74

301546097445101 - TOWN LAKE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
18...	1100	1.00	500	8.20	14.5	8.9	89
18...	1102	10.0	500	8.20	14.5	8.9	89
18...	1104	16.0	500	8.20	14.5	8.8	88
MAY							
26...	1000	1.00	522	7.90	18.5	7.9	86
26...	1002	10.0	522	7.90	18.5	7.8	85
26...	1004	16.0	522	7.90	18.5	7.8	85
AUG							
10...	1313	1.00	557	7.50	29.5	5.9	79
10...	1315	10.0	565	7.40	28.0	5.7	74
10...	1317	20.0	577	7.40	27.5	5.7	74

301556097452301 - TOWN LAKE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
18...	1110	1.00	505	8.00	15.0	8.9	90
18...	1112	12.0	505	8.00	15.0	8.9	90
MAY							
26...	1100	1.00	533	7.70	19.0	7.6	84
26...	1102	10.0	533	7.80	19.0	7.6	84
26...	1104	14.0	533	7.80	19.0	7.6	84
AUG							
10...	1323	1.00	560	7.50	29.0	6.3	84
10...	1325	11.0	579	7.40	27.0	5.6	72

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301558097452201 - TOWN LAKE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR										
18...	1125	1.00	500	8.10	15.0	1.40	1	4.5	8.9	90
18...	1127	10.0	500	8.20	14.5	--	--	--	8.9	89
18...	1129	19.0	500	8.20	14.5	--	3	4.0	8.9	89
MAY										
26...	1030	1.00	521	8.00	19.0	1.20	2	2.9	8.0	88
26...	1032	10.0	521	8.00	19.0	--	--	--	7.9	87
26...	1034	21.0	521	8.00	18.5	--	7	43	7.9	86
AUG										
10...	1333	1.00	555	7.50	29.5	2.10	6	0.60	6.0	80
10...	1335	10.0	569	7.30	27.5	--	--	--	6.0	78
10...	1337	19.0	610	7.10	24.5	--	2	0.40	5.8	71

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (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
MAR									
18...	0.4	160	26	210	40	53	19	24	0.7
18...	--	--	--	--	--	--	--	--	--
18...	0.5	--	--	200	40	47	19	27	0.9
MAY									
26...	--	K340	80	200	42	47	19	28	0.9
26...	--	--	--	--	--	--	--	--	--
26...	0.7	--	--	190	40	46	19	28	0.9
AUG									
10...	1.1	100	610	200	43	50	19	31	1
10...	--	--	--	--	--	--	--	--	--
10...	0.9	--	--	250	25	69	20	20	0.6

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL 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)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)
MAR									
18...	3.1	171	35	42	0.20	7.1	290	5	5
18...	--	--	--	--	--	--	--	--	--
18...	3.6	156	37	48	0.30	6.8	280	<1	<1
MAY									
26...	3.5	154	37	49	0.20	6.9	280	5	9
26...	--	--	--	--	--	--	--	--	--
26...	3.6	153	38	48	0.20	6.8	280	111	34
AUG									
10...	3.8	160	37	52	0.20	10	300	1	<1
10...	--	--	--	--	--	--	--	--	--
10...	2.3	230	28	34	0.20	11	320	1	<1

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)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
18...	<0.010	0.300	0.050	0.75	0.80	0.010	1.9	4	2
18...	<0.010	0.200	0.050	0.25	0.30	0.010	--	<10	<10
18...	<0.010	0.200	0.040	0.36	0.40	0.050	2.2	5	3
MAY									
26...	<0.010	0.200	<0.010	--	0.50	0.010	3.1	<3	4
26...	<0.010	0.200	<0.010	--	0.90	0.010	--	<10	<10
26...	<0.010	0.200	0.020	0.78	0.80	0.180	3.6	3	5
AUG									
10...	<0.010	0.100	0.040	0.46	0.50	0.020	3.7	6	7
10...	--	--	--	--	--	--	--	--	--
10...	<0.010	0.900	0.040	0.36	0.40	0.010	1.6	7	12

08157900 TOWN LAKE AT AUSTIN, TX--Continued

301712097470701 - TOWN LAKE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR										
18...	1200	1.00	500	8.10	14.5	--	4	3.8	9.0	90
MAY										
26...	1115	1.00	523	8.00	18.0	1.10	2	2.8	8.0	86
26...	1117	13.0	523	7.70	18.0	--	3	3.5	7.9	85
AUG										
10...	1355	1.00	550	7.60	28.0	1.60	2	0.60	5.3	69
10...	1357	17.0	550	7.60	28.0	--	3	1.1	5.5	72

DATE	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (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
MAR									
18...	0.4	37	K10	200	40	47	19	27	0.9
MAY									
26...	0.5	K15	K22	190	39	46	19	28	0.9
26...	0.6	--	--	190	39	46	19	28	0.9
AUG									
10...	1.0	K11	170	200	36	47	19	31	1
10...	1.1	--	--	200	43	50	19	31	1

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL 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)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)
MAR									
18...	3.6	156	37	48	0.20	6.8	280	4	4
MAY									
26...	3.6	154	38	49	0.20	6.9	280	8	<1
26...	3.5	154	38	49	0.20	6.8	280	<1	<1
AUG									
10...	4.0	160	37	54	0.30	9.8	300	2	<1
10...	4.0	160	37	52	0.20	10	300	9	1

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)	CARBON, ORGANIC TOTAL (MG/L AS C)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, DISSOLVED (UG/L AS MN)
MAR									
18...	<0.010	0.200	0.050	0.35	0.40	0.010	2.0	4	2
MAY									
26...	<0.010	0.200	<0.010	--	0.70	0.020	3.4	<3	1
26...	<0.010	0.200	0.020	1.1	1.1	0.010	3.1	<3	3
AUG									
10...	<0.010	0.100	0.030	0.57	0.60	0.010	3.6	11	6
10...	<0.010	0.100	0.010	0.49	0.50	0.020	3.7	5	2

301601097454001 - TOWN LAKE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
MAR							
18...	1250	1.00	525	7.60	18.5	9.0	99
18...	1252	3.00	525	7.60	18.5	9.1	100
MAY							
26...	1145	1.00	527	7.40	22.0	12.1	141
26...	1147	3.00	532	8.00	19.5	10.3	114
AUG							
10...	1412	1.00	616	7.20	25.0	9.2	114
10...	1414	3.00	631	7.20	23.5	10.5	126

08158000 COLORADO RIVER AT AUSTIN, TX
(National stream-quality accounting network)

LOCATION.--Lat 30°14'40", long 97°41'39", Travis County, Hydrologic Unit 12090205, on right bank 1,000 ft upstream from upstream bridge on U.S. Highway 183 in Austin, 1.4 mi downstream from Longhorn Dam, and at mile 290.3.

DRAINAGE AREA.-39,009 mi², approximately, of which 11,403 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1898 to current year. Records of daily discharge for Dec. 13-26, 1914, and Feb. 9-17, 1915, published in WSP 408, have been found unreliable and should not be used.

REVISED RECORDS.--WSP 508: 1915(m). WSP 528: 1900(M), 1918(m). WSP 548: 1901-16. WSP 1342: Drainage area. WSP 1562: 1908, 1929(M), 1936.

GAGE.--Water-stage recorder. Datum of gage is 402.27 ft above National Geodetic Vertical Datum of 1929. Prior to June 19, 1939, all records collected at or near Congress Avenue Bridge 3.9 mi upstream at datum 19.6 ft higher; prior to June 18, 1915, nonrecording gages, recording gages thereafter; June 20, 1939, to Oct. 16, 1963, at site 1,000 ft downstream from present site at datum 5.0 ft higher.

REMARKS.--Records fair. Since 1937, at least 10 percent of drainage area has been regulated by upstream reservoirs. Flow largely regulated by Lake Travis (station 08154500). The city of Austin diverts water for municipal use upstream from station and returns sewage effluent downstream. There are many other diversions above Lake Buchanan for irrigation, municipal supplies, and oilfield operations. Gage-height telemeter at station.

AVERAGE DISCHARGE.--38 years (water years 1899-1936) unregulated, 2,711 ft³/s (1,964,000 acre-ft/yr); 51 years (water years 1937-87) regulated, 1,986 ft³/s (1,439,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 481,000 ft³/s June 15, 1935 (gage height, 50 ft, present site and datum, from floodmark); minimum daily, 2.4 ft³/s Feb. 28, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 51 ft July 7, 1869, present site and datum (adjusted to present site on basis of record for flood of June 15, 1935), determined from information concerning stage at former site furnished by Dean T. U. Taylor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,300 ft³/s June 4 at 0830 hours (gage height, 23.86 ft); minimum daily, 196 ft³/s Feb. 22.

DISCHARGE, IN 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	1010	5660	3590	5760	3520	3740	3590	1360	14600	5920	3710	2500
2	1050	5600	2950	5720	3620	3700	3610	1630	20000	6250	1200	2560
3	1050	4420	2640	5850	3250	3680	3590	e1800	24200	5970	1590	2560
4	882	2610	2730	5670	3150	3690	3600	e1880	31700	3610	1920	2550
5	1100	3430	2280	5640	3210	4680	3940	e1950	25300	4550	1600	2550
6	996	4780	2670	5650	3570	5610	4080	1530	25800	5860	1390	2570
7	976	5710	2020	5650	3170	5540	3640	1280	25100	5830	1810	2610
8	1430	5780	1870	5620	3560	5550	3070	1440	25100	5830	1960	2560
9	2790	5620	1970	5670	3550	5640	3590	1250	23600	4380	1830	1970
10	1770	4660	2610	5610	3570	5580	3720	1150	23700	3650	1580	2750
11	3040	3590	2010	5580	3520	5630	2170	1250	27200	2770	1850	2760
12	6170	3040	1950	5800	3550	5380	1920	1280	27700	2700	1570	2470
13	3790	3580	1940	5720	3550	3620	1800	1250	28700	3540	1780	2590
14	3660	3580	2190	5520	3550	3610	1970	1180	24100	3160	1770	2570
15	4320	3590	2290	5590	3600	2830	889	1220	25600	2410	2240	2570
16	5500	4050	2180	5270	805	1680	1320	1370	27800	2390	1540	2610
17	5460	3280	2110	4850	1140	4820	1360	1390	30200	4930	1620	2410
18	4930	3570	2980	5760	944	5370	1380	1570	24800	5770	1690	2990
19	3470	3680	3020	4750	274	5750	1500	1820	22800	5540	1920	2720
20	3360	3600	3000	3600	772	4770	2310	3430	18400	5390	1790	2520
21	3520	3140	2970	3590	494	3650	1440	3390	17900	5520	1320	2260
22	3840	3550	5350	3540	196	3640	928	3460	15500	5560	1790	2620
23	7050	3660	8320	3630	339	4740	1260	3480	11700	4910	1620	2610
24	6350	3650	7040	3580	360	5870	1330	3580	10100	3760	1650	2490
25	5860	3840	6450	3570	1290	5850	905	3520	6780	3580	1600	2520
26	5820	3600	6030	3570	3310	5860	1320	3500	6160	3620	1620	1770
27	5760	3580	5960	3580	3850	5750	1830	3510	5790	3560	1610	2220
28	5560	3580	5990	3600	3920	5870	1380	3520	5710	3570	1590	2290
29	5680	3570	5980	3610	---	5860	1400	8710	5970	3560	1610	1730
30	5720	4000	5860	3620	---	5050	835	6130	5980	3550	1680	1720
31	5720	---	5780	3600	---	3610	---	6230	---	3450	1580	---
TOTAL	117634	120000	114730	148770	69634	146620	65677	80060	587990	135090	54030	73620
MEAN	3795	4000	3701	4799	2487	4730	2189	2583	19600	4358	1743	2454
MAX	7050	5780	8320	5850	3920	5870	4080	8710	31700	6250	3710	2990
MIN	882	2610	1870	3540	196	1680	835	1150	5710	2390	1200	1720
AC-FT	233300	238000	227600	295100	138100	290800	130300	158800	1166000	268000	107200	146000

CAL YR 1986 TOTAL 763160 MEAN 2091 MAX 8320 MIN 13 AC-FT 1514000
WTR YR 1987 TOTAL 1713850 MEAN 4695 MAX 31700 MIN 196 AC-FT 3399000

e Estimated.

08158000 COLORADO RIVER AT AUSTIN, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1932 to March 1944, October 1947 to October 1973. Chemical and biochemical analyses: February to August 1968, January 1974 to current year. Sediment analyses: March 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to current year.
WATER TEMPERATURE: October 1947 to current year.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression 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, 795 microsiemens Mar. 10, 1984; minimum daily, 243 microsiemens Dec. 2, 1953.
WATER TEMPERATURE: Maximum daily, 33.0°C July 25, 1979; minimum daily, 5.0°C Jan. 3, 1984.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 590 microsiemens June 23, 25, July 4; minimum daily, 396 microsiemens Oct. 12.
WATER TEMPERATURE: Maximum daily, 28.5°C Aug. 20; minimum daily, 10.0°C Mar. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
NOV 12...	0945	3530	472	7.40	19.0	5.6	9.0	97	0.2	230	K36	180
FEB 25...	0900	22	550	7.40	14.0	0.80	8.6	84	0.1	53	87	240
MAY 06...	0830	123	524	7.70	21.0	--	--	--	--	--	--	210
JUL 14...	0735	3430	563	7.70	26.0	2.1	8.0	99	0.1	220	130	220
AUG 19...	0820	872	564	7.50	27.0	0.40	7.6	96	0.7	340	4500	220

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 WH WAT TOTAL 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 12...	41	43	18	25	0.8	3.6	141	31	41	0.20	7.7	267
FEB 25...	49	61	20	25	0.7	3.0	186	38	42	0.20	7.9	309
MAY 06...	40	51	19	27	0.8	3.2	166	37	46	0.30	7.5	--
JUL 14...	49	53	20	32	1	3.0	166	42	56	0.20	8.6	321
AUG 19...	50	55	19	30	0.9	3.6	166	39	51	0.20	11	314

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)
NOV 12...	250	<0.010	0.240	0.030	0.050	0.77	0.80	0.020	0.010	0.010	0.03	9
FEB 25...	310	<0.010	0.560	0.020	0.030	0.68	0.70	0.010	0.020	0.020	0.06	10
MAY 06...	290	--	--	--	--	--	--	--	--	--	--	--
JUL 14...	310	<0.010	0.200	0.050	0.050	0.85	0.90	0.020	0.010	<0.010	--	19
AUG 19...	310	<0.010	0.240	0.040	0.030	0.66	0.70	0.020	<0.010	<0.010	--	6

DATE	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 12...	86	100	<10	1	67	<0.5	<1	<1	<3	1	<3
FEB 25...	0.59	73	20	<1	74	<0.5	<1	<1	<3	4	6
MAY 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 14...	176	65	<10	1	71	<0.5	<1	3	<3	<1	<3
AUG 19...	14	94	<10	1	73	<0.5	<1	<1	<3	2	<3

08158000 COLORADO RIVER AT AUSTIN, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 12...	<5	13	4	<0.1	10	2	<1	<1	350	<6	7
FEB 25...	<5	14	12	<0.1	<10	4	<1	<1	450	<6	11
MAY 06...	--	--	--	--	--	--	--	--	--	--	--
JUL 14...	<5	15	4	<0.1	<10	4	<1	1	430	<6	5
AUG 19...	<5	11	11	0.1	<10	4	<1	<1	440	<6	4

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	117634	453	250	79300	38	12000	29	9280	180
NOV.	1986	120000	478	262	85000	41	13200	31	10000	190
DEC.	1986	114730	514	281	87200	45	14000	34	10500	200
JAN.	1987	148770	517	283	114000	46	18300	34	13700	200
FEB.	1987	69634	522	285	53600	46	8680	34	6460	210
MAR.	1987	146620	516	282	112000	45	18000	34	13400	200
APR.	1987	65677	523	286	50700	46	8210	34	6110	210
MAY	1987	80060	502	275	59500	44	9470	33	7110	200
JUNE	1987	587990	557	303	481000	51	80700	37	58800	220
JULY	1987	135090	566	308	112000	52	19000	38	13800	220
AUG.	1987	54030	545	297	43300	49	7170	36	5270	210
SEPT	1987	73620	542	296	58800	49	9710	36	7140	210
TOTAL		1713855	**	**	1336000	**	218000	**	162000	**
WTD.AVG.		4695	529	289	**	47	**	35	**	210

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	460	468	495	510	511	519	515	530	511	581	548	545
2	468	476	501	512	520	515	511	536	516	578	547	554
3	471	478	511	586	518	526	514	529	508	579	541	546
4	468	477	512	549	520	523	511	526	479	590	549	546
5	460	477	514	520	518	522	519	516	522	579	550	543
6	466	475	536	504	513	520	519	517	543	577	555	549
7	465	474	515	500	518	515	517	518	546	574	546	544
8	471	476	510	502	523	517	518	523	552	573	552	553
9	473	468	537	501	519	520	512	522	552	576	549	551
10	461	473	494	505	520	512	524	520	555	569	552	538
11	454	486	495	509	525	514	536	522	560	571	546	543
12	396	485	500	514	526	514	535	515	566	567	551	535
13	434	474	498	517	524	514	530	518	570	569	546	536
14	441	487	501	522	523	518	524	524	578	569	542	534
15	453	486	520	524	523	518	537	524	578	570	546	530
16	451	471	508	524	520	521	524	535	583	564	543	535
17	455	481	514	527	560	510	537	530	575	560	546	539
18	451	465	515	524	530	517	529	526	578	556	545	546
19	453	470	532	498	527	510	519	523	579	555	544	545
20	456	469	524	503	554	510	526	510	576	559	542	534
21	460	482	546	526	560	518	526	517	586	553	544	528
22	440	481	519	507	550	517	529	519	577	556	552	540
23	475	480	483	513	547	515	518	518	590	552	540	545
24	426	464	520	508	539	513	520	522	588	555	535	553
25	440	463	530	519	560	515	525	515	590	551	546	549
26	459	480	516	520	509	514	526	515	573	556	538	552
27	467	483	519	519	518	515	528	524	578	555	542	545
28	458	482	523	516	514	515	560	516	580	557	535	538
29	465	509	520	518	---	515	555	430	577	556	535	532
30	473	504	518	512	---	516	550	467	578	559	534	541
31	466	---	512	514	---	519	---	468	---	555	533	---
MEAN	456	478	514	517	528	516	526	515	561	565	544	542

08158000 COLORADO RIVER AT AUSTIN, TX--Continued
(National stream-quality accounting network)

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

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

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX

LOCATION.--Lat 30°16'59", long 97°39'17", Travis County, Hydrologic Unit 12090205, on left bank 190 ft downstream from bridge on Farm Road 969, 0.8 mi downstream from Little Walnut Creek, 2.8 mi upstream from Colorado River, 5.2 mi east of the State Capitol Building in Austin, and 2.8 mi upstream from mouth.

DRAINAGE AREA.--51.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 425.96 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. No known regulation or diversion.

AVERAGE DISCHARGE.--21 years, 26.8 ft³/s (7.09 in/yr), 19,420 acres-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,300 ft³/s May 25, 1981 (gage height, 27.24 ft); no flow at times in 1967, 1971, and 1982-84. Maximum stage since at least 1891, that of May 25, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 15, 1935, reached a stage of 24 ft, backwater from Colorado River. A flood in 1919 reached a stage of 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharge 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)
Oct. 12	0615	4,130	17.10	June 4	0945	1,860	12.52
Oct. 23	0500	3,450	15.81	June 13	1415	4,640	18.91
Dec. 23	unknown	6,240	a20.6	June 25	1830	2,240	13.60
May 8	1630	1,570	11.20	July 17	1045	3,830	17.34
May 29	0615	*9,660	*25.23	Sep. 10	2145	1,890	12.63
June 2	1630	1,510	11.45	Sep. 18	0930	4,670	18.97
June 3	2015	2,200	13.50	Sep. 27	1830	1,560	11.63

a From floodmark.

Minimum daily discharge, 1.1 ft ³/s Aug. 26, 27.

DISCHARGE, IN 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	4.1	e5.4	25	e56	22	59	20	7.1	145	106	12	6.5
2	13	e5.0	24	e47	19	47	19	7.6	410	56	11	4.8
3	5.7	e18	24	e42	17	41	17	11	552	31	10	4.0
4	4.1	e30	24	e37	20	38	17	60	788	26	9.3	3.3
5	4.9	e17	23	e33	17	35	18	12	168	24	9.5	3.1
6	42	e9.0	22	e30	21	32	23	18	105	23	9.2	2.6
7	26	e7.0	28	e32	21	30	18	8.9	81	21	8.9	80
8	9.4	e6.5	27	e34	17	28	17	111	114	24	8.9	17
9	8.0	e6.1	91	e36	16	27	16	24	283	74	9.7	6.5
10	7.0	e5.7	201	e37	16	26	15	14	185	53	9.7	229
11	104	e5.4	89	e31	16	66	19	15	396	23	8.7	72
12	941	e5.1	61	27	16	27	15	13	161	20	8.2	29
13	84	e4.8	51	29	16	27	49	10	628	17	8.2	14
14	63	e4.6	226	28	17	26	17	11	150	16	6.4	8.0
15	71	e4.5	227	29	53	24	13	11	97	16	3.7	6.6
16	26	e9.0	107	32	18	23	12	15	76	16	3.2	7.0
17	22	e15	80	128	17	144	12	20	61	826	2.9	6.4
18	18	e22	e200	62	14	35	11	15	59	49	2.9	655
19	18	e15	e140	37	21	32	11	43	43	33	2.9	62
20	17	11	e100	37	73	28	12	39	34	26	2.6	23
21	31	10	e70	36	21	27	9.2	14	28	38	2.6	17
22	226	14	e400	35	14	26	8.9	13	25	47	2.6	14
23	1020	66	e2500	33	9.0	46	8.9	14	20	25	1.8	11
24	e90	49	e800	32	133	26	8.6	137	17	28	1.8	10
25	e10	204	e350	30	102	24	8.5	42	285	19	1.8	9.3
26	e25	40	e200	34	300	23	8.2	18	99	17	1.1	8.7
27	e13	31	e140	28	102	24	8.2	15	48	16	1.1	151
28	e8.5	30	e115	27	140	41	7.6	14	40	15	10	37
29	e7.0	27	e90	27	---	32	7.6	3010	36	15	4.3	13
30	e6.2	26	e75	26	---	23	7.3	223	34	14	58	9.5
31	e5.8	---	e63	25	---	21	---	217	---	13	14	---
TOTAL	2930.7	703.1	6573	1157	1268.0	1108	434.0	4182.6	5168	1727	247.0	1520.3
MEAN	94.5	23.4	212	37.3	45.3	35.7	14.5	135	172	55.7	7.97	50.7
MAX	1020	204	2500	128	300	144	49	3010	788	826	58	655
MIN	4.1	4.5	22	25	9.0	21	7.3	7.1	17	13	1.1	2.6
AC-FT	5810	1390	13040	2290	2520	2200	861	8300	10250	3430	490	3020
CFSM	1.84	.46	4.13	.73	.88	.70	.28	2.63	3.36	1.09	.16	.99
IN.	2.13	.51	4.77	.84	.92	.80	.31	3.03	3.75	1.25	.18	1.10

CAL YR 1986 TOTAL 15953.2 MEAN 43.7 MAX 2500 MIN .00 AC-FT 31640 CFSM .85 IN. 11.6
WTR YR 1987 TOTAL 27018.6 MEAN 74.0 MAX 3010 MIN 1.1 AC-FT 53590 CFSM 1.44 IN. 19.6

e Estimated.

08158600 WALNUT CREEK AT WEBBERVILLE ROAD, AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1976 tp current year. Pesticide analyses: November 1976 to September 1986. Sediment analyses: December 1977 to July 1982. Radiochemical analyses: January 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DEC												
08...	0955	15	678	8.10	16.5	4	0.50	8.5	88	0.6	420	84
FEB												
17...	1020	20	647	8.10	10.5	3	0.80	9.6	88	0.8	K6800	130
MAY												
12...	0940	13	635	7.80	21.5	4	2.5	7.8	90	0.6	1000	2000
29...	1047	7100	164	7.80	18.5	100	420	9.4	103	4.6	48000	140000
29...	1408	2630	225	7.40	19.0	55	420	9.8	108	3.4	51000	77000
JUL												
17...	1225	3400	135	8.00	23.0	63	740	9.3	111	5.8	74000	56000
AUG												
06...	0945	6.4	642	7.70	27.0	2	1.7	6.9	89	0.3	100	130

DATE	HARD-NESS (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 WH WAT TOTAL 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)
DEC												
08...	--	--	--	--	--	--	--	228	--	--	--	--
FEB												
17...	270	58	98	6.7	25	0.7	3.1	214	61	46	0.40	6.0
MAY												
12...	--	--	--	--	--	--	--	--	--	--	--	--
29...	70	15	25	1.8	4.2	0.2	3.7	55	19	5.9	0.20	5.0
29...	95	19	34	2.4	5.8	0.3	3.5	76	27	5.9	0.20	6.9
JUL												
17...	58	8	21	1.4	3.0	0.2	2.2	50	15	4.2	0.20	4.0
AUG												
06...	230	82	76	9.5	40	1	2.9	147	74	64	0.50	9.2

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
DEC												
08...	--	7	<1	1.18	0.020	1.20	0.070	0.43	0.50	0.040	3.4	--
FEB												
17...	370	8	5	1.08	0.020	1.10	0.090	1.1	1.2	0.020	3.5	1
MAY												
12...	--	<1	<1	0.790	0.010	0.800	0.060	0.84	0.90	0.020	2.2	--
29...	98	830	110	0.450	0.050	0.500	0.140	--	--	1.80	23	1
29...	130	2340	284	0.670	0.030	0.700	0.080	0.52	0.60	1.10	21	<1
JUL												
17...	81	1910	182	0.260	0.040	0.300	0.130	2.5	2.6	1.40	74	1
AUG												
06...	360	11	<1	0.690	0.010	0.700	0.030	0.57	0.60	0.060	2.6	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)
DEC											
08...	--	--	--	--	--	--	--	--	--	--	--
FEB											
17...	73	<1	<10	1	4	<5	7	<0.1	<1	<1	7
MAY											
12...	--	--	--	--	--	--	--	--	--	--	--
29...	19	<1	<10	1	45	<5	<1	<0.1	<1	<1	7
29...	28	<1	<10	3	36	<5	1	<0.1	<1	<1	9
JUL											
17...	14	<1	<10	<1	19	<5	<1	0.1	<1	<1	<3
AUG											
06...	63	<1	<10	<1	4	<5	7	<0.1	<1	<1	<3

08158650 COLORADO RIVER BELOW AUSTIN, TX
(Low-flow partial-record station)

LOCATION.--Lat 30°12'28", long 97°38'15", Travis County, Hydrologic Unit 12090205, at bridge on Farm Road 973, 0.3 mi northeast of intersection of State Highway 71 and Farm Road 973, 8.8 mi downstream from Govalle Sewage Treatment Plant outfall, and 9.6 mi downstream from gaging station at Austin.

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: February 1975 to September 1986.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)
NOV												
12...	1225	480	7.50	19.0	1	5.4	9.2	99	0.3	200	K20	180
DEC												
17...	0820	543	7.50	15.0	4	2.6	9.5	94	0.1	250	30	220
FEB												
25...	1200	560	7.40	14.0	6	6.5	9.1	89	1.1	2900	300	210
MAY												
12...	1300	540	8.10	24.5	9	2.5	8.0	97	0.1	K140	K10	210
JUL												
14...	1055	570	7.70	26.0	6	3.4	7.4	92	0.2	250	130	220
AUG												
19...	1010	574	7.70	27.5	1	1.3	7.2	92	0.9	510	470	220

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 WH WAT TOTAL 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												
12...	36	44	17	25	0.8	3.9	144	31	42	0.30	8.0	260
DEC												
17...	48	61	17	25	0.8	3.5	174	38	44	0.30	8.6	300
FEB												
25...	49	59	16	31	1	4.2	164	46	40	0.40	8.1	300
MAY												
12...	43	53	19	30	0.9	3.5	168	39	45	0.30	8.3	300
JUL												
14...	49	55	19	33	1	3.6	167	43	54	0.30	8.9	320
AUG												
19...	52	60	18	32	1	3.7	172	43	54	0.30	12	330

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, 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											
12...	13	7	0.490	0.010	0.500	0.110	0.49	0.60	0.110	5.4	1
DEC											
17...	19	1	1.08	0.020	1.10	0.100	0.40	0.50	0.200	3.5	--
FEB											
25...	13	<1	2.25	0.050	2.30	0.480	1.0	1.5	0.770	3.8	1
MAY											
12...	<1	<1	0.990	0.010	1.00	0.060	0.94	1.0	0.260	2.3	--
JUL											
14...	14	1	0.490	0.010	0.500	0.090	0.41	0.50	0.110	3.3	1
AUG											
19...	5	1	--	<0.010	0.900	0.040	0.56	0.60	0.140	3.5	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											
12...	67	<1	<10	<1	4	<5	6	<0.1	<1	<1	<3
DEC											
17...	--	--	--	--	--	--	--	--	--	--	--
FEB											
25...	61	<1	<10	2	12	7	33	<0.1	<1	1	9
MAY											
12...	--	--	--	--	--	--	--	--	--	--	--
JUL											
14...	70	<1	<10	<1	<3	<5	4	0.1	<1	1	<3
AUG											
19...	72	<1	20	1	3	<5	5	0.3	<1	<1	5

08158700 ONION CREEK NEAR DRIFTWOOD, TX

LOCATION.--Lat 30 04'59", long 98 00'29", Hays County, Hydrologic Unit 12090205, on left bank at upstream side of low-water crossing on Farm Road 150, 3.2 mi southeast of Driftwood, and 10 mi west of Buda.

DRAINAGE AREA.--124 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958, November 1961 to June 1979 (periodic discharge measurements only), July 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage 878.13 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair.

AVERAGE DISCHARGE.--8 years 55.9 ft³/s (6.12 in/yr) 40,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,990 ft³/s June 6, 1985 (gage height, 16.38 ft); no flow for several days in August and September 1984 and Oct. 1-10, 1984. Flood of Mar. 20, 1979, reached a stage of 11.48 ft (discharge, 4,980 ft³/s), on basis of peak flow over dam, 1.5 mi downstream.

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)
Oct. 12	0745	1,500	6.72	June 10	1200	2,130	7.33
Oct. 23	0915	2,570	8.09	June 11	0730	3,200	9.09
Dec. 22	1515	3,090	8.91	June 12	0930	2,090	7.25
May 31	1645	1,440	6.66	June 13	2100	*5,790	*12.56
June 2	2400	5,050	11.58	June 18	1030	902	5.99
June 4	1015	4,370	10.71	July 17	1400	1,490	6.71
June 9	1100	1,360	6.57				

Minimum daily discharge, 0.51 ft³/s Sept. 30.

DISCHARGE, IN 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	3.4	104	50	260	81	233	106	28	386	148	40	19
2	4.1	98	47	250	76	219	101	28	1430	220	43	15
3	3.5	92	46	236	73	204	95	28	1380	145	35	13
4	3.4	104	45	217	71	188	91	30	2510	135	32	10
5	3.6	106	43	206	68	173	88	30	1100	122	30	7.3
6	4.3	90	44	198	70	164	92	28	740	111	30	5.2
7	4.5	89	47	189	66	155	85	26	568	102	36	6.2
8	4.1	84	47	181	62	148	78	28	506	96	34	6.0
9	3.4	76	49	179	58	145	73	29	849	101	34	6.7
10	3.4	70	81	164	56	143	71	25	1170	128	33	7.2
11	7.7	66	167	152	56	155	70	25	2140	93	30	18
12	394	64	138	147	54	144	65	24	1580	83	29	12
13	156	61	131	144	52	140	62	21	2610	73	28	10
14	83	59	155	143	51	138	55	20	1320	70	26	8.6
15	57	58	261	140	53	135	52	21	866	71	24	8.3
16	45	56	238	137	47	132	50	22	661	67	23	9.0
17	38	54	231	144	44	247	48	38	524	336	21	7.0
18	34	51	252	142	43	187	48	30	530	153	20	5.0
19	31	47	246	135	43	165	46	32	376	96	18	3.7
20	28	45	234	127	64	158	43	35	317	73	14	3.0
21	28	43	224	125	63	152	41	30	286	67	11	2.6
22	35	44	1860	121	52	148	40	28	273	70	9.1	2.7
23	1060	43	1480	114	47	146	40	23	259	56	8.3	2.7
24	291	46	806	111	76	142	39	20	245	50	7.8	2.9
25	218	98	615	104	92	140	37	19	228	67	7.4	2.0
26	182	72	505	99	350	138	35	18	212	60	7.2	.99
27	156	60	410	96	268	133	33	17	195	53	6.2	1.5
28	142	57	338	94	259	129	31	16	181	49	7.6	1.7
29	133	54	311	91	---	119	30	208	168	45	7.5	.79
30	121	53	285	84	---	114	29	200	155	43	12	.51
31	111	---	273	80	---	110	---	392	---	41	19	---
TOTAL	3388.4	2044	9659	4610	2395	4844	1774	1519	23765	3024	683.1	198.59
MEAN	109	68.1	312	149	85.5	156	59.1	49.0	792	97.5	22.0	6.62
MAX	1060	106	1860	260	350	247	106	392	2610	336	43	19
MIN	3.4	43	43	80	43	110	29	16	155	41	6.2	.51
AC-FT	6720	4050	19160	9140	4750	9610	3520	3010	47140	6000	1350	394

CAL YR 1986 TOTAL 29394.93 MEAN 80.5 MAX 1860 MIN 2.2 AC-FT 58300
WTR YR 1987 TOTAL 57903.99 MEAN 159 MAX 2610 MIN .51 AC-FT 114900

08158700 ONION CREEK NEAR DRIFTWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1974 to current year. Pesticide analyses: January 1978 to September 1986. Radiochemical analyses: January 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
13...	0830	144	515	8.00	13.0	1	0.30	9.5	92	0	170	53
FEB												
18...	0820	42	508	8.30	11.5	1	0.20	10.0	93	0.5	100	21
MAY												
11...	0955	24	479	7.90	22.5	2	0.60	8.9	105	1.4	240	K340
29...	1000	116	364	8.10	22.0	24	18	8.9	104	2.1	22000	K280000
JUN												
04...	1230	4120	311	8.10	20.5	55	8.8	9.3	104	0.9	2200	10000
JUL												
17...	0845	133	451	8.00	25.0	3	3.3	8.8	110	0.6	1500	4300
AUG												
05...	0850	33	469	8.10	27.5	2	0.60	7.8	101	0.4	K240	1000

DATE	HARD-NESS (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 WH WAT TOTAL 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)
JAN												
13...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
18...	260	39	77	17	7.8	0.2	1.0	223	27	14	0.20	7.7
MAY												
11...	--	--	--	--	--	--	--	207	--	--	--	--
29...	180	25	53	12	5.9	0.2	2.2	157	20	13	0.20	9.7
JUN												
04...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
17...	220	28	65	15	7.4	0.2	1.0	196	28	12	0.20	9.1
AUG												
05...	240	39	68	16	8.5	0.3	1.4	197	29	11	0.20	10

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
JAN												
13...	--	<1	<1	--	<0.010	0.500	0.040	0.36	0.40	<0.010	1.7	--
FEB												
18...	290	1	1	--	<0.010	0.200	0.020	0.38	0.40	<0.010	1.0	<1
MAY												
11...	--	<1	<1	--	<0.010	<0.100	0.020	1.1	1.1	0.010	4.0	--
29...	210	34	17	0.180	0.020	0.200	0.050	--	--	0.050	4.9	<1
JUN												
04...	--	147	21	0.080	0.020	0.100	0.040	0.96	1.0	0.080	8.6	--
JUL												
17...	260	6	<1	0.190	0.010	0.200	0.060	0.34	0.40	0.040	2.3	<1
AUG												
05...	260	3	<1	--	<0.010	<0.100	<0.010	--	0.50	<0.010	1.3	<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											
13...	--	--	--	--	--	--	--	--	--	--	--
FEB											
18...	29	<1	<10	<1	<3	<5	3	<0.1	<1	<1	4
MAY											
11...	--	--	--	--	--	--	--	--	--	--	--
29...	22	<1	<10	<1	14	<5	1	<0.1	<1	<1	<3
JUN											
04...	--	--	--	--	--	--	--	--	--	--	--
JUL											
17...	27	<1	<10	<1	<3	<5	3	0.1	<1	<1	<3
AUG											
05...	28	<1	<10	1	<3	<5	2	<0.1	<1	<1	<3

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX

LOCATION.--Lat 30°09'19", long 97°56'23", Hays County, Hydrologic Unit 12090205, 0.8 mi southeast of Farm Road 1826 and 5.9 mi northeast of Driftwood.

DRAINAGE AREA.--12.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to July 1979 (periodic discharge measurements only), October 1978 to June 1979 (peak discharges above base only), July 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 860 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges which are fair. Station is part of hydrographic research project to study rainfall-runoff relationship for the Austin urban-rural areas. Rain gage in the watershed.

AVERAGE DISCHARGE.--8 years 7.02 ft³/s (7.81 in/yr) 5,090 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,330 ft³/s June 11, 1981 (gage height, 13.05 ft, from floodmarks), from slope-area measurements of peak flow; no flow in 1980 and 1983-84.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 9, 1919, reached a stage of 16.2 ft (discharge unknown) and was the highest since at least 1924, from information by local resident. A flood in 1915 was 2 ft higher than the 1939 flood, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharge 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)
Oct. 12	0415	583	5.46	June 4	0815	*1,910	*7.76
Oct. 23	0630	1,320	6.91	June 12	0100	649	5.62
Dec. 22	1200	604	5.51	June 13	0200	507	5.23

Minimum daily discharge, 0.07 ft³/s Sept. 20, 21, 24, 26, 30.

DISCHARGE, IN 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	.40	18	7.5	26	9.3	24	6.2	2.2	34	11	2.2	.68
2	.38	16	7.3	24	8.9	23	6.0	2.2	65	11	2.1	.67
3	.37	15	7.0	23	8.9	21	5.6	2.2	61	9.4	2.0	.60
4	.37	21	7.0	21	8.5	20	5.4	2.4	419	8.2	1.9	.60
5	.41	17	7.0	20	8.5	18	5.2	2.3	96	7.3	1.8	.52
6	.61	15	6.7	19	8.0	17	5.1	2.0	71	6.8	1.7	.30
7	.46	15	7.0	18	7.7	16	4.8	2.0	55	6.1	1.7	.37
8	.45	14	7.0	17	7.3	15	4.4	2.0	47	5.8	1.6	.38
9	.43	14	8.3	18	6.8	15	4.2	1.9	70	6.9	1.6	.27
10	.40	13	14	15	6.7	14	4.2	1.7	89	6.3	1.6	.54
11	.71	13	16	14	6.6	15	4.1	1.7	115	5.4	1.5	.61
12	68	12	14	14	6.5	13	3.9	1.7	191	4.9	e1.4	.29
13	9.3	12	14	13	6.7	12	4.0	1.7	165	4.6	e1.3	.27
14	7.2	12	23	13	6.2	12	3.5	1.6	96	4.4	e1.3	.26
15	5.9	11	40	12	6.5	11	3.4	1.5	74	4.0	e1.2	.17
16	5.6	11	34	12	5.7	11	3.2	2.3	59	4.0	e1.2	.12
17	5.1	10	32	19	5.4	16	3.4	1.9	49	11	e1.1	.08
18	4.6	8.9	36	16	5.3	12	3.4	1.5	49	6.2	e1.1	.23
19	4.5	8.1	33	14	5.4	11	3.2	2.8	39	5.0	e1.0	.10
20	4.3	7.7	31	14	6.8	11	3.2	2.5	33	4.2	e1.0	.07
21	4.6	7.2	29	14	6.0	10	3.0	1.8	29	4.0	e.98	.07
22	5.9	7.4	231	13	5.4	10	3.0	1.7	26	3.8	e.94	.11
23	321	7.3	111	12	4.9	9.7	2.9	1.5	23	3.5	e.90	.11
24	53	7.6	75	12	8.3	8.9	2.8	1.5	20	3.3	e.86	.07
25	40	14	60	12	14	8.5	2.8	1.5	19	3.3	e.83	.08
26	34	9.0	50	11	39	8.1	2.6	1.3	17	3.3	e.80	.07
27	29	8.5	43	10	28	7.4	2.4	1.2	15	3.1	e.77	.19
28	26	8.1	38	10	28	7.4	2.4	1.3	14	2.8	e.74	.19
29	23	7.7	35	10	---	7.0	2.3	41	13	2.5	e.70	.08
30	22	7.7	32	9.2	---	6.6	2.2	17	12	2.5	1.6	.07
31	20	---	29	9.2	---	6.3	---	32	---	2.3	.97	---
TOTAL	697.99	348.2	1084.8	464.4	275.3	396.9	112.8	141.9	2065	166.9	40.39	8.17
MEAN	22.5	11.6	35.0	15.0	9.83	12.8	3.76	4.58	68.8	5.38	1.30	.27
MAX	321	21	231	26	39	24	6.2	41	419	11	2.2	.68
MIN	.37	7.2	6.7	9.2	4.9	6.3	2.2	1.2	12	2.3	.70	.07
AC-FT	1380	691	2150	921	546	787	224	281	4100	331	80	16
CFSM	1.85	.95	2.87	1.23	.81	1.05	.31	.38	5.64	.44	.11	.0
IN.	2.13	1.06	3.31	1.42	.84	1.21	.34	.43	6.30	.51	.12	.0

CAL YR 1986 TOTAL 3248.44 MEAN 8.90 MAX 321 MIN .28 AC-FT 6440 CFSM .73 IN. 9.91
WTR YR 1987 TOTAL 5802.69 MEAN 15.9 MAX 419 MIN .07 AC-FT 11510 CFSM 1.30 IN. 17.7

e Estimated.

08158810 BEAR CREEK BELOW FARM ROAD 1826 NEAR DRIFTWOOD, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1978 to current year. Pesticide analyses: June 1978 to September 1986. Radiochemical analyses: January 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 13...	0915	13	553	7.90	13.0	3	0.30	8.8	85	0.1	K380	28
FEB 18...	0920	7.8	559	8.20	10.0	2	0.20	9.8	89	0.3	28	20
MAY 11...	1050	1.7	517	7.80	24.0	3	0.80	8.5	103	1.3	120	K810
29...	1030	56	390	8.10	21.0	38	6.9	8.8	101	2.6	5700	K35000
JUN 04...	1051	300	280	8.00	20.5	55	12	9.7	109	1.1	2600	12000
JUL 17...	0803	16	476	7.80	25.0	2	5.5	8.8	110	0.7	4100	8400
AUG 05...	0935	1.7	495	7.90	28.0	1	0.80	7.3	96	0.3	37	1100

DATE	HARD-NESS (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 WH WAT TOTAL 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)
JAN 13...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 18...	280	41	84	17	8.8	0.2	0.80	239	35	18	0.20	7.6
MAY 11...	--	--	--	--	--	--	--	221	--	--	--	--
29...	190	21	56	11	6.9	0.2	2.1	164	23	15	0.20	9.0
JUN 04...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 17...	240	29	70	15	7.8	0.2	0.80	208	25	11	0.20	10
AUG 05...	250	36	72	17	8.8	0.3	0.70	214	28	12	0.20	13

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
JAN 13...	--	<1	<1	--	<0.010	0.600	0.040	0.36	0.40	<0.010	1.9	--
FEB 18...	310	3	3	--	<0.010	0.300	0.030	0.37	0.40	<0.010	1.2	<1
MAY 11...	--	<1	<1	--	<0.010	<0.100	0.020	1.3	1.3	0.010	2.2	--
29...	220	19	10	0.180	0.020	0.200	0.030	--	--	0.030	5.0	<1
JUN 04...	--	44	10	0.080	0.020	0.100	0.030	0.97	1.0	0.050	8.4	--
JUL 17...	260	1	<1	--	<0.010	<0.100	0.080	0.32	0.40	0.100	2.6	<1
AUG 05...	280	2	<1	--	<0.010	<0.100	<0.010	--	0.60	<0.010	1.8	<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)
JAN 13...	--	--	--	--	--	--	--	--	--	--	--
FEB 18...	29	<1	<10	<1	5	<5	5	<0.1	<1	<1	6
MAY 11...	--	--	--	--	--	--	--	--	--	--	--
29...	24	<1	<10	<1	17	<5	2	<0.1	<1	<1	7
JUN 04...	--	--	--	--	--	--	--	--	--	--	--
JUL 17...	28	<1	10	<1	4	<5	6	0.1	<1	<1	<3
AUG 05...	29	<1	<10	<1	6	<5	6	<0.1	<1	<1	5

08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX

LOCATION.--Lat 30°12'32", long 97°54'11", Travis County, Hydrologic Unit 12090205, 1.7 mi south the intersection of U.S. Highway 290 and Farm Road 1826 and 11.9 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--8.24 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.14 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversion. There is a recording rain gage in the watershed.

AVERAGE DISCHARGE.--9 years (water years 1979-87), 6.75 ft³/s (11.12 in/yr), 4,890 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,080 ft³/s June 11, 1981 (gage height, 10.79 ft); no flow at times most years.

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)
Oct. 23	0500	2,100	8.61	June 9	2345	878	6.90
Dec. 22	1200	897	6.84	June 12	0015	1,180	7.35
May 29	0515	971	7.04	June 13	1600	*2,720	a*9.38
June 4	0815	1,950	8.42				

a From floodmark.

Minimum discharge, no flow Aug. 7-29.

DISCHARGE, IN 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	.10	11	3.9	14	3.4	24	3.7	.63	12	2.6	.48	e.19
2	.13	9.4	3.6	12	3.2	19	3.5	.66	87	2.6	.34	.14
3	.08	9.1	3.3	11	3.1	15	3.2	.68	67	1.9	.17	.12
4	.08	17	3.1	10	3.0	13	3.2	.78	651	1.7	.08	e.09
5	.08	12	2.8	9.4	2.8	11	3.1	.63	86	1.5	.02	e.08
6	.41	9.8	2.6	8.9	2.7	11	3.3	.56	33	1.3	.01	e.06
7	.34	9.6	2.6	8.1	2.4	9.7	3.2	.52	18	1.3	.00	e.05
8	.29	9.5	2.7	7.5	2.3	9.1	3.0	.54	15	1.4	.00	.35
9	.26	8.4	3.6	9.2	2.1	8.4	3.0	.51	121	2.4	.00	e.20
10	.26	7.8	14	7.5	2.1	7.7	2.8	.47	170	4.1	.00	e.70
11	.61	6.9	13	6.6	2.1	9.7	2.7	.46	136	2.3	.00	e.45
12	201	6.5	10	6.2	2.0	8.1	2.7	.46	212	1.6	.00	e.35
13	28	6.0	9.1	5.7	1.9	7.8	2.6	.44	423	1.3	.00	e.25
14	11	5.9	32	5.6	1.9	7.4	2.2	.40	90	1.2	.00	.25
15	7.0	5.8	85	5.4	2.1	7.1	1.8	.41	53	1.4	.00	e.25
16	5.3	5.5	49	5.2	1.6	6.6	1.8	.49	31	1.2	.00	e.15
17	4.9	5.0	37	13	1.5	9.9	1.6	.50	21	41	.00	.09
18	4.2	4.6	57	9.9	1.5	7.1	1.5	.48	55	2.5	.00	.31
19	4.1	4.3	41	8.2	1.6	6.5	1.5	2.6	24	1.5	.00	.14
20	3.9	3.9	31	7.5	2.6	6.2	1.4	1.0	15	1.4	.00	.13
21	4.3	3.7	25	7.0	2.2	5.9	1.3	.80	11	2.0	.00	.13
22	7.7	3.7	361	6.3	1.8	5.8	1.1	.75	8.8	2.3	.00	.10
23	516	3.8	142	5.9	1.6	5.1	1.0	.78	7.8	1.7	.00	.10
24	110	5.1	78	5.8	4.7	4.7	1.0	.91	7.0	1.9	.00	.10
25	56	13	52	4.7	16	4.8	.93	.76	5.9	2.4	.00	.10
26	39	6.3	40	4.6	60	4.6	.84	.65	4.9	1.9	.00	.10
27	29	5.3	31	4.4	40	4.6	.75	.60	4.0	1.8	.00	.10
28	22	5.0	25	4.3	45	4.6	.66	.57	3.6	1.4	.00	.08
29	17	4.6	24	4.0	---	4.1	.68	93	3.4	1.2	.00	.08
30	15	4.4	19	3.6	---	3.9	.64	6.4	3.1	.85	.90	.07
31	13	---	17	3.4	---	3.9	---	5.2	---	.64	.25	---
TOTAL	1101.04	212.9	1220.3	224.9	217.2	256.3	60.70	123.64	2379.5	94.29	2.25	5.31
MEAN	35.5	7.10	39.4	7.25	7.76	8.27	2.02	3.99	79.3	3.04	.07	.18
MAX	516	17	361	14	60	24	3.7	93	651	41	.90	.70
MIN	.08	3.7	2.6	3.4	1.5	3.9	.64	.40	3.1	.64	.00	.05
AC-FT	2180	422	2420	446	431	508	120	245	4720	187	4.5	11
CFSM	4.31	.86	4.78	.88	.94	1.00	.25	.48	9.63	.37	.0	.0
IN.	4.97	.96	5.51	1.02	.98	1.16	.27	.56	10.7	.43	.0	.0

CAL YR 1986	TOTAL	3996.97	MEAN	11.0	MAX	516	MIN	.00	AC-FT	7930	CFSM	1.33	IN.	18.0
WTR YR 1987	TOTAL	5898.26	MEAN	16.2	MAX	651	MIN	.00	AC-FT	11700	CFSM	1.96	IN.	26.6

e Estimated.

08158840 SLAUGHTER CREEK AT FARM ROAD 1826 NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1983 to current year. Pesticide analyses: June 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
13...	0950	5.7	738	7.80	12.5	3	0.40	8.9	86	0.2	230	39
FEB												
18...	0955	1.2	720	8.10	12.0	2	0.20	10.4	99	0.3	25	K2
MAY												
11...	1130	0.42	675	7.60	24.5	4	1.0	10.1	124	1.3	K14	K90
29...	1100	74	303	7.90	20.0	55	31	8.9	100	4.1	44000	98000
JUN												
04...	1035	510	338	8.00	20.5	55	12	8.1	91	1.4	10000	20000
18...	0732	110	650	7.80	23.5	7	17	7.3	--	1.3	K18000	35000
18...	0920	110	625	7.90	23.5	18	6.1	7.5	--	1.4	9200	42000
AUG												
05...	1015	0.29	624	7.90	28.5	2	0.80	8.0	106	0.6	54	620

DATE	HARD-NESS (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 WH WAT TOTAL 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)
JAN												
13...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
18...	320	59	89	24	23	0.6	0.60	262	61	42	0.20	6.3
MAY												
11...	--	--	--	--	--	--	--	247	--	--	--	--
29...	140	28	40	10	9.7	0.4	2.3	113	25	18	0.10	7.6
JUN												
04...	--	--	--	--	--	--	--	--	--	--	--	--
18...	320	52	93	21	19	0.5	1.1	267	54	25	0.20	7.3
18...	290	40	82	20	19	0.5	1.4	247	47	25	0.20	7.3
AUG												
05...	300	45	82	22	20	0.5	0.80	250	39	26	0.30	9.3

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
JAN												
13...	--	<1	<1	--	<0.010	0.600	0.050	0.25	0.30	<0.010	2.3	--
FEB												
18...	400	3	1	--	<0.010	0.300	0.050	0.65	0.70	<0.010	1.4	<1
MAY												
11...	--	<1	<1	--	<0.010	<0.100	0.030	1.1	1.1	0.010	1.9	--
29...	180	55	16	0.170	0.030	0.200	0.080	--	--	0.060	6.4	<1
JUN												
04...	--	44	19	0.180	0.020	0.200	0.020	0.78	0.80	0.070	9.8	--
18...	380	10	<1	--	<0.010	0.200	0.040	0.46	0.50	0.030	4.2	<1
18...	350	15	5	--	<0.010	0.200	0.020	1.1	1.1	0.040	5.3	<1
AUG												
05...	350	2	<1	--	<0.010	<0.100	<0.010	--	0.70	0.010	2.3	<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											
13...	--	--	--	--	--	--	--	--	--	--	--
FEB											
18...	33	<1	<10	<1	3	<5	8	<0.1	<1	<1	4
MAY											
11...	--	--	--	--	--	--	--	--	--	--	--
29...	20	<1	<10	<1	30	<5	5	<0.1	<1	<1	<3
JUN											
04...	--	--	--	--	--	--	--	--	--	--	--
18...	33	<1	20	1	3	<5	<1	<0.1	<1	<1	6
18...	31	<1	<10	2	8	<5	1	<0.1	<1	<1	8
AUG											
05...	35	<1	20	<1	6	<5	11	<0.1	<1	<1	<3

08158920 WILLIAMSON CREEK AT OAK HILL, TX

LOCATION.--Lat 30°06'06", long 97°51'36", Travis County, Hydrologic Unit 12090205, at downstream side of bridge on U.S. Highway 290 in Oak Hill, 0.8 mi east of the intersection of U.S. Highway 290 and State Highway 71, and 7.7 mi southwest of the State Capitol Building in Austin.

DRAINAGE AREA.--6.30 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1974 to February 1977 (periodic discharge measurements only), January 1978 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 798.68 ft above National Geodetic Vertical Datum of 1929 (levels from city of Austin bench mark).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Station is part of hydrologic-research project to study rainfall-runoff relations for the Austin urban-rural areas. Station is equipped with an automatic water-quality sampler. There is one recording rain gage located in the watershed above this station.

AVERAGE DISCHARGE.--9 years, 5.12 ft³/s (11.04 in/yr), 3,710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,170 ft³/s June 11, 1981 (gage height, 8.55 ft) from rating curve extended above 105 ft³/s on basis of slope-area measurement of peak flow; 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)
Oct. 12	0345	746	4.71	June 4	0700	*1,810	a*6.20
Oct. 23	0500	1,330	5.60	June 13	1445	937	5.03
Dec. 22	1130	624	4.48	June 18	0630	780	4.78
May 29	0400	1,210	a5.43				

a From floodmark.

Minimum daily discharge, no flow for many days.

DISCHARGE, IN 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	4.1	1.8	2.2	1.2	13	1.6	.03	e10	2.8	.28	.00
2	.00	4.0	1.6	1.8	1.2	11	1.5	.02	e65	2.8	.25	.00
3	.00	3.9	1.7	1.5	1.1	9.0	1.3	.02	e50	1.8	.20	.00
4	.00	11	1.7	1.2	1.3	7.5	1.4	.60	285	1.4	.14	.00
5	.00	4.4	1.7	1.2	.95	6.6	1.5	.26	47	1.3	.10	.00
6	5.7	3.9	1.8	1.1	.84	6.2	1.4	.16	24	1.1	.02	.00
7	.24	3.5	2.0	.96	.77	5.6	1.3	.10	14	.97	.00	.00
8	.00	3.5	2.2	.83	.62	5.4	1.4	.33	14	.94	.00	.00
9	.00	3.2	3.2	3.5	.49	5.0	1.3	.17	90	2.3	.00	.00
10	.00	2.7	19	.93	.43	5.2	1.4	.11	94	1.2	.00	14
11	6.2	2.2	12	.84	.45	6.9	1.4	.13	98	.85	.00	.51
12	149	2.9	8.6	.91	.38	5.0	1.3	.15	121	.78	.00	.00
13	20	2.5	6.6	.94	.33	4.6	1.8	.12	176	.74	.00	.00
14	8.5	2.2	37	1.0	.29	4.7	.82	.13	58	.68	.00	.00
15	5.7	2.2	57	1.1	.74	4.5	.64	.21	30	.66	.00	.00
16	4.4	2.1	31	.91	.05	4.3	.57	.99	20	.61	.00	.00
17	3.6	1.9	22	7.3	.05	7.2	.44	.48	14	22	.00	.00
18	3.1	1.8	42	2.6	.05	3.3	.39	.32	84	1.3	.00	.68
19	2.6	1.6	26	1.8	.17	3.2	.32	12	22	.89	.00	.00
20	2.3	1.6	18	1.4	.59	3.2	.26	1.3	14	.75	.00	.00
21	4.2	1.6	15	1.3	.09	3.0	.27	.64	9.8	.69	.00	.00
22	10	1.5	336	1.1	.06	3.3	.25	.56	6.7	.67	.00	.00
23	310	3.1	110	1.1	.09	3.5	.18	.48	5.5	.60	.00	.00
24	51	7.3	50	1.1	1.9	3.1	.13	3.6	4.9	.71	.00	.00
25	27	9.2	30	.88	8.8	2.9	.10	.26	4.7	.69	.00	.00
26	22	2.8	18	.92	39	2.8	.10	.26	3.9	.60	.00	.00
27	15	2.1	11	.99	22	2.9	.06	.26	3.1	.64	1.1	.00
28	10	2.2	7.4	1.1	25	4.4	.03	.29	2.8	.53	.23	.00
29	7.4	2.0	5.6	1.2	---	1.6	.02	149	2.5	.36	.00	.00
30	5.9	1.9	4.1	1.2	---	1.5	.02	9.3	2.3	.37	.14	.00
31	4.7	---	3.0	1.2	---	1.5	---	e5.0	---	.33	.00	---
TOTAL	678.54	98.9	887.0	46.11	108.94	151.9	23.20	187.28	1376.2	52.06	2.46	15.19
MEAN	21.9	3.30	28.6	1.49	3.89	4.90	.77	6.04	45.9	1.68	.08	.51
MAX	310	11	336	7.3	39	13	1.8	149	285	22	1.1	14
MIN	.00	1.5	1.6	.83	.05	1.5	.02	.02	2.3	.33	.00	.00
AC-FT	1350	196	1760	91	216	301	46	371	2730	103	4.9	30
CFSM	3.47	.52	4.54	.24	.62	.78	.12	.96	7.28	.27	.0	.08
IN.	4.01	.58	5.24	.27	.64	.90	.14	1.11	8.13	.31	.0	.09

CAL YR 1986	TOTAL	2891.64	MEAN	7.92	MAX	336	MIN	.00	AC-FT	5740	CFSM	1.26	IN.	17.1
WTR YR 1987	TOTAL	3627.75	MEAN	9.94	MAX	336	MIN	.00	AC-FT	7200	CFSM	1.58	IN.	21.4

e Estimated.

08158920 WILLIAMSON CREEK AT OAK HILL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1974 to current year. Pesticide analyses: June 1978 to September 1986. Radiochemical analyses: Arpil 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
13...	1015	0.57	685	7.90	13.0	2	0.30	10.5	102	0.5	110	52
FEB												
18...	1030	0.03	708	8.40	10.0	4	0.10	13.8	125	0.5	37	K14
MAY												
11...	1200	0.11	692	8.30	23.5	7	0.80	13.5	163	1.3	150	K1800
29...	0942	86	214	7.70	20.0	50	43	--	--	3.3	26000	84000
JUN												
04...	0950	852	308	8.10	20.5	55	20	8.6	97	1.5	10000	32000
18...	0650	46	576	--	--	4	26	--	--	1.7	2600	860
18...	0852	320	360	7.90	22.0	38	38	7.4	--	2.0	17000	40000
18...	1030	63	360	--	--	35	19	--	--	0.9	12000	58000
AUG												
04...	1115	0.18	637	8.10	27.0	1	0.70	8.7	112	0.7	170	K3300

DATE	HARD-NESS (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 WH WAT TOTAL 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)
JAN												
13...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
18...	350	33	95	27	16	0.4	1.1	315	43	28	0.30	2.4
MAY												
11...	--	--	--	--	--	--	--	315	--	--	--	--
29...	100	13	30	6.2	3.7	0.2	5.1	87	13	11	0.10	4.9
JUN												
04...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	180	14	52	13	5.2	0.2	1.6	169	15	7.1	0.10	6.8
18...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
04...	320	43	85	26	17	0.4	0.80	276	38	19	0.30	6.4

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
JAN												
13...	--	<1	<1	--	<0.010	0.400	0.060	0.14	0.20	0.120	2.8	--
FEB												
18...	400	5	2	--	<0.010	0.200	0.050	0.75	0.80	0.120	1.7	<1
MAY												
11...	--	<1	<1	--	0.010	<0.100	0.030	0.37	0.40	0.230	3.1	--
29...	130	76	17	0.460	0.040	0.500	0.150	0.55	0.70	0.160	7.6	1
JUN												
04...	--	81	8	0.280	0.020	0.300	0.040	0.36	0.40	0.100	10	--
18...	--	102	14	--	<0.010	<0.100	0.050	1.5	1.5	0.150	5.8	--
18...	200	67	33	0.190	0.010	0.200	0.040	3.3	3.3	0.080	8.0	3
18...	--	12	<1	0.290	0.010	0.300	0.030	0.57	0.60	0.070	7.4	--
AUG												
04...	360	10	5	--	<0.010	<0.100	<0.010	--	0.60	0.030	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)
JAN											
13...	--	--	--	--	--	--	--	--	--	--	--
FEB											
18...	37	<1	<10	<1	<3	<5	2	<0.1	<1	<1	3
MAY											
11...	--	--	--	--	--	--	--	--	--	--	--
29...	16	<1	<10	<1	35	<5	2	<0.1	<1	<1	6
JUN											
04...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	20	<1	<10	2	16	<5	<1	<0.1	<1	<1	6
18...	--	--	--	--	--	--	--	--	--	--	--
AUG											
04...	39	<1	30	<1	5	<5	2	<0.1	<1	<1	8

08158970 WILLIAMSON CREEK AT JIMMY CLAY ROAD, AUSTIN, TX

LOCATION.--Lat 30°11'21", long 97°43'56", Travis County, Hydrologic Unit 12090205, at Jimmy Clay Road, 0.5 mi southeast of the intersection of Jimmy Clay and Nuckles Crossing Roads, and 5.9 mi south of the State Capitol in Austin.

DRAINAGE AREA.--27.6 mi.

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1975 to current year. Pesticide analyses: January 1975 to September 1986. Radiochemical analyses: January 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
14...	1030	3.7	785	7.70	13.5	4	0.90	10.4	102	0.4	45	37
FEB												
19...	0930	1.7	783	7.40	11.0	4	0.30	7.6	70	0.5	K280	100
MAY												
13...	1120	1.0	692	7.50	22.0	6	1.5	6.5	76	0.6	460	K1700
JUN												
29...	1122	3.7	776	7.60	24.0	3	1.2	7.7	93	0.8	160	1200
AUG												
06...	1110	0.61	800	7.40	25.5	1	0.50	7.0	88	0.3	220	700
25...	1200	0.14	833	7.30	25.5	2	5.0	6.8	84	0.4	200	2100

DATE	HARD-NESS (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 WH WAT TOTAL 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)
JAN												
14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
19...	330	65	110	13	29	0.7	2.3	263	66	50	0.40	7.5
MAY												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
29...	350	73	120	13	29	0.7	2.4	280	63	44	0.30	14
AUG												
06...	360	100	120	15	34	0.8	2.8	261	71	43	0.40	11
25...	350	67	110	18	37	0.9	3.2	282	72	48	0.40	11

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	SOLIDS, NON-VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN												
14...	--	1	1	0	1.26	0.041	1.30	0.170	0.33	0.50	0.021	3.5
FEB												
19...	440	6	<1	--	0.970	0.030	1.00	0.140	0.46	0.60	0.010	2.3
MAY												
13...	--	<1	<1	--	0.760	0.040	0.800	0.060	0.54	0.60	0.050	2.7
JUN												
29...	450	<1	<1	--	1.86	0.040	1.90	0.090	0.51	0.60	0.020	2.5
AUG												
06...	450	1	<1	--	6.75	0.050	6.80	0.020	0.98	1.0	0.060	3.6
25...	470	12	7	--	3.78	0.020	3.80	0.030	0.37	0.40	0.070	2.2

DATE	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
JAN												
14...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
19...	1	100	<1	<10	<1	8	<5	32	<0.1	<1	<1	5
MAY												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
29...	1	110	<1	<10	<1	<3	<5	16	<0.1	<1	<1	3
AUG												
06...	2	110	<1	<10	<1	6	<5	13	<0.1	<1	<1	<3
25...	1	100	<1	<10	<1	4	<5	8	<0.1	<1	<1	15

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX

LOCATION.--Lat 30°10'40", long 97°41'18", Travis County, Hydrologic Unit 12090205, on right bank at downstream side of downstream bridge on U.S. Highway 183, 2.4 mi downstream from Williamson Creek, 3.2 mi southwest of Del Valle, and 7.5 mi southeast of the State Capitol Building in Austin.

DRAINAGE AREA.--321 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to March 1930, March 1976 to current year. In 1924-30 station was published as "near Del Valle."

GAGE.--Water-stage recorder. Datum of gage is 442.85 ft State Department of Highways and Public Transportation datum. May 15, 1924, to Mar. 15, 1930, nonrecording gage at highway bridge 1,700 ft upstream at 6.42-foot higher datum.

REMARKS.--No estimated daily discharges. Records good. Flow is slightly regulated by several small ponds on main channel and tributaries above station. There are three recording rain gages located in the watershed.

AVERAGE DISCHARGE.--16 years (water years 1925-29, 1977-87), 88.8 ft³/s (3.76 in/yr), 64,340 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,000 ft³/s May 28, 1929 (gage height, 30.5 ft), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1869 occurred about July 3, 1869, stage about 38 ft from newspaper accounts, and Sept. 9, 1921, stage 38.0 ft, from floodmark, present site and datum.

EXTREMES FOR CURRENT YEAR.--Peak discharge 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)
Oct. 12	0615	4,810	14.93	June 11	1600	4,280	13.80
Oct. 23	1415	5,340	15.51	June 12	0800	4,240	13.73
Dec. 22	2400	a7,520	a17.79	June 12	2130	5,440	15.36
June 3	0930	4,340	14.40	June 14	0600	5,190	15.07
June 4	1500	*10,900	*19.79				

a From floodmark.

Minimum daily discharge 2.3 ft³/s Aug. 28 and Sept. 6.

DISCHARGE, IN 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	4.1	58	23	319	83	307	84	15	765	195	26	6.0
2	4.5	48	21	300	85	271	78	15	503	239	23	4.1
3	3.3	41	20	320	85	242	73	16	2690	201	20	3.3
4	3.0	69	20	273	85	226	69	228	6670	160	18	2.9
5	2.6	47	20	241	85	211	68	36	2480	134	17	2.5
6	4.5	47	23	221	85	199	71	291	1090	116	16	2.3
7	12	43	23	197	86	186	68	35	777	100	15	2.4
8	7.2	36	23	172	86	176	64	29	698	93	14	3.4
9	5.8	35	40	160	83	165	60	48	1520	90	10	3.2
10	5.4	31	61	146	82	157	56	25	1820	111	8.7	85
11	14	28	58	143	80	187	51	22	2850	121	8.1	116
12	2570	27	107	145	77	175	51	21	3570	94	6.8	15
13	390	26	85	147	75	155	64	22	3390	78	5.8	8.7
14	85	25	169	148	68	151	53	20	2940	74	5.4	6.5
15	30	25	394	145	65	148	41	19	1320	71	5.3	6.1
16	17	28	313	141	55	143	37	19	963	64	4.9	5.3
17	12	32	240	235	50	260	37	23	775	162	4.3	6.0
18	9.9	34	297	163	45	236	35	20	982	352	4.0	5.8
19	9.3	31	274	128	43	171	35	21	644	123	3.7	5.7
20	8.7	31	228	131	93	162	32	47	471	82	4.7	5.2
21	11	30	207	128	72	152	30	24	419	78	3.7	4.9
22	137	33	3440	124	74	146	28	19	384	79	3.4	4.5
23	2070	37	3950	113	58	141	27	18	345	65	3.1	4.0
24	844	51	1170	110	184	130	25	41	319	120	3.1	3.7
25	320	122	791	107	165	122	24	41	288	73	3.2	3.2
26	221	35	639	97	759	113	23	26	260	53	2.9	3.0
27	164	33	541	94	438	110	21	23	243	49	2.7	10
28	128	33	472	88	417	143	19	21	236	43	2.3	31
29	106	27	432	88	---	149	17	941	221	38	2.7	8.2
30	85	25	394	85	---	96	16	355	204	33	3.0	5.0
31	69	---	356	81	---	88	---	180	---	29	20	---
TOTAL	7353.3	1168	14831	4990	3663	5318	1357	2661	39837	3320	270.8	372.9
MEAN	237	38.9	478	161	131	172	45.2	85.8	1328	107	8.74	12.4
MAX	2570	122	3950	320	759	307	84	941	6670	352	26	116
MIN	2.6	25	20	81	43	88	16	15	204	29	2.3	2.3
AC-FT	14590	2320	29420	9900	7270	10550	2690	5280	79020	6590	537	740
CFSM	.74	.12	1.49	.50	.41	.53	.14	.27	4.14	.33	.0	.0
IN.	.85	.14	1.72	.58	.42	.62	.16	.31	4.62	.38	.0	.0

CAL YR 1986 TOTAL 40551.5 MEAN 111 MAX 3950 MIN .00 AC-FT 80430 CFSM .35 IN. 4.70
WTR YR 1987 TOTAL 85141.7 MEAN 233 MAX 6670 MIN 2.3 AC-FT 168900 CFSM .73 IN. 9.87

08159000 ONION CREEK AT U.S. HIGHWAY 183 NEAR AUSTIN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1976 to current year. Pesticide analyses: October 1976 to September 1986. Sediment analyses: October 1976 to September 1982. Radiochemical analyses: January 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
DEC												
08...	1105	18	622	7.70	15.5	4	0.40	9.8	100	0.8	K180	38
FEB												
17...	1100	55	546	8.30	13.0	1	0.30	11.0	107	0.7	K67	K8
MAY												
12...	1040	15	537	7.80	23.5	16	4.0	8.8	106	0.9	120	900
29...	1130	1870	274	7.60	20.0	55	240	9.2	104	6.2	68000	K200000
JUN												
18...	0815	880	490	8.00	26.0	3	78	8.2	--	0.8	2600	8000
AUG												
06...	1030	16	505	7.80	30.0	1	1.5	8.8	119	0.6	20	48

DATE	HARD-NESS (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 WH WAT TOTAL 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)
DEC												
08...	--	--	--	--	--	--	--	233	--	--	--	--
FEB												
17...	250	35	77	13	17	0.5	1.5	211	44	26	0.30	6.7
MAY												
12...	--	--	--	--	--	--	--	--	--	--	--	--
29...	110	14	38	3.4	11	0.5	4.1	95	22	15	0.30	7.6
JUN												
18...	250	35	79	14	9.2	0.3	1.6	220	26	13	0.20	11
AUG												
06...	220	37	65	13	20	0.6	1.8	179	39	24	0.30	8.3

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
DEC												
08...	--	5	<1	0.690	0.010	0.700	0.040	0.76	0.80	0.020	3.4	--
FEB												
17...	310	5	5	--	<0.010	0.700	0.030	1.1	1.1	0.010	1.8	<1
MAY												
12...	--	<1	<1	0.380	0.020	0.400	0.070	1.0	1.1	0.040	3.4	--
29...	160	703	75	0.440	0.060	0.500	0.220	0.68	0.90	0.630	15	2
JUN												
18...	290	97	28	--	<0.010	0.600	0.040	0.46	0.50	0.070	4.8	1
AUG												
06...	280	<1	<1	0.690	0.010	0.700	<0.010	--	0.50	0.020	2.3	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											
08...	--	--	--	--	--	--	--	--	--	--	--
FEB											
17...	48	<1	<10	<1	7	<5	<1	<0.1	<1	<1	7
MAY											
12...	--	--	--	--	--	--	--	--	--	--	--
29...	31	<1	<10	<1	40	<5	2	<0.1	<1	<1	7
JUN											
18...	40	<1	<10	1	<3	7	1	<0.1	<1	2	6
AUG											
06...	51	<1	<10	<1	<3	<5	2	<0.1	<1	<1	<3

08159200 COLORADO RIVER AT BASTROP, TX

LOCATION (REVISED).--Lat 30°06'16", long 97°19'09", Bastrop County, Hydrologic Unit 12090301, at the downstream side of bridge on State Highway 71 bridge, at Bastrop, 0.2 mi upstream from Gills Branch, 1.2 mi downstream from Piney Creek, and at mile 236.6.

DRAINAGE AREA.--39,979 mi², approximately, of which 11,403 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1960 to September 1973, October 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 307.38 ft above National Geodetic Vertical Datum of 1929. Prior to May 10, 1960, nonrecording gage at a site 400 ft upstream from present site and at same datum. May 10, 1960 to Sept. 30, 1973 and Oct. 1, 1975 to Oct. 28, 1986, at a site 400 ft upstream from present site and at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are many diversions above station for irrigation and for municipal supply. Regulation is the same as that for Colorado River at Austin (station 08158000). The city of Austin diverts water into Decker Lake (by pumpage) upstream from this station. The Lower Colorado River Authority also diverts water from the Colorado into Lake Bastrop by pumping upstream from this station. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--27 years, 2,187 ft³/s (1,584,000 acre-ft yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,600 ft³/s Oct. 29, 1960 (gage height, 34.45 ft); minimum daily, 75 ft³/s Apr. 1, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 60.3 ft July 7 or 8, 1869. Flood of June 16, 1935, reached a stage of 57.0 ft, and flood of Dec. 4, 1913, reached a stage of 53.3 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 52,400 ft³/s June 14 at 0800 hours (gage height, 29.45 ft); minimum daily, 779 ft³/s Feb. 23.

DISCHARGE, IN 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	1220	5870	4000	6500	3800	5300	3960	1120	8050	7310	3750	1930
2	1200	5760	3720	6400	3720	4490	3860	1550	16100	7380	3760	2730
3	1230	5720	3120	6330	3820	4340	3840	1820	25500	7680	1870	2810
4	1220	4360	2910	6390	3510	4170	3810	1960	37400	6900	2040	2850
5	1170	3480	2900	6200	3400	4150	3800	2260	41600	4750	2210	2840
6	1150	3740	2620	6160	3420	5210	4180	1970	30100	5780	2020	2840
7	1180	5070	2850	6150	3690	5940	4100	1980	27200	6740	1890	2870
8	1260	5810	2380	6110	3420	5900	3790	1660	26500	6700	2210	3030
9	1500	5860	2220	6100	3700	5850	3320	1830	29100	6690	2390	2920
10	2610	5720	2470	6140	3710	5920	3690	1700	29200	5160	2120	2460
11	2100	4600	3300	6020	3770	5900	3690	1550	28600	4650	1750	3540
12	5250	3850	2770	5980	3750	6020	2520	1620	33100	e4270	2170	3240
13	14700	e3810	2520	6200	3770	5490	2340	1650	37000	e4000	1800	2940
14	5280	e3790	2500	6120	3720	4090	2270	1710	46400	e4150	2040	2970
15	4320	3750	5790	5890	3750	4000	2350	1480	29600	3700	2080	2940
16	4840	3730	4870	5950	3680	3210	1510	1590	27700	2960	2420	2920
17	5780	4080	3280	5710	1580	2930	1700	1780	29400	3180	1900	3290
18	5810	3560	3530	6030	1430	5530	1740	1760	29800	7150	1860	2830
19	5120	3710	5380	6440	1540	5740	1720	1950	27000	6560	1990	4300
20	3910	3790	3940	5050	841	5950	1770	3190	24000	6050	2150	3210
21	3800	3690	3660	4090	1340	4870	2410	3590	20600	5890	2010	3100
22	6510	3390	6780	4030	1100	4010	1820	3490	20100	6170	1720	2600
23	7950	3600	26100	3950	779	3970	1470	3540	17200	6150	2000	2800
24	13600	3800	17100	3990	1030	5180	1390	3590	14700	5190	1890	2900
25	8400	4260	9850	3900	1800	6030	1610	3830	11900	4500	1930	2830
26	6700	4430	8340	3890	7330	6050	1250	3710	9990	4090	1890	2890
27	6430	3840	7560	3880	7960	6060	1610	3670	8390	4050	1950	2250
28	6140	3750	7190	3850	6060	5980	1930	3660	7540	3980	1840	2690
29	5860	3740	7030	3840	---	6220	1650	8080	7290	3930	1880	2670
30	5930	3720	6910	3820	---	6160	1670	22000	7410	3910	1910	2180
31	5920	---	6670	3820	---	5100	---	10100	---	3870	2060	---
TOTAL	148090	128280	174260	164930	91420	159760	76770	105390	708470	163490	65500	86370
MEAN	4777	4276	5621	5320	3265	5154	2559	3400	23620	5274	2113	2879
MAX	14700	5870	26100	6500	7960	6220	4180	22000	46400	7680	3760	4300
MIN	1150	3390	2220	3820	779	2930	1250	1120	7290	2960	1720	1930
AC-FT	293700	254400	345600	327100	181300	316900	152300	209000	1405000	324300	129900	171300

CAL YR 1986 TOTAL 936608 MEAN 2566 MAX 26100 MIN 288 AC-FT 1858000
WTR YR 1987 TOTAL 2072730 MEAN 5679 MAX 46400 MIN 779 AC-FT 4111000

e Estimated.

08159200 COLORADO RIVER AT BASTROP, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: March 1944. Chemical and biochemical analysess: February 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1986 to September 1987.
pH: November 1986 to September 1987.
WATER TEMPERATURE: November 1986 to September 1987.
DISSOLVED OXYGEN: November 1986 to September 1987.

INSTRUMENTATION.--Beginning November 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. 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 CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 710 microsiemens Feb. 25; minimum, 265 microsiemens Dec. 23.
pH: Maximum, 8.3 units Aug. 16; minimum, 7.3 units May 30.
WATER TEMPERATURE: Maximum, 33.5°C Aug. 12; minimum, 9.0°C Dec. 23.
DISSOLVED OXYGEN: Maximum, 11.3 mg/L Feb. 23; minimum, 6.0 mg/L June 27, Sept. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
NOV										
13...	1055	4780	491	7.90	15.5	8.8	86	0.2	190	47
DEC										
17...	1135	4050	478	7.60	14.0	9.5	92	0.1	190	21
FEB										
26...	1055	6840	395	7.50	13.0	9.3	89	1.6	150	46
MAY										
12...	1040	959	551	7.70	24.0	6.3	74	0.1	210	40
JUL										
15...	0915	3700	580	8.10	27.0	7.4	93	0.1	220	56
AUG										
20...	0850	1400	583	7.80	29.5	6.8	89	0.8	220	55

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 WH WAT TOTAL 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									
13...	47	18	28	0.9	4.1	144	34	48	0.30
DEC									
17...	55	13	22	0.7	3.8	170	38	30	0.30
FEB									
26...	46	7.6	24	0.9	4.5	100	52	32	0.30
MAY									
12...	53	18	31	1	3.8	166	42	42	0.30
JUL									
15...	56	20	34	1	3.6	166	44	57	0.30
AUG									
20...	56	20	34	1	3.8	167	42	54	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									
13...	8.6	270	0.690	0.010	0.700	0.050	0.55	0.60	0.200
DEC									
17...	9.0	270	0.990	0.010	1.00	0.050	0.55	0.60	0.180
FEB									
26...	11	240	1.22	0.080	1.30	0.140	0.86	1.0	0.230
MAY									
12...	8.1	300	1.18	0.020	1.20	0.050	0.85	0.90	0.440
JUL									
15...	9.4	320	--	<0.010	0.600	0.030	0.27	0.30	0.180
AUG									
20...	1.4	310	--	<0.010	0.800	0.020	0.38	0.40	0.250

08159200 COLORADO RIVER AT BASTROP, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR DECEMBER 1986 TO SEPTEMBER 1987

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)
DEC.	1986	174260	456	248	117000	40	18600	34	16000	180
JAN.	1987	164930	514	279	124000	45	20200	39	17300	200
FEB.	1987	91420	513	278	68700	45	11200	39	9580	190
MAR.	1987	159760	517	280	121000	46	19700	39	16900	200
APR.	1987	76770	538	292	60500	48	9940	41	8480	200
MAY	1987	105390	473	257	73100	41	11800	35	10100	180
JUNE	1987	708470	518	281	538000	46	87900	39	75100	200
JULY	1987	163490	566	306	135000	51	22500	43	19100	210
AUG.	1987	65500	582	315	55600	53	9330	45	7910	220
SEPT	1987	86370	532	288	67200	47	11000	40	9410	200
TOTAL		1796360	**	**	1360000	**	222000	**	190000	**
WTD.AVG.		5909	517	280	**	46	**	39	**	200

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1				---	---	---	497	493	496	516	511	513
2				---	---	---	501	493	498	514	512	513
3				---	---	---	509	501	504	514	510	512
4				---	---	---	521	500	509	510	504	506
5				---	---	---	517	502	508	504	499	501
6				486	483	484	520	505	512	500	498	499
7				481	475	478	523	504	513	503	499	502
8				476	473	475	529	506	517	504	500	502
9				476	469	473	529	510	517	503	498	501
10				472	468	470	518	497	506	505	501	503
11				477	470	473	509	494	500	504	502	503
12				478	476	477	531	493	511	507	504	505
13				484	476	481	518	492	502	509	505	507
14				481	474	478	525	506	511	513	508	511
15				478	476	476	513	418	477	518	513	516
16				478	477	477	449	409	428	518	516	517
17				477	470	473	500	450	474	521	516	518
18				489	471	481	525	478	500	540	508	524
19				486	482	484	491	460	470	520	509	517
20				487	483	484	501	471	490	531	519	523
21				484	481	483	522	502	511	534	530	532
22				488	483	485	514	297	443	538	532	535
23				493	481	486	318	265	283	538	532	535
24				481	464	478	463	323	398	531	525	527
25				477	463	469	504	466	488	527	523	525
26				484	462	474	513	504	508	526	524	525
27				486	461	476	515	513	514	528	525	527
28				495	487	492	516	515	516	529	525	527
29				496	492	494	517	515	516	527	523	525
30				496	492	493	517	516	517	526	520	522
31				---	---	---	517	516	517	522	520	521
MONTH				496	461	480	531	265	489	540	498	516

08159200 COLORADO RIVER AT BASTROP, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	523	520	521	508	488	498	523	520	522	571	558	565
2	529	515	524	519	509	513	526	523	524	589	567	578
3	524	518	522	527	519	521	524	522	523	567	552	558
4	530	523	526	529	525	527	525	523	525	554	541	547
5	531	521	527	531	526	529	526	523	524	539	506	517
6	527	518	523	529	520	524	523	518	521	543	517	530
7	521	518	520	523	516	519	527	518	523	537	501	522
8	528	518	524	521	517	518	529	528	529	546	532	540
9	521	519	520	520	515	517	539	529	534	560	546	553
10	523	520	521	518	515	516	538	521	527	551	528	538
11	532	523	526	515	513	514	524	520	521	558	521	543
12	528	525	526	516	513	515	551	526	537	551	534	541
13	529	527	528	523	515	518	560	541	549	564	549	555
14	529	523	526	527	524	525	553	537	543	568	550	560
15	524	522	523	527	524	525	555	534	543	571	558	566
16	530	523	526	545	526	531	557	533	545	578	550	567
17	570	532	551	548	426	510	584	558	574	566	546	556
18	606	570	581	529	503	516	570	563	566	557	545	552
19	612	556	576	518	513	515	566	557	563	558	537	550
20	588	564	576	523	514	516	568	553	562	540	467	508
21	638	588	606	524	516	520	561	533	548	526	510	519
22	649	591	625	524	522	523	554	532	540	528	521	525
23	616	594	605	526	523	524	562	552	557	527	524	526
24	684	607	632	524	517	520	578	562	573	526	523	524
25	710	606	663	516	513	514	583	558	571	526	513	522
26	571	366	440	515	512	514	570	562	567	519	512	515
27	453	360	402	515	512	513	584	561	574	525	520	523
28	496	455	477	514	512	513	561	545	550	527	523	524
29	---	---	---	513	505	510	561	550	554	527	304	443
30	---	---	---	511	504	508	563	551	557	395	305	331
31	---	---	---	523	510	514	---	---	---	435	382	406
MONTH	710	360	540	548	426	517	584	518	545	589	304	526

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	535	438	476	580	577	579	588	564	570	572	551	558
2	566	507	537	584	571	580	589	565	572	570	547	556
3	541	434	469	584	572	575	604	573	584	556	545	549
4	434	405	418	579	572	575	627	601	613	556	544	549
5	432	392	404	642	576	597	600	586	594	556	542	548
6	526	441	497	592	578	585	598	588	593	553	540	546
7	538	526	533	578	575	576	601	591	597	552	539	545
8	543	538	540	578	576	577	603	580	590	553	539	544
9	538	510	524	578	567	576	598	575	590	547	534	541
10	515	497	506	584	568	576	583	569	574	557	540	547
11	531	518	525	581	573	575	613	582	594	548	492	526
12	526	504	514	585	574	581	609	581	592	494	450	474
13	517	417	477	584	579	582	598	576	587	536	486	513
14	481	396	431	584	575	577	599	580	589	547	531	537
15	565	476	532	582	574	577	595	581	587	550	536	542
16	574	566	571	591	582	586	590	571	577	551	526	542
17	574	572	573	597	585	592	590	565	578	546	476	517
18	574	571	573	584	444	505	590	573	584	562	543	551
19	572	566	569	543	470	523	593	575	588	550	420	486
20	577	569	574	553	542	548	593	576	583	512	467	486
21	578	574	576	558	552	555	587	573	578	542	513	529
22	586	576	581	561	549	558	591	579	583	544	533	537
23	586	581	583	558	545	554	594	576	586	548	535	544
24	588	582	585	561	540	554	587	574	581	548	534	539
25	593	587	589	564	536	555	583	569	576	550	532	540
26	588	514	559	550	534	544	587	571	577	549	533	539
27	575	515	553	561	551	558	586	570	578	555	536	546
28	581	577	579	568	560	564	583	570	576	556	539	552
29	587	580	583	579	563	566	581	566	573	533	493	515
30	587	577	581	586	567	571	579	564	570	537	495	512
31	---	---	---	583	566	570	568	549	560	---	---	---
MONTH	593	392	534	642	444	567	627	549	583	572	420	534

08159200 COLORADO RIVER AT BASTROP, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1				---	---	---	7.9	7.8	7.8	8.0	8.0	8.0
2				---	---	---	7.8	7.8	7.8	8.0	8.0	8.0
3				---	---	---	7.8	7.8	7.8	8.0	8.0	8.0
4				---	---	---	7.8	7.8	7.8	8.0	7.9	8.0
5				---	---	---	7.9	7.8	7.8	8.0	8.0	8.0
6				7.7	7.6	7.6	7.9	7.8	7.8	8.0	8.0	8.0
7				7.7	7.6	7.6	7.9	7.8	7.8	8.0	8.0	8.0
8				7.8	7.7	7.8	7.8	7.8	7.8	8.0	8.0	8.0
9				7.9	7.8	7.9	7.8	7.8	7.8	8.0	8.0	8.0
10				7.9	7.9	7.9	7.8	7.7	7.8	8.0	8.0	8.0
11				8.0	7.9	7.9	7.8	7.7	7.8	8.0	8.0	8.0
12				8.0	7.9	7.9	7.8	7.7	7.8	8.0	8.0	8.0
13				8.0	7.9	8.0	7.8	7.7	7.8	8.0	8.0	8.0
14				8.0	7.9	8.0	7.8	7.8	7.8	8.0	8.0	8.0
15				8.0	8.0	8.0	7.8	7.7	7.7	8.0	8.0	8.0
16				8.0	8.0	8.0	7.8	7.7	7.8	8.1	8.0	8.0
17				8.0	8.0	8.0	7.8	7.8	7.8	8.0	8.0	8.0
18				8.2	8.0	8.1	7.9	7.8	7.9	8.0	7.9	8.0
19				8.2	8.1	8.1	7.9	7.8	7.8	8.0	8.0	8.0
20				8.1	8.1	8.1	7.9	7.8	7.9	8.1	8.0	8.0
21				8.1	8.1	8.1	7.9	7.9	7.9	8.0	8.0	8.0
22				8.1	8.0	8.1	7.9	7.7	7.8	8.1	7.9	8.0
23				8.0	8.0	8.0	7.7	7.6	7.6	8.0	8.0	8.0
24				8.0	7.9	8.0	7.9	7.7	7.8	8.1	8.0	8.0
25				7.9	7.9	7.9	7.9	7.9	7.9	8.1	8.0	8.1
26				7.9	7.8	7.9	8.0	7.9	8.0	8.1	8.0	8.0
27				7.9	7.9	7.9	8.0	8.0	8.0	8.1	8.0	8.1
28				7.9	7.8	7.9	8.0	8.0	8.0	8.2	8.0	8.1
29				7.9	7.8	7.9	8.0	8.0	8.0	8.2	8.1	8.1
30				7.9	7.8	7.8	8.0	8.0	8.0	8.2	8.1	8.1
31				---	---	---	8.0	8.0	8.0	8.2	8.1	8.1
MONTH				8.2	7.6	7.9	8.0	7.6	7.8	8.2	7.9	8.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.2	8.1	8.1	8.1	8.0	8.1	8.1	7.9	8.0	7.9	7.7	7.8
2	8.2	8.0	8.1	8.2	8.1	8.1	8.1	8.0	8.0	7.8	7.7	7.8
3	8.2	8.1	8.1	8.2	8.1	8.1	8.1	8.0	8.0	7.8	7.7	7.8
4	8.2	8.1	8.1	8.2	8.1	8.1	8.1	8.0	8.0	7.8	7.7	7.7
5	8.1	8.1	8.1	8.2	8.1	8.1	8.1	8.0	8.1	7.7	7.4	7.5
6	8.1	8.0	8.1	8.2	8.1	8.2	8.1	8.0	8.0	7.6	7.5	7.5
7	8.2	8.0	8.1	8.2	8.2	8.2	8.1	8.0	8.0	7.5	7.5	7.5
8	8.2	8.1	8.1	8.2	8.2	8.2	8.1	8.0	8.0	7.6	7.5	7.5
9	8.2	8.1	8.2	8.2	7.9	8.0	8.1	8.0	8.0	7.6	7.5	7.6
10	8.2	8.1	8.1	8.0	7.9	8.0	8.1	8.0	8.0	7.6	7.5	7.5
11	8.2	8.1	8.1	8.0	7.9	8.0	8.1	8.0	8.1	7.6	7.5	7.5
12	8.2	8.1	8.1	7.9	7.9	7.9	8.1	7.9	8.0	7.7	7.5	7.6
13	8.2	8.1	8.2	8.0	7.9	7.9	8.0	7.9	8.0	7.8	7.6	7.7
14	8.2	8.1	8.2	8.0	7.9	8.0	8.0	7.8	7.9	7.9	7.7	7.8
15	8.2	8.1	8.1	8.0	7.9	7.9	8.0	7.8	7.9	7.9	7.7	7.8
16	8.2	8.1	8.1	7.9	7.9	7.9	8.0	7.8	7.9	7.8	7.7	7.7
17	8.1	7.9	8.0	8.0	7.7	7.9	8.1	7.8	7.9	7.8	7.6	7.7
18	8.1	7.8	7.9	7.9	7.8	7.9	8.1	7.8	8.0	7.9	7.6	7.8
19	8.1	8.0	8.0	8.1	7.9	8.0	8.1	7.8	8.0	7.9	7.7	7.8
20	8.0	7.8	7.9	8.0	8.0	8.0	8.1	7.8	8.0	7.8	7.4	7.6
21	8.0	7.9	8.0	8.1	8.0	8.0	8.0	7.9	7.9	7.7	7.5	7.6
22	8.0	7.8	7.9	8.0	8.0	8.0	8.0	7.8	7.9	7.8	7.6	7.7
23	8.1	7.9	8.0	8.0	8.0	8.0	8.0	7.7	7.9	7.8	7.7	7.7
24	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.7	7.8	7.8	7.7	7.8
25	8.0	7.9	7.9	8.0	8.0	8.0	8.0	7.7	7.9	7.8	7.6	7.7
26	7.9	7.7	7.8	8.0	8.0	8.0	7.9	7.7	7.8	7.8	7.6	7.7
27	7.9	7.8	7.8	8.1	8.0	8.0	7.9	7.7	7.8	7.8	7.7	7.7
28	8.1	7.9	8.0	8.1	8.0	8.0	8.0	7.8	7.9	7.8	7.7	7.7
29	---	---	---	8.0	7.9	8.0	8.0	7.7	7.9	7.7	7.4	7.6
30	---	---	---	8.0	7.9	7.9	8.0	7.7	7.8	7.4	7.3	7.4
31	---	---	---	8.0	8.0	8.0	---	---	---	7.5	7.4	7.5
MONTH	8.2	7.7	8.0	8.2	7.7	8.0	8.1	7.7	8.0	7.9	7.3	7.7

08159200 COLORADO RIVER AT BASTROP, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.6	7.5	7.5	7.9	7.9	7.9	7.8	7.7	7.8	---	---	---
2	7.6	7.5	7.5	7.9	7.9	7.9	7.7	7.6	7.6	8.1	8.1	8.1
3	7.5	7.4	7.5	8.0	7.9	8.0	---	---	---	8.2	8.1	8.1
4	7.5	7.4	7.4	8.0	8.0	8.0	---	---	---	8.1	8.1	8.1
5	7.5	7.4	7.4	8.0	7.9	8.0	---	---	---	8.2	8.1	8.1
6	7.6	7.5	7.6	8.0	8.0	8.0	---	---	---	8.2	8.1	8.1
7	7.6	7.6	7.6	8.1	8.0	8.0	---	---	---	8.1	8.1	8.1
8	7.6	7.6	7.6	8.1	8.0	8.1	8.1	7.6	7.9	8.1	8.0	8.1
9	7.6	7.5	7.6	8.1	8.0	8.0	8.0	7.5	7.8	8.1	8.0	8.0
10	7.6	7.6	7.6	8.0	8.0	8.0	---	---	---	8.1	8.1	8.1
11	7.6	7.6	7.6	8.0	7.9	8.0	---	---	---	8.1	7.9	8.0
12	7.6	7.6	7.6	8.0	7.9	8.0	8.1	7.9	8.0	7.9	7.9	7.9
13	7.7	7.5	7.6	8.2	8.0	8.1	---	---	---	8.0	7.9	8.0
14	7.6	7.5	7.6	8.2	8.1	8.2	---	---	---	8.1	8.0	8.0
15	7.7	7.6	7.6	8.2	8.0	8.1	8.2	7.5	7.8	8.1	8.1	8.1
16	7.7	7.7	7.7	8.1	8.0	8.1	8.3	7.6	8.0	8.1	8.1	8.1
17	7.7	7.6	7.7	8.1	8.0	8.1	8.2	7.7	7.9	8.2	8.0	8.1
18	7.7	7.7	7.7	8.1	7.9	8.0	8.1	7.6	7.9	8.2	8.1	8.1
19	7.7	7.7	7.7	8.1	8.0	8.1	8.1	7.7	7.9	8.2	8.0	8.1
20	7.8	7.7	7.7	8.1	8.1	8.1	8.2	7.8	8.0	8.1	8.1	8.1
21	7.8	7.8	7.8	8.2	8.1	8.1	8.2	7.9	8.0	8.2	8.1	8.2
22	7.8	7.8	7.8	8.1	8.0	8.1	8.0	7.7	7.9	8.2	8.2	8.2
23	7.8	7.7	7.7	8.0	8.0	8.0	7.9	7.6	7.8	8.2	8.2	8.2
24	7.8	7.7	7.8	8.0	7.8	7.9	---	---	---	8.2	8.1	8.2
25	7.8	7.7	7.7	7.9	7.7	7.8	---	---	---	8.1	8.1	8.1
26	7.7	7.6	7.7	7.9	7.6	7.8	---	---	---	8.1	8.0	8.1
27	7.7	7.5	7.7	8.0	7.7	7.8	---	---	---	---	---	---
28	7.8	7.7	7.7	8.0	7.7	7.8	---	---	---	---	---	---
29	7.8	7.8	7.8	---	---	---	---	---	---	---	---	---
30	7.9	7.8	7.8	7.9	7.7	7.8	---	---	---	---	---	---
31	---	---	---	8.0	7.8	7.9	---	---	---	---	---	---
MONTH	7.9	7.4	7.6	8.2	7.6	8.0	8.3	7.5	7.9	8.2	7.9	8.1

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08159200 COLORADO RIVER AT BASTROP, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

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

08159200 COLORADO RIVER AT BASTROP, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1				---	---	---	8.9	8.8	8.9	9.9	9.8	9.9
2				---	---	---	9.1	8.8	9.0	10.0	9.9	10.0
3				---	---	---	9.2	8.9	9.0	10.0	9.9	9.9
4				---	---	---	9.2	8.9	9.1	10.3	10.0	10.1
5				---	---	---	9.3	9.0	9.2	10.3	10.1	10.2
6				8.1	7.8	7.9	9.2	8.9	9.0	10.2	10.1	10.2
7				8.1	8.0	8.1	8.9	8.8	8.9	10.1	9.9	10.0
8				8.1	8.0	8.1	8.8	8.5	8.6	10.0	9.9	10.0
9				8.2	8.1	8.1	8.7	8.3	8.5	10.0	9.8	10.0
10				8.1	8.1	8.1	9.2	8.7	9.0	10.0	9.8	9.9
11				8.3	8.1	8.2	9.5	9.2	9.4	10.3	10.0	10.2
12				8.6	8.4	8.5	9.7	9.5	9.6	10.4	10.3	10.3
13				9.2	8.6	8.9	9.6	9.4	9.5	10.3	10.2	10.3
14				9.3	9.0	9.1	9.5	9.3	9.4	10.2	9.9	10.1
15				9.1	8.9	9.0	9.6	9.4	9.5	9.9	9.8	9.8
16				8.9	8.7	8.8	9.5	9.3	9.4	9.9	9.8	9.9
17				8.6	8.5	8.6	9.2	9.1	9.2	10.0	9.8	9.9
18				8.5	8.0	8.3	9.6	9.0	9.3	10.3	10.0	10.1
19				8.1	8.0	8.0	9.7	9.5	9.6	10.6	10.3	10.5
20				8.0	7.9	8.0	9.8	9.6	9.7	10.4	10.2	10.4
21				8.2	8.0	8.1	9.7	9.5	9.6	10.3	10.2	10.2
22				8.1	8.0	8.1	10.4	9.6	10.0	10.3	10.1	10.2
23				8.0	7.8	8.0	10.4	10.3	10.4	10.1	10.0	10.0
24				8.4	8.0	8.2	10.4	10.1	10.2	10.0	9.8	9.9
25				8.6	8.4	8.5	10.1	9.8	10.0	9.9	9.7	9.8
26				8.6	8.3	8.5	9.8	9.7	9.8	10.0	9.8	9.9
27				8.7	8.6	8.6	9.8	9.7	9.7	9.9	9.8	9.8
28				8.8	8.6	8.8	9.9	9.7	9.8	9.8	9.6	9.7
29				9.0	8.8	8.9	9.9	9.8	9.9	9.7	9.4	9.6
30				9.0	8.8	8.9	9.9	9.8	9.9	9.8	9.4	9.6
31				---	---	---	9.9	9.8	9.8	9.9	9.5	9.7
MONTH				9.3	7.8	8.4	10.4	8.3	9.5	10.6	9.4	10.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.8	9.5	9.6	9.6	9.4	9.5	10.2	9.9	10.1	8.8	7.2	7.8
2	9.8	9.3	9.6	10.0	9.6	9.8	10.0	9.8	9.9	8.2	7.1	7.6
3	9.9	9.6	9.7	9.9	9.7	9.8	10.4	9.9	10.1	7.8	7.0	7.4
4	9.9	9.5	9.7	10.0	9.7	9.8	10.3	9.8	10.0	8.3	7.2	7.7
5	9.7	9.5	9.6	10.0	9.7	9.8	9.9	9.7	9.8	7.8	6.6	7.2
6	9.9	9.5	9.7	10.0	9.7	9.8	10.2	9.7	9.9	7.5	7.1	7.3
7	10.4	9.9	10.1	10.1	9.8	9.9	10.2	9.8	9.9	7.4	7.0	7.2
8	10.4	10.0	10.2	10.0	9.7	9.9	10.1	9.5	9.8	7.8	7.1	7.4
9	10.6	10.2	10.4	10.0	9.7	9.8	10.0	9.4	9.7	8.0	7.2	7.5
10	10.5	10.1	10.4	10.1	9.7	9.9	9.6	9.0	9.3	8.1	7.0	7.4
11	10.2	9.9	10.0	10.2	9.9	10.0	9.5	8.8	9.1	7.9	6.9	7.3
12	10.0	9.7	9.8	10.4	10.1	10.2	9.3	8.2	8.7	8.4	7.0	7.5
13	10.0	9.6	9.7	10.5	10.2	10.3	8.6	7.6	8.0	8.5	7.1	7.6
14	9.8	9.5	9.6	10.2	9.8	10.0	8.8	7.9	8.3	8.4	7.1	7.6
15	9.8	9.3	9.6	9.8	9.6	9.7	8.8	8.0	8.3	8.9	7.1	7.7
16	10.0	9.4	9.6	9.5	9.0	9.4	9.4	8.0	8.6	7.9	6.8	7.4
17	10.2	9.4	9.7	9.1	8.5	8.8	9.1	7.5	8.3	8.4	7.1	7.7
18	10.4	9.5	9.9	9.3	8.7	9.1	9.2	7.4	8.2	8.7	7.5	8.1
19	9.9	9.1	9.5	9.7	9.3	9.4	9.1	7.3	8.1	8.2	7.3	7.7
20	10.0	9.4	9.7	9.6	9.4	9.5	9.2	7.2	8.1	7.7	6.7	7.3
21	10.6	9.7	10.1	9.6	9.2	9.5	8.2	7.4	7.9	7.9	7.3	7.6
22	10.7	9.5	10.1	9.3	9.0	9.1	9.2	7.9	8.4	8.1	7.8	7.9
23	11.3	9.9	10.5	9.3	9.0	9.1	9.1	7.7	8.3	8.3	7.8	8.0
24	9.9	9.5	9.7	9.5	9.1	9.3	8.7	7.5	8.0	8.4	7.9	8.1
25	9.6	9.0	9.2	9.8	9.4	9.6	8.7	7.3	7.9	8.3	7.6	8.1
26	9.5	9.0	9.3	10.0	9.6	9.8	8.9	7.3	8.0	8.2	7.5	7.9
27	9.3	9.1	9.2	10.1	9.8	9.9	8.7	7.4	8.0	8.2	7.9	8.1
28	9.6	9.3	9.4	10.0	9.8	9.9	8.8	7.4	8.0	8.4	8.0	8.1
29	---	---	---	10.0	9.7	9.8	8.9	7.3	8.0	8.2	7.0	7.8
30	---	---	---	10.5	9.9	10.2	8.8	7.3	8.0	7.8	6.9	7.3
31	---	---	---	10.6	10.3	10.5	---	---	---	8.0	7.7	7.9
MONTH	11.3	9.0	9.8	10.6	8.5	9.7	10.4	7.2	8.8	8.9	6.6	7.7

08159200 COLORADO RIVER AT BASTROP, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.7	8.1	8.4	6.9	6.6	6.8	7.9	7.0	7.4	8.1	7.4	7.7
2	9.0	8.4	8.7	6.7	6.4	6.6	7.8	7.0	7.3	7.9	7.5	7.7
3	9.1	8.7	8.9	6.7	6.4	6.6	8.5	6.8	7.5	8.1	7.7	7.9
4	8.8	8.4	8.6	6.8	6.5	6.6	8.0	6.7	7.3	8.1	7.8	7.9
5	8.6	8.1	8.2	6.5	6.3	6.4	8.2	6.6	7.3	8.1	7.8	8.0
6	9.3	8.6	9.1	6.7	6.3	6.5	8.3	6.6	7.4	8.1	7.8	7.9
7	9.3	9.1	9.2	6.9	6.6	6.7	8.2	6.6	7.3	7.9	7.7	7.8
8	9.3	9.1	9.3	7.0	6.7	6.8	8.4	6.7	7.4	8.0	7.4	7.8
9	9.1	8.7	9.0	6.9	6.7	6.8	7.6	6.8	7.2	7.8	7.3	7.6
10	8.7	8.4	8.6	6.8	6.6	6.7	8.6	7.0	7.6	8.0	7.5	7.7
11	---	---	---	6.7	6.4	6.6	8.4	6.9	7.5	7.6	6.7	7.4
12	---	---	---	6.9	6.5	6.7	7.8	6.7	7.2	7.0	6.6	6.8
13	---	---	---	7.3	6.5	6.8	8.4	6.7	7.4	7.3	7.0	7.1
14	---	---	---	7.3	6.7	7.0	8.3	6.7	7.4	7.1	6.5	6.7
15	---	---	---	7.1	6.8	6.9	8.1	6.8	7.4	6.8	6.5	6.6
16	---	---	---	7.3	6.6	6.8	8.0	6.9	7.4	6.6	6.3	6.5
17	8.5	7.8	8.1	6.9	6.5	6.7	8.6	6.9	7.5	---	---	---
18	7.8	7.5	7.7	6.8	6.1	6.4	8.4	6.9	7.5	6.6	6.5	6.6
19	7.7	7.5	7.6	6.9	6.5	6.7	8.1	6.8	7.4	6.7	6.0	6.5
20	7.6	7.4	7.5	7.1	6.7	7.0	8.1	6.8	7.4	6.6	6.2	6.5
21	7.6	7.4	7.5	7.2	7.0	7.1	8.1	6.9	7.5	6.8	6.4	6.7
22	7.7	7.6	7.6	7.2	6.8	7.1	8.4	6.9	7.6	7.0	6.6	6.8
23	7.7	7.5	7.6	7.2	6.9	7.0	8.1	6.9	7.4	7.0	6.8	6.9
24	7.7	7.5	7.6	7.2	6.9	7.1	8.0	6.9	7.4	7.2	6.9	7.0
25	7.8	7.0	7.4	7.0	6.7	6.9	8.0	7.0	7.5	7.2	6.8	7.0
26	7.2	6.1	6.8	6.9	6.7	6.8	8.0	7.0	7.5	7.2	6.8	7.0
27	7.0	6.0	6.7	7.5	6.8	7.1	8.0	7.0	7.6	7.3	6.9	7.1
28	7.1	7.0	7.1	7.6	7.0	7.2	8.1	7.3	7.7	7.2	6.9	7.1
29	7.2	7.1	7.2	7.6	7.0	7.3	8.2	7.4	7.8	6.9	6.2	6.6
30	7.2	6.9	7.1	7.9	6.9	7.3	8.0	7.5	7.7	7.3	6.5	7.0
31	---	---	---	7.9	7.0	7.4	7.9	7.5	7.7	---	---	---
MONTH	9.3	6.0	8.0	7.9	6.1	6.9	8.6	6.6	7.5	8.1	6.0	7.2

08160800 REDGATE CREEK NEAR COLUMBUS, TX

LOCATION.--Lat 29°47'56", long 96°31'55", Colorado County, Hydrologic Unit 12090301, on left bank at downstream side of bridge on Farm Road 109, 1.9 mi upstream from Cummins Creek, and 7.0 mi north of Columbus.

DRAINAGE AREA.--17.3 mi².

PERIOD OF RECORD.--April 1962 to current year.

REVISED RECORDS.--WSP 2122: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 210.82 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1975, at datum 10.00 ft higher.

REMARKS.-- Records fair except those for estimated daily discharges, which are poor. No known diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years, 5.59 ft³/s (4.39 in/yr), 4,050 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,360 ft³/s May 22, 1979 (gage height, 27.19 ft), from rating curve extended above 2,170 ft³/s on basis of slope-area measurement of peak flow of Jan. 22, 1965; no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, about 33.4 ft in late June or early July 1940, from information by State Department of Highways and Public Transportation and 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)
Dec. 22	2315	1,100	16.78	June 2	2215	*2,250	*19.89
May 12	1000	1,110	16.80				

Minimum daily discharge, 0.18 ft³/s Aug. 27, 28.

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

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.82	.59	.86	e1.3	1.2	e2.9	1.3	.63	35	3.6	.82	1.0
2	1.2	.57	.69	e1.2	1.4	e2.6	1.3	.63	214	3.1	.72	.65
3	.82	1.0	.52	e1.2	1.2	e2.4	1.3	.63	279	3.3	.68	.59
4	.72	2.2	.72	e1.2	1.2	2.2	1.2	.72	51	2.6	.68	.59
5	1.4	1.6	.76	e1.2	1.2	2.1	1.2	5.7	14	2.4	.62	.59
6	e5.0	.83	.92	1.2	1.1	2.0	1.7	5.4	9.7	2.2	.56	.59
7	e4.0	.77	.95	1.2	1.1	1.9	1.5	1.8	12	2.1	.43	.59
8	e2.0	.77	.77	1.5	1.1	1.8	1.3	2.0	17	2.6	.40	.59
9	e1.2	.71	1.0	2.1	1.1	1.9	1.3	2.0	18	13	.38	.58
10	e1.1	.54	.71	2.0	1.0	1.9	1.3	1.1	15	4.8	1.3	.53
11	e1.0	.54	.81	1.3	1.1	2.7	1.2	5.5	19	3.6	.53	1.1
12	e15	.54	.70	1.2	1.1	2.6	1.1	146	149	2.9	.45	.70
13	e12	.90	.68	1.2	1.1	2.0	1.1	15	59	2.3	.39	.72
14	e5.0	.96	6.1	1.2	1.1	1.6	1.0	8.9	19	7.5	.33	.43
15	e2.5	.72	126	1.2	4.0	1.7	.82	6.8	13	5.4	.29	.40
16	e1.8	.72	5.0	2.3	1.9	1.7	1.8	5.9	14	3.6	.26	.40
17	e1.5	.72	3.1	101	1.1	11	1.2	5.2	15	2.8	.23	.40
18	e1.3	.71	63	10	.97	4.8	.98	4.3	9.8	3.3	.20	.40
19	e1.2	.68	6.2	3.7	1.0	3.1	.93	4.1	8.9	4.0	.20	.89
20	e1.1	.77	3.7	2.6	4.9	2.5	.87	5.8	7.6	2.8	.20	.77
21	e1.1	.77	2.8	2.2	2.6	2.1	.83	4.5	6.7	2.7	.20	.52
22	e3.0	.67	171	2.0	1.9	2.0	.83	4.1	6.0	5.7	.20	.38
23	e2.5	.77	109	1.7	1.5	2.9	.86	3.7	5.6	2.0	.20	.30
24	e3.0	.72	5.6	1.5	6.6	1.7	.91	3.8	5.3	1.4	.20	.27
25	e2.2	23	3.5	1.5	43	1.5	.82	4.3	4.8	1.4	.20	.27
26	e1.5	2.8	3.2	1.5	e65	1.5	.72	3.9	4.6	1.2	.20	.27
27	e1.2	1.7	2.5	1.4	e6.5	1.5	.79	3.6	4.0	1.1	.18	.27
28	1.1	1.3	2.5	1.4	e3.5	1.5	.82	3.6	3.5	1.0	.18	2.0
29	1.1	1.2	1.8	1.4	---	1.4	.64	12	3.4	.88	3.7	.81
30	1.0	1.0	1.5	1.2	---	1.3	.63	9.4	3.8	.88	12	.58
31	.78	---	1.4	1.1	---	1.3	---	50	---	.88	2.9	---
TOTAL	79.14	50.77	527.99	156.7	160.47	74.1	32.25	331.01	1026.7	97.04	29.83	18.18
MEAN	2.55	1.69	17.0	5.05	5.73	2.39	1.07	10.7	34.2	3.13	.96	.61
MAX	15	23	171	101	65	11	1.8	146	279	13	12	2.0
MIN	.72	.54	.52	1.1	.97	1.3	.63	.63	3.4	.88	.18	.27
AC-FT	157	101	1050	311	318	147	64	657	2040	192	59	36
CFSM	.15	.10	.98	.29	.33	.14	.06	.62	1.98	.18	.06	.0
IN.	.17	.11	1.14	.34	.35	.16	.07	.71	2.21	.21	.06	.0

CAL YR 1986	TOTAL	1365.80	MEAN	3.74	MAX	171	MIN	.06	AC-FT	2710	CFSM	.22	IN.	2.94
WTR YR 1987	TOTAL	2584.14	MEAN	7.08	MAX	279	MIN	.18	AC-FT	5130	CFSM	.41	IN.	5.56

e Estimated.

08161000 COLORADO RIVER AT COLUMBUS, TX

LOCATION.--Lat 29°42'22", long 96°32'12", Colorado County, Hydrologic Unit 12090302, near right bank at downstream side of pier of bridge on U.S. Highway 90 at eastern edge of Columbus, 340 ft downstream from Texas and New Orleans Railroad Co. bridge, 2.6 mi downstream from Cummins Creek, and at mile 135.1.

DRAINAGE AREA.--41,640 mi², approximately, of which 11,403 mi² probably is noncontributing; 41,730 mi², approximately, at site "near Eagle Lake".

PERIOD OF RECORD.--January 1903 to December 1911 (gage heights only), May 1916 to current year. Discharge records for 1902-11, published in WSP 84, 99, 132, 174, 210, 288, and 308, have been found to be unreliable and should not be used. Records collected at site 23 mi downstream October 1930 to May 1939, published as "near Eagle Lake". Gage-height records collected in this vicinity since 1903 are contained in reports of the National Weather Service.
Water-quality records.--Chemical analyses: October 1967 to September 1971. Chemical and biochemical analyses: February 1968 to September 1981. Sediment records: March 1957 to September 1973.

REVISED RECORDS.-- WSP 1562: 1920-21(M), 1922. WDR TX-81-3: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 155.52 ft above National Geodetic Vertical Datum of 1929. Prior to May 1, 1919, various nonrecording gages at sites in the immediate vicinity at datum 3.00 ft lower. May 1, 1919, to Nov. 23, 1930, water-stage recorder at site about 300 ft downstream at datum 3.00 ft lower. Sept. 17, 1930, to June 12, 1939 (Oct. 1, 1930, to May 31, 1939, used herein), water-stage recorder at site 23 mi downstream at different datum. May 17 to Nov. 14, 1939, nonrecording gage at present site and datum.

REMARKS.--Records good. At times, low-flow releases from Lake Travis (station 08154500) are made for generation of electric power and (or) to fulfill downstream water contracts. The Lower Colorado River Authority reported that 11,180 acre-ft was diverted from the river to Cedar Creek Reservoir during the current year. This reservoir is located 10 mi north of the river and 3.5 mi west of Fayettville. Flow is also affected at times by discharge from flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 25,570 acre-ft. These structures control runoff from 73.1 mi² in the Cummins Creek watershed. There are many other diversions above station for irrigation and municipal supply. Gage-height telemeter at station.

AVERAGE DISCHARGE.--20 years (water years 1917-36) unregulated, 3,809 ft³/s (2,760,000 acre-ft/yr); 51 years (water years 1937-87) regulated, 2,917 ft³/s (2,113,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 190,000 ft³/s June 18, 1935 (gage height, 38.5 ft), present site and datum, computed on basis of records for station near Eagle Lake; minimum, 93 ft³/s Sept. 1, 1918.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 41.6 ft, present datum, in July 1869 and Dec. 6, 1913, from information by local resident. River divided each time and left Columbus on an island.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 51,100 ft³/s June 16 at 0300 hours (gage height, 27.57 ft); minimum daily, 1,150 ft³/s Oct. 10.

DISCHARGE, IN 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	1380	5830	3750	8000	4210	11100	6010	1750	19400	8320	4340	2230
2	1340	5810	3730	7610	4210	8480	4590	1740	11100	8110	4280	2170
3	1190	5760	3890	7440	3950	6400	4170	1720	23700	7990	4110	2270
4	1210	5660	3300	7250	4270	5630	4070	1720	39800	8310	3440	2780
5	1210	5590	2870	7180	3940	5230	4020	1830	42000	7930	2160	2840
6	1240	4020	2860	7080	3750	4960	4010	2320	44200	6690	2370	2840
7	1200	3790	2800	6910	3680	5180	4060	2060	42700	5780	2380	2870
8	1270	4060	2570	6860	3860	6290	4460	1940	34400	7130	2220	2900
9	1190	5350	2630	6820	3730	6390	4110	1970	30000	7340	2270	2960
10	1150	5620	2310	6750	3830	6330	3790	1870	33700	7300	2280	3030
11	1420	7750	2300	6720	3930	6320	3650	1850	37300	6620	2950	2770
12	3010	7770	2640	6640	3980	6400	3910	3480	39000	5490	1920	2790
13	5030	4740	3040	6550	4010	6420	3320	2780	42500	4880	2030	3780
14	10600	3930	2640	6660	3990	6330	2520	1950	45100	4630	2180	3090
15	9800	3620	11200	6680	4210	5190	2400	1740	48800	4750	2010	3040
16	4760	3760	19800	6490	4280	4560	2390	1700	49100	4780	2140	2980
17	4110	3730	13600	7810	4120	6310	2400	1570	37400	4170	2350	3050
18	4940	3780	7860	9680	3300	6130	1730	1620	29300	3480	2420	4310
19	5250	3860	6480	8140	1860	5670	1820	1730	29500	5210	2120	3510
20	5220	3540	7210	7590	2110	6500	1830	1770	28200	7270	1970	4000
21	4030	3610	5620	6640	4850	6370	1800	2130	25700	6750	2190	4080
22	3750	3660	7980	5110	2970	6070	1930	3520	22100	6500	2300	3360
23	8020	3570	31400	4700	2240	4800	2330	3600	20000	6520	2120	3450
24	9920	3320	39000	4540	2800	4410	1970	3510	18500	6720	1950	2710
25	10100	7640	34600	4460	7770	4630	1760	3620	15300	6480	2100	3100
26	10900	13500	17900	4430	16200	5960	1730	3720	13600	5320	2000	3000
27	7300	7240	11300	4340	21400	6210	1740	3850	10600	5000	1980	3090
28	6410	4670	9880	4310	19500	6240	1730	3670	10000	4620	1980	3060
29	e6350	4090	9090	4290	---	6150	1800	3860	8640	4540	1990	2460
30	e6280	3880	8660	4260	---	6180	1860	6910	8310	4450	2030	2890
31	6210	---	8350	4230	---	6350	---	16500	---	4390	2580	---
TOTAL	145790	153150	291260	196170	152950	189190	87910	94000	859950	187470	75160	91410
MEAN	4703	5105	9395	6328	5462	6103	2930	3032	28660	6047	2425	3047
MAX	10900	13500	39000	9680	21400	11100	6010	16500	49100	8320	4340	4310
MIN	1150	3320	2300	4230	1860	4410	1730	1570	8310	3480	1920	2170
AC-FT	289200	303800	577700	389100	303400	375300	174400	186400	1706000	371800	149100	181300

CAL YR 1986 TOTAL 1169190 MEAN 3203 MAX 39000 MIN 433 AC-FT 2319000
WTR YR 1987 TOTAL 2524410 MEAN 6916 MAX 49100 MIN 1150 AC-FT 5007000

e Estimated.

08162000 COLORADO RIVER AT WHARTON, TX
(National stream-quality accounting and radiochemical network)

LOCATION.--Lat 29°18'32", long 96°06'13", Wharton County, Hydrologic Unit 12090302, near left bank at downstream side of downstream bridge on U.S. Highway 59 in Wharton, 1,100 ft downstream from Texas and New Orleans Railroad Co. bridge, 12 mi upstream from Jones Creek, and at mile 66.6.

DRAINAGE AREA.--42,003 mi², approximately, of which 11,403 mi² probably is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1916 to August 1918 (intermittent periods), March 1919 to September 1925, July and August 1938 (flood discharge measurements only), October 1938 to current year. June to November 1901 and May to September 1902, daily records published in U.S. Department of Agriculture, Office of Experiment Stations, Bulletin Nos. 119 and 133. Gage-height records collected in this vicinity since 1935 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 878: 1938(M). WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 52.42 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, various types of recording and nonrecording gages 800 ft upstream at different datum. Oct. 1, 1938, to June 1, 1966, nonrecording gage 100 ft upstream at datum 13.00 ft higher. June 1, 1956, to Sept. 30, 1975, water-stage recorder at present site at datum 13 ft higher. Oct. 1, 1975, to Mar. 1, 1983, water-stage recorder at present site at datum 10 ft higher.

REMARKS.--No estimated daily discharges. Records good. There are many diversions above station for irrigation, municipal supply, cooling water for thermal-electric powerplant, and oilfield operations. For statement regarding upstream regulation, see station 08161000. Gage-height telemeter at station.

AVERAGE DISCHARGE.--5 years (water years 1920-25) unregulated, 3,680 ft³/s (2,666,000 acre-ft/yr); 49 years (water years 1939-87) regulated, 2,708 ft³/s (1,962,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 100,000 ft³/s July 3, 1940 (gage height, 38.99 ft); no flow Aug. 6, 1925 (result of pumping).
Flood of July 30, 1938, reached a stage of 50.4 ft, present datum, observed by Geological Survey engineers (discharge, 145,000 ft³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1869, 51.9 ft Dec. 8, 1913, present datum, from information by local residents; below Wharton floodwater combined with that of the Brazos River. Flood of about July 12, 1869, reached about same height. Flood of June 20, 1935, reached a stage of 51.2 ft, present datum, furnished by National Weather Service (discharge, 159,000 ft³/s), from rating curve defined by current-meter measurements below 145,000 ft³/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 51,600 ft³/s June 17 at 1600 hours (gage height, 41.48 ft); minimum daily, 902 ft³/s Apr. 29 (result of regulation and pumping).

DISCHARGE, IN 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	1230	5610	4290	8220	4240	18600	6300	1240	17400	8670	4120	2040
2	1360	5640	4140	7870	4210	11400	5980	1180	17500	8280	4040	1980
3	1350	5600	4110	7520	4170	8790	4710	1240	13600	7910	3960	1910
4	1210	5620	4240	7320	4000	6870	4270	1010	28800	7740	3820	1890
5	1090	5550	3740	7130	4170	6060	4170	1450	39200	7960	3300	2310
6	1080	5280	3310	7020	3930	5590	4150	2380	43500	7540	2240	2360
7	1210	3890	3240	6900	3730	5280	4110	3120	46000	6210	2170	2380
8	1230	3820	3180	6750	3610	5460	3920	2910	46300	5500	2180	2330
9	1220	3990	2950	6640	3720	6370	4180	2590	39000	6640	2060	2270
10	1280	5100	3000	6570	3670	6460	3860	2450	32100	7060	2090	2160
11	1300	5480	2670	6540	3750	6430	3460	2190	34800	7180	2230	2200
12	1620	7250	2580	6480	3930	6420	3320	2110	38700	6610	2500	2150
13	3170	7790	2850	6370	3980	6490	3600	4230	42900	5610	2040	1990
14	5230	5180	3360	6380	4010	6490	3190	3350	47300	4990	1750	2690
15	10000	4380	4610	6440	4110	6370	2370	2010	49200	4620	1910	2500
16	8990	4020	14000	6720	4230	5330	2080	1670	50100	4510	1700	2440
17	5110	4110	19200	6780	4320	4780	2000	1540	51200	4380	1790	2410
18	4480	4030	13200	8440	4200	6460	1980	1360	46800	3800	1820	2430
19	5060	4040	8680	9880	3550	6030	1420	1300	34700	3340	1930	3200
20	5360	4150	7430	8200	2360	5850	1400	1280	31200	4810	1660	2920
21	5320	3810	7510	7560	2260	6490	1510	1290	29500	6380	1500	3020
22	4440	3890	6460	6620	4660	6430	1520	1600	26600	6320	1490	3050
23	4140	3960	13400	5330	3410	6070	1560	2680	22700	6090	1610	2460
24	7650	3970	32000	4880	2620	4940	1930	2840	20600	6240	1540	2350
25	9470	4020	38800	4650	3310	4600	1490	2700	18700	6620	1400	1860
26	10100	8000	36700	4550	10500	4830	1180	2730	15400	6430	1500	2060
27	10100	12200	20000	4490	19000	5960	1000	2780	13400	5390	1460	2050
28	7120	7540	12100	4400	22100	6220	1140	2890	11100	5010	1450	2120
29	6400	5170	10000	4360	---	6030	902	3040	10100	4600	1430	2250
30	6110	4560	9220	4300	---	6070	932	4270	8770	4420	1570	1760
31	5810	---	8680	4250	---	6210	---	8310	---	4290	1620	---
TOTAL	139240	157650	309650	199560	145750	205380	83634	75740	927170	185150	65880	69540
MEAN	4492	5255	9989	6437	5205	6625	2788	2443	30910	5973	2125	2318
MAX	10100	12200	38800	9880	22100	18600	6300	8310	51200	8670	4120	3200
MIN	1080	3810	2580	4250	2260	4600	902	1010	8770	3340	1400	1760
AC-FT	276200	312700	614200	395800	289100	407400	165900	150200	1839000	367200	130700	137900

CAL YR 1986 TOTAL 1135040 MEAN 3110 MAX 38800 MIN 381 AC-FT 2251000
WTR YR 1987 TOTAL 2564340 MEAN 7026 MAX 51200 MIN 902 AC-FT 5086000

08162000 COLORADO RIVER AT WHARTON, TX--Continued
(National stream-quality accounting and radiochemical network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1944 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: October 1967 to June 1982. Sediment analyses: October 1974 to current year. Radiochemical analyses: December 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1944 to current year.
WATER TEMPERATURE: October 1945 to September 1948, March 1950 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, 904 microsiemens Oct. 29, 1963; minimum daily, 139 microsiemens Nov. 12, 1985.
WATER TEMPERATURE: Maximum daily, 35.0°C July 26, 1954; minimum daily, 0.0°C Dec. 26, 1983.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 609 microsiemens Apr. 23; minimum daily, 185 microsiemens Dec. 25.
WATER TEMPERATURE: Maximum daily, 30.0°C on several days during August; minimum daily, 8.0°C Jan. 22, 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
NOV 18...	1010	4040	480	8.20	18.0	41	9.3	98	1.0	60	150	190
JAN 14...	1250	6380	508	7.90	12.0	32	12.0	111	0.7	36	64	200
MAR 02...	1423	10900	300	7.70	14.0	32	9.5	91	2.6	780	1000	120
APR 21...	1155	1510	591	8.40	23.5	20	10.2	119	3.8	K18	88	240
JUN 10...	1410	31500	490	7.60	21.0	94	8.6	96	1.5	180	1800	180
JUL 29...	1210	4660	562	8.00	29.5	68	7.0	92	1.0	150	170	220

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 WH WAT TOTAL 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 18...	42	48	17	27	0.9	4.1	148	34	43	0.30	8.7	268
JAN 14...	39	52	17	25	0.8	3.6	161	34	37	0.20	8.2	297
MAR 02...	29	37	5.9	14	0.6	4.4	88	30	19	0.20	11	207
APR 21...	42	64	19	33	1	3.8	196	43	49	0.30	5.8	332
JUN 10...	38	49	15	25	0.8	3.7	147	38	42	0.20	8.7	287
JUL 29...	54	58	19	33	1	4.0	170	44	51	0.30	11	324

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
NOV 18...	270	--	--	<0.010	<0.010	0.700	0.660	<0.010	0.020	--	0.40	0.260
JAN 14...	270	--	--	<0.010	<0.010	0.600	0.600	0.020	0.040	0.38	0.40	0.130
MAR 02...	180	1.04	1.05	0.060	0.050	1.10	1.10	0.060	0.090	2.2	2.3	0.370
APR 21...	340	--	--	<0.010	<0.010	0.200	0.140	0.020	0.020	1.3	1.3	0.080
JUN 10...	270	--	--	<0.010	<0.010	0.300	0.320	0.020	0.040	1.6	1.6	0.150
JUL 29...	320	0.590	--	0.010	<0.010	0.600	0.520	<0.010	<0.010	--	0.80	0.200

08162000 COLORADO RIVER AT WHARTON, TX--Continued
(National stream-quality accounting and radiochemical network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	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)
NOV 18...	0.150	0.160	0.49	154	1680	53	<10	2	78	<0.5	<1	<1
JAN 14...	0.100	0.080	0.25	150	2580	45	--	--	--	--	--	--
MAR 02...	0.100	0.090	0.28	475	14000	78	140	2	68	<0.5	1	<1
APR 21...	0.060	0.050	0.15	35	143	83	--	--	--	--	--	--
JUN 10...	0.070	0.040	0.12	527	44800	74	40	1	83	0.9	1	<1
JUL 29...	0.140	0.070	0.21	180	2260	81	20	2	92	<0.5	2	<1

DATE	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)
NOV 18...	<3	2	4	<5	13	<1	<0.1	<10	3	<1	<1
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 02...	<3	5	110	<5	9	5	<0.1	<10	5	<1	<1
APR 21...	--	--	--	--	--	--	--	--	--	--	--
JUN 10...	<3	7	56	<5	13	3	<0.1	<10	<1	<1	<1
JUL 29...	<3	5	12	6	16	2	<0.1	<10	1	<1	<1

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 DIS-SOLVED, EXTRAC-TION (UG/L)
NOV 18...	360	<6	8	0.9	<0.4	4.5	0.8	3.5	0.7	0.08	0.70
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 02...	240	<6	15	--	--	--	--	--	--	--	--
APR 21...	--	--	--	--	--	--	--	--	--	--	--
JUN 10...	340	<6	15	--	--	--	--	--	--	--	--
JUL 29...	450	<6	<3	--	--	--	--	--	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	139240	409	228	85700	33	12600	30	11100	160
NOV.	1986	157650	435	243	103000	36	15300	31	13300	170
DEC.	1986	309650	324	182	152000	26	21900	24	19900	130
JAN.	1987	199560	515	285	154000	43	23400	36	19600	200
FEB.	1987	145750	436	242	95300	36	14300	31	12200	170
MAR.	1987	205380	468	260	144000	39	21700	33	18500	180
APR.	1987	83634	556	308	69500	48	10800	39	8790	210
MAY	1987	75740	501	278	56900	42	8650	35	7260	190
JUNE	1987	927170	430	240	600000	36	89100	31	77300	170
JULY	1987	185150	568	314	157000	49	24400	40	19800	210
AUG.	1987	65880	558	309	55000	48	8500	39	6940	210
SEPT	1987	69540	537	297	55800	46	8570	38	7080	200
TOTAL		2564344	**	**	1728000	**	259000	**	222000	**
WTD.AVG.		7026	449	250	**	37	**	32	**	170

08162000 COLORADO RIVER AT WHARTON, TX--Continued
(National stream-quality accounting and radiochemical network)

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	516	465	449	510	550	279	531	574	405	537	572	572
2	518	468	479	513	548	291	526	563	321	572	575	575
3	520	471	491	520	547	365	525	556	359	580	572	470
4	522	473	495	526	545	419	542	597	324	584	575	578
5	520	475	469	523	546	457	551	582	273	580	566	578
6	521	472	500	528	549	485	548	550	316	582	573	571
7	519	476	509	525	547	507	548	485	337	579	549	576
8	518	478	517	522	554	522	545	508	363	580	550	562
9	521	492	520	519	553	534	542	484	445	580	564	557
10	523	491	521	512	553	529	542	499	501	568	544	562
11	468	485	528	522	546	527	546	518	455	577	542	554
12	473	484	527	521	550	530	554	538	435	580	539	555
13	497	425	525	522	545	527	557	375	396	582	540	554
14	427	394	527	523	544	527	558	289	379	590	543	552
15	409	442	499	526	538	527	557	413	385	593	542	549
16	305	466	300	510	544	530	568	457	334	584	554	537
17	293	480	233	508	544	535	583	534	374	582	560	487
18	363	486	265	514	554	450	593	552	457	586	546	523
19	430	486	293	425	561	371	601	555	539	583	558	543
20	450	487	298	448	554	489	591	574	567	576	549	519
21	455	486	383	492	564	491	601	577	570	597	553	438
22	453	485	404	505	583	500	606	580	564	486	548	530
23	453	489	383	515	468	516	609	560	576	534	550	549
24	458	478	197	531	359	519	608	546	576	551	528	462
25	321	448	185	545	406	529	596	535	581	558	532	503
26	348	375	232	550	381	538	593	535	580	550	534	510
27	359	274	314	552	220	538	589	537	584	542	540	535
28	374	262	415	548	214	527	592	529	582	559	560	559
29	424	372	464	545	---	526	607	535	588	560	601	536
30	445	430	485	545	---	529	597	482	542	555	595	542
31	464	---	497	550	---	527	---	470	---	556	587	---
MEAN	447	450	416	519	506	488	570	519	457	568	556	538

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

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

08162500 COLORADO RIVER NEAR BAY CITY, TX

LOCATION.--Lat 28°58'26", long 96°00'44", Matagorda County, Hydrologic Unit 12090302, on right bank, 6,300 ft downstream from bridge on State Highway 35, 7,100 ft downstream from Texas and New Orleans Railroad Co. bridge, 2.8 mi west of Bay City, and at mile 32.5.

DRAINAGE AREA.--42,240 mi², approximately, of which 11,403 mi² probably is noncontributing.

PERIOD OF RECORD.--July 1940 (WSP 1046), April 1948 to current year. Records of elevation collected in this vicinity since 1946 are contained in reports of the National Weather Service.
Water-quality records.--Chemical and biochemical analyses: October 1974 to September 1975.

REVISED RECORDS.--WDR TX-81-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. July 2-6, 1940, nonrecording gage at highway bridge, 6,300 ft upstream at datum 30.60 ft lower.

REMARKS.-- Records good except those for estimated daily discharges, which are poor. There are diversions above station for irrigation and municipal supply. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08161000. Gage-height telemeter at station.

AVERAGE DISCHARGE.--39 years (water years 1949-87), 2,439 ft³/s (1,767,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 84,100 ft³/s June 26, 1960; maximum elevation, 48.2 ft, present datum, July 4, 1940, at site 6,300 ft upstream at bridge on State Highway 35, observed by U.S. Army Corps of Engineers (elevation 46.6 ft) adjusted to present site; no flow at times in 1951-53 and 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since 1869, 56.1 ft Dec. 10, 1913. Flood in July 1869 probably reached about same elevation. Elevation of other floods are as follows: May 8, 1922, 55.4 ft; June 1929, 55.0 ft; June 22, 1935, 54.6 ft; Oct. 5, 1936, 52.2 ft; Aug. 2, 1938, 53.4 ft; Nov. 27, 1940, 47.6 ft. All above flood data from information by Texas and New Orleans Railroad Co. and adjusted present site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,500 ft³/s June 17 at 2000 hours (elevation, 34.32 ft); minimum daily, 380 ft³/s Apr. 30.

DISCHARGE, IN 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	624	e5900	4340	8800	4090	20900	6640	583	13800	8000	3530	1430
2	622	e5900	4090	8390	4050	14000	6640	829	18900	7700	3430	1850
3	739	e5900	3940	7980	4010	10100	5600	911	14100	7290	3360	1550
4	706	e5900	4040	7640	3960	7660	4540	997	21500	6960	3290	1420
5	594	e5900	3860	7410	3900	6280	4350	885	34700	7080	3280	1690
6	502	5860	3350	7260	3940	5650	4230	1520	39900	7030	2310	1950
7	519	4800	3060	7190	3660	5230	4160	3280	42700	6210	1670	1960
8	611	3630	3050	6980	3540	5050	4030	3700	44500	4960	1700	1940
9	642	3830	2870	6880	3520	5760	4040	2750	43600	5800	1590	1830
10	636	4640	2780	6800	3700	6260	4080	2560	35100	6580	1540	1780
11	685	5480	2640	6670	3570	6210	3640	2350	35100	6490	1710	1650
12	1610	5960	2390	6610	3770	6150	3270	2010	37400	6400	1830	1770
13	4480	8630	2420	6590	3810	6200	3430	2640	42600	5150	2140	1810
14	6440	6210	2940	6540	3850	6210	3520	4560	47700	4500	1400	2170
15	e11000	4620	5740	6530	3920	6230	2610	2550	49400	3740	1430	2490
16	e9000	4000	13900	7360	3930	5650	1950	1820	49400	3660	1350	2060
17	e5500	3990	20400	9260	4040	4660	1740	2430	50300	3570	1270	2070
18	e4800	3960	16700	10700	3970	4730	1700	1870	48800	3210	1330	1990
19	e5200	3910	10700	11100	3740	7030	1530	1340	37600	2580	1440	2340
20	e5400	4060	8740	9640	2730	5220	1170	1050	30200	2650	1300	2910
21	e5400	3790	7420	8010	1950	6340	1230	913	28800	5200	1100	2240
22	e5000	3750	8120	7300	3040	6480	1230	972	26200	5610	918	3030
23	e4500	3930	11400	5900	4080	6500	1100	1510	22600	5460	990	2540
24	e7000	4990	26500	5000	2750	5500	891	2360	19700	5450	1070	2150
25	e10000	7030	34900	4670	2610	4580	1430	2260	18400	5880	938	1880
26	e10500	7080	37800	4460	14700	4460	1090	2110	15300	6150	879	1550
27	e11000	12700	25600	4390	20800	5360	874	2230	13400	5310	804	1810
28	e8000	10500	13900	4310	23500	6260	755	2310	10800	4660	610	1920
29	e7000	6170	11200	4240	---	6230	686	2790	9900	4150	778	2670
30	e6200	4810	9970	4150	---	6230	380	4930	8370	3850	834	2300
31	e6000	---	9250	4090	---	6380	---	7060	---	3670	1200	---
TOTAL	140910	167830	318010	212850	149130	209500	82536	70080	910770	164950	51021	60750
MEAN	4545	5594	10260	6866	5326	6758	2751	2261	30360	5321	1646	2025
MAX	11000	12700	37800	11100	23500	20900	6640	7060	50300	8000	3530	3030
MIN	502	3630	2390	4090	1950	4460	380	583	8370	2580	610	1420
AC-FT	279500	332900	630800	422200	295800	415500	163700	139000	1807000	327200	101200	120500

CAL YR 1986 TOTAL 1059260 MEAN 2902 MAX 37800 MIN 48 AC-FT 2101000
WTR YR 1987 TOTAL 2538340 MEAN 6954 MAX 50300 MIN 380 AC-FT 5035000

e Estimated.

08162600 TRES PALACIOS RIVER NEAR MIDFIELD, TX

LOCATION.--Lat 28°55'40", long 96°10'15", Matagorda County, Hydrologic Unit 12100401, at left downstream end of bridge on Farm Road 456, 1.0 mi downstream from Juanita Creek, and 2.4 mi southeast of Midfield.

DRAINAGE AREA.--145 mi².

PERIOD OF RECORD.--June 1970 to current year. Prior to October 1973, published as Tres Palacios Creek near Midfield. Water-quality records.--Chemical, biochemical, and pesticide analyses: October 1968 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 5.38 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Ten known diversions above station (amount unknown). An undetermined amount of water from irrigated ricefields enters river upstream at various points. Extensive channel cleaning upstream and downstream from gage was begun in the 1983 water year and completed during the 1984 water year.

AVERAGE DISCHARGE.--17 years, 157 ft³/s (113,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s Oct. 17, 1984 (gage height, 32.43 ft, from floodmark); minimum daily, 1.0 ft³/s Nov. 3-5, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1885, 37 ft in June 1960 and 35 ft in August 1945, from information by local residents.

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)
Oct. 13	0300	2,360	20.46	Jan. 17	2200	1,870	18.44
Oct. 23	1800	3,370	23.47	Feb. 26	1200	*6,540	*28.00
Nov. 25	1200	2,170	19.64	June 9	2100	2,290	20.22
Dec. 15	2300	3,870	24.74	June 13	2400	2,550	21.10
Dec. 23	0800	2,500	20.94				

Minimum daily discharge, 7.2 ft³/s Oct. 6.

DISCHARGE, IN 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	16	16	42	25	16	317	13	10	97	40	24	166
2	13	14	29	22	16	135	12	13	46	32	20	53
3	11	13	22	21	15	72	13	17	348	23	17	32
4	9.5	23	18	19	14	45	14	24	409	18	17	23
5	8.4	142	16	18	14	31	13	17	722	16	18	19
6	7.2	111	15	18	14	24	15	20	379	15	16	15
7	9.2	50	14	17	13	21	19	43	394	17	15	14
8	13	30	14	15	13	19	20	58	891	123	19	14
9	19	21	13	14	13	18	20	31	2090	272	19	13
10	20	15	14	14	13	17	24	44	1510	188	20	15
11	43	13	17	13	13	16	17	47	662	88	18	15
12	903	11	14	13	12	16	16	25	647	51	17	15
13	2240	11	13	12	12	16	17	16	1380	31	16	54
14	1410	11	14	14	13	15	21	12	1840	23	14	28
15	569	11	1890	17	14	15	22	13	733	20	12	22
16	267	11	2660	378	19	15	19	9.8	777	19	11	19
17	135	10	894	1180	17	15	19	97	312	19	11	16
18	68	9.7	543	1250	13	15	23	64	151	18	12	15
19	44	12	603	439	13	15	25	23	93	15	14	14
20	37	10	276	187	13	14	14	13	51	15	17	13
21	29	9.6	149	99	16	14	23	11	28	21	15	14
22	70	8.9	810	65	19	13	22	8.7	23	27	12	14
23	2290	78	2180	44	14	13	16	9.4	21	30	13	13
24	1880	677	909	31	21	13	20	8.7	20	26	13	13
25	608	1890	377	32	232	12	15	8.5	21	85	13	11
26	276	937	192	27	5450	12	16	8.2	25	46	13	10
27	133	384	105	21	2910	12	20	8.7	21	28	11	11
28	68	226	62	19	804	13	12	8.6	20	23	14	139
29	38	128	41	17	---	13	12	81	19	49	12	165
30	25	69	36	16	---	13	7.6	469	23	57	26	64
31	19	---	31	15	---	12	---	232	---	34	387	---
TOTAL	11278.3	4952.2	12013	4072	9746	991	519.6	1450.6	13753	1469	856	1029
MEAN	364	165	388	131	348	32.0	17.3	46.8	458	47.4	27.6	34.3
MAX	2290	1890	2660	1250	5450	317	25	469	2090	272	387	166
MIN	7.2	8.9	13	12	12	12	7.6	8.2	19	15	11	10
AC-FT	22370	9820	23830	8080	19330	1970	1030	2880	27280	2910	1700	2040

CAL YR 1986 TOTAL 35804.3 MEAN 98.1 MAX 2660 MIN 3.9 AC-FT 71020
WTR YR 1987 TOTAL 62129.7 MEAN 170 MAX 5450 MIN 7.2 AC-FT 123200

08163500 LAVACA RIVER AT HALLETTSVILLE, TX

LOCATION.--Lat 29°26'35", long 96°56'39", Lavaca County, Hydrologic Unit 12100101, on left bank 75 ft downstream from bridge on U.S. Highway 77 in Hallettsville and 0.7 mi downstream from Campbell Branch.

DRAINAGE AREA.--108 mi².

PERIOD OF RECORD.--July 1939 to current year.

REVISED RECORDS.--WSP 1312: 1942(M), 1944(M). WSP 1732: 1952(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 186.72 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 19, 1960, water-stage recorder for high stages and movable nonrecording gage for stages below about 6.2 ft. Apr. 20, 1960, to June 2, 1961, movable nonrecording gage. All gages at same site and datum.

REMARKS.--No estimated daily discharges. Records good. No diversion above station. The Lavaca County Flood Control District No. 3 began channel rectification 1.6 mi downstream from gage in August 1983. This rectification reached the gage Jan. 26, 1984, and was completed in June 1984. The channel was previously rectified in 1959-60.

AVERAGE DISCHARGE.--48 years, 51.1 ft³/s (6.42 in/yr), 37,020 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 99,500 ft³/s Aug. 31, 1981 (gage height, 41.1 ft, from floodmark), from rating curve extended above 23,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1953 and 1956.
Maximum stage since at least 1840, that of Aug. 31, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage from about 1870 to 1940, 32.8 ft July 16, 1936, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 23	0230	5,280	17.34	June 4	1230	*35,900	*27.11
June 3	0630	13,300	21.37	June 11	1800	2,880	15.00

Minimum daily discharge, 0.35 ft³/s Nov. 1-3.

DISCHARGE, IN 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	1.6	.35	1.1	6.1	4.4	49	5.0	.71	29	49	4.2	1.7
2	1.5	.35	.93	5.6	4.6	30	5.0	.84	18	35	4.4	1.4
3	1.4	.35	.79	5.4	4.6	24	4.7	.98	5580	33	4.2	1.3
4	1.5	.67	.78	4.9	4.7	21	4.4	.83	17500	32	3.6	1.3
5	1.5	.44	.73	4.9	4.6	18	4.5	12	684	31	3.2	1.2
6	1.4	.49	.71	4.9	4.4	17	5.5	18	111	30	2.9	1.3
7	2.0	2.2	.83	4.9	4.0	16	6.0	13	132	31	2.7	1.2
8	8.0	2.1	.95	4.9	4.0	15	5.6	5.4	201	46	2.6	1.3
9	4.0	1.7	1.4	5.1	4.0	15	5.2	3.0	398	42	2.4	2.1
10	2.9	1.3	1.0	4.8	4.0	13	5.0	2.3	333	28	2.4	2.0
11	7.4	1.3	.79	4.5	4.0	14	4.5	4.0	1430	22	1.9	1.8
12	17	1.1	.71	4.2	4.0	14	4.0	67	607	20	2.0	2.1
13	14	1.7	.71	4.2	3.8	14	4.3	8.5	720	17	1.9	2.1
14	4.5	1.5	2.6	4.2	3.9	13	5.4	4.5	162	9.2	1.9	1.5
15	1.8	1.3	274	4.2	6.9	12	3.3	3.0	66	10	1.8	1.5
16	1.3	1.4	89	5.8	6.8	13	3.8	17	47	9.5	1.9	1.4
17	.91	1.5	15	28	7.3	19	2.6	7.3	42	9.6	2.0	27
18	.71	1.6	12	27	5.5	44	2.5	5.8	35	8.9	1.6	8.9
19	.52	1.7	25	12	5.0	22	2.2	3.1	35	8.2	1.5	3.9
20	.38	1.7	12	8.1	7.6	16	2.2	2.8	33	7.6	1.4	2.8
21	.63	1.3	7.3	7.1	7.4	13	1.9	2.0	28	6.7	1.4	2.1
22	1.4	1.4	1110	6.2	8.2	12	1.5	1.6	26	7.5	1.3	1.6
23	1.7	1.7	2600	5.6	7.4	11	1.7	1.4	27	6.8	1.3	1.4
24	1.3	2.6	76	5.6	71	9.7	1.4	1.4	28	7.1	1.4	1.1
25	.82	12	25	5.1	126	8.8	1.1	1.4	30	6.9	1.4	1.3
26	.62	4.8	15	4.9	1170	8.2	1.7	.89	188	6.5	1.3	1.2
27	.49	2.7	11	4.9	161	7.6	1.5	.79	36	6.0	1.6	1.5
28	.44	1.9	8.9	4.8	96	7.5	.98	.93	26	6.0	1.4	1.8
29	.40	1.4	8.0	4.6	---	6.5	.67	110	26	5.7	1.2	2.3
30	.40	1.3	7.2	4.6	---	5.6	.71	277	34	5.7	1.7	2.1
31	.38	---	6.7	4.3	---	5.2	---	103	---	5.1	1.8	---
TOTAL	82.90	55.85	4316.13	211.4	1745.1	494.1	98.86	680.47	28612	549.0	66.3	84.2
MEAN	2.67	1.86	139	6.82	62.3	15.9	3.30	22.0	954	17.7	2.14	2.81
MAX	17	12	2600	28	1170	49	6.0	277	17500	49	4.4	27
MIN	.38	.35	.71	4.2	3.8	5.2	.67	.71	18	5.1	1.2	1.1
AC-FT	164	111	8560	419	3460	980	196	1350	56750	1090	132	167
CFSM	.0	.0	1.29	.06	.58	.15	.0	.20	8.83	.16	.0	.0
IN.	.0	.0	1.49	.07	.60	.17	.0	.23	9.86	.19	.0	.0

CAL YR 1986 TOTAL 9172.19 MEAN 25.1 MAX 2600 MIN .17 AC-FT 18190 CFSM .23 IN. 3.16
WTR YR 1987 TOTAL 36996.02 MEAN 101 MAX 17500 MIN .35 AC-FT 73380 CFSM .94 IN. 12.7

08164000 LAVACA RIVER NEAR EDNA, TX
(National stream-quality accounting network)

LOCATION.--Lat 28°57'35", long 96°41'10", Jackson County, Hydrologic Unit 12100101, at downstream side near center of upstream bridge of two bridges on U.S. Highway 59, 660 ft upstream from Texas and New Orleans Railroad Co. bridge, and 2.8 mi southwest of Edna.

DRAINAGE AREA.--817 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 1923: 1955. WDR TX-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 14.10 ft (revised) above National Geodetic Vertical Datum of 1929. Prior to June 6, 1939, nonrecording gage (property of U. S. Army Corps of Engineers); June 6, 1939, to Apr. 3, 1957, nonrecording gage at site 110 ft downstream; Apr. 4, 1957, to Mar. 21, 1961, nonrecording gage; all at same datum.

REMARKS.--Estimated daily discharges: Jan. 10-16, 26-31, Mar. 6-16, Apr. 14, July 6-20, and Aug. 11-14. Records good to Jan. 10 and fair thereafter due to bridge construction. Small diversions above station for irrigation.

AVERAGE DISCHARGE.--49 years, 334 ft³/s (5.55 in/yr), 242,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,000 ft³/s July 1, 1940 (gage height, 32.51 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 33.8 ft May 25, 1936 (discharge, 83,400 ft³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	1500	9,330	22.64	June 12	2300	21,200	26.56
Feb. 27	1700	8,940	22.42	June 14	2100	22,900	26.89
June 6	1000	*24,700	*27.22				

Minimum daily discharge, 11 ft³/s Oct. 4, 5.

DISCHARGE, IN 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	16	22	30	199	125	1720	75	32	1190	405	120	45
2	14	20	27	163	123	886	75	35	421	237	106	44
3	12	19	25	141	106	496	73	34	293	198	98	41
4	11	21	23	118	103	343	70	32	2930	167	88	38
5	11	23	22	100	99	272	85	37	9840	147	75	35
6	19	21	21	85	94	227	89	127	22500	136	70	33
7	22	18	21	74	82	210	77	1190	13600	133	62	33
8	21	19	21	67	77	202	72	662	2600	163	57	32
9	19	21	22	61	72	197	73	155	1990	159	59	31
10	18	19	22	60	64	194	69	80	3680	159	57	29
11	111	18	21	70	55	191	68	58	4690	137	56	30
12	346	16	21	54	52	187	67	51	13500	126	54	28
13	544	18	21	49	51	182	65	47	18700	129	51	28
14	498	18	23	56	49	181	60	71	19100	138	48	28
15	271	18	748	56	83	180	56	60	16900	213	42	30
16	148	19	2520	917	135	176	57	41	4990	202	40	29
17	80	20	1220	1300	89	174	56	37	1080	189	40	27
18	56	21	454	1760	54	403	56	37	907	180	39	31
19	45	21	600	969	49	461	52	40	1310	175	50	34
20	38	20	346	536	165	330	49	40	697	169	47	70
21	33	18	246	363	1330	208	46	34	501	164	42	51
22	37	18	976	354	971	166	44	32	408	169	39	39
23	352	19	5300	311	500	147	47	29	348	199	34	34
24	324	22	8840	246	909	130	43	27	307	212	33	30
25	169	97	7940	211	2070	117	38	26	278	467	32	28
26	84	194	1400	184	4440	108	42	28	734	273	34	27
27	53	129	460	161	8310	101	39	26	654	227	33	26
28	41	65	341	145	6720	94	41	25	419	169	33	37
29	33	44	274	137	---	86	36	70	262	163	34	109
30	28	36	248	131	---	77	33	151	312	155	38	58
31	24	---	243	123	---	76	---	664	---	134	46	---
TOTAL	3478	1034	32476	9201	26977	8522	1753	3978	145141	5894	1657	1135
MEAN	112	34.5	1048	297	963	275	58.4	128	4838	190	53.5	37.8
MAX	544	194	8840	1760	8310	1720	89	1190	22500	467	120	109
MIN	11	16	21	49	49	76	33	25	262	126	32	26
AC-FT	6900	2050	64420	18250	53510	16900	3480	7890	287900	11690	3290	2250
CFSM	.14	.0	1.28	.36	1.18	.34	.07	.16	5.92	.23	.07	.0
IN.	.16	.0	1.48	.42	1.23	.39	.08	.18	6.61	.27	.08	.05

CAL YR 1986 TOTAL 77817 MEAN 213 MAX 8840 MIN 8.1 AC-FT 154400 CFSM .26 IN. 3.54
WTR YR 1987 TOTAL 241246 MEAN 661 MAX 22500 MIN 11 AC-FT 478500 CFSM .81 IN. 11.0

08164000 LAVACA RIVER NEAR EDNA, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1945 to September 1977. Chemical and biochemical analyses: February 1971 to current year. Pesticide analyses: January 1968 to August 1981. Sediment analyses: November 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1977 to September 1981.
WATER TEMPERATURE: November 1977 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 899 microsiemens April 22, 1978; minimum daily, 100 microsiemens May 5, 1979, and May 20, 1980.
WATER TEMPERATURE: Maximum daily, 33.0°C July 16, 1978; minimum daily, 5.0°C January 22, 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
OCT												
22...	1500	34	420	7.90	23.5	27	8.4	99	2.9	220	340	150
DEC												
09...	1440	22	770	8.10	17.0	--	8.4	87	1.8	--	--	270
FEB												
11...	1630	54	749	8.20	17.0	1.9	9.6	99	1.0	K40	K64	280
APR												
15...	1325	56	796	8.30	19.0	--	9.2	99	1.1	--	--	300
JUN												
24...	0900	305	678	7.90	27.0	13	7.3	92	0.7	480	780	270
AUG												
19...	1525	52	702	8.10	29.5	9.2	8.1	106	0.7	K380	K250	300

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 WH WAT TOTAL 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												
22...	0	51	4.3	28	1	4.5	148	12	33	0.20	17	250
DEC												
09...	0	97	6.5	54	2	4.2	278	22	75	0.30	21	--
FEB												
11...	3	100	6.4	50	1	2.8	274	11	68	0.30	15	444
APR												
15...	11	110	7.0	55	1	3.6	293	27	72	0.40	19	--
JUN												
24...	0	96	6.2	34	1	2.8	266	19	48	0.20	29	419
AUG												
19...	23	110	6.4	42	1	2.4	279	19	52	0.30	27	409

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)
OCT												
22...	240	0.010	<0.010	<0.100	<0.100	<0.010	<0.010	--	1.4	0.150	0.080	0.110
DEC												
09...	450	<0.010	--	<0.100	--	0.050	--	0.95	1.0	0.200	--	--
FEB												
11...	420	<0.010	<0.010	<0.100	<0.100	0.010	0.020	0.59	0.60	0.120	0.070	0.080
APR												
15...	470	<0.010	--	<0.100	--	0.040	--	0.56	0.60	0.110	--	--
JUN												
24...	400	<0.010	<0.010	0.200	0.180	0.040	0.050	0.76	0.80	0.120	0.110	0.090
AUG												
19...	430	<0.010	<0.010	<0.100	<0.100	0.030	0.020	0.67	0.70	0.070	0.050	0.040

DATE	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)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)
OCT												
22...	0.34	37	3.4	99	10	4	220	<0.5	<1	<1	<3	1
DEC												
09...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
11...	0.25	28	4.1	46	<10	3	350	<0.5	<1	<1	<3	1
APR												
15...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
24...	0.28	83	68	81	20	4	380	<0.5	1	<1	<3	<1
AUG												
19...	0.12	84	12	61	<10	2	360	<0.5	2	<1	<3	1

08164000 LAVACA RIVER NEAR EDNA, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT												
22...	23	<5	9	12	<0.1	<10	<1	<1	<1	170	<6	7
DEC												
09...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
11...	6	<5	15	21	<0.1	<10	2	<1	1	340	<6	<3
APR												
15...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
24...	14	<5	17	8	0.1	<10	<1	<1	<1	320	<6	6
AUG												
19...	5	<5	8	4	<0.1	<10	<1	<1	<1	360	<6	4

08164300 NAVIDAD RIVER NEAR HALLETTSVILLE, TX

LOCATION.--Lat 29°28'00", long 96°48'45", Lavaca County, Hydrologic Unit 12100102, on right bank 28 ft downstream from bridge on U.S. Highway 90-A, 0.8 mi downstream from Mixons Creek, 1.2 mi southwest of Sublime, and 8 mi northeast of Hallettsville.

DRAINAGE AREA.--332 mi².

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

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 159.28 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known diversion above station.

AVERAGE DISCHARGE.--26 years, 149 ft³/s (6.09 in/yr), 108,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,500 ft³/s Sept. 13, 1974 (gage height, 36.05 ft); no flow Aug. 5-7, 22, Sept. 2-16, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, 40 ft in June 1940; flood in July 1936 reached a stage of 39 ft, from information by local residents and Southern Pacific Railroad Co.

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)
Dec. 16	1100	2,860	20.22	June 4	0100	*12,000	*27.61
Dec. 24	2400	10,500	26.85	June 13	0200	3,940	21.89
Feb. 27	0500	4,430	22.44				

Minimum daily discharge, 2.2 ft³/s Sept. 8, 10, 16.

DISCHARGE, IN 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	4.6	6.1	12	79	35	269	34	19	68	57	12	15
2	3.3	5.7	11	72	35	166	34	19	44	48	11	7.2
3	2.9	5.6	9.8	69	35	127	32	19	3530	43	10	4.9
4	2.7	6.4	9.7	62	35	108	31	20	9370	41	9.4	3.6
5	2.6	11	9.3	59	34	95	31	26	5400	38	8.8	2.9
6	2.5	19	8.8	58	33	87	34	50	673	36	8.1	2.5
7	2.4	12	8.8	56	32	81	34	36	210	34	7.5	2.3
8	2.4	10	8.9	55	31	76	33	26	232	36	6.8	2.2
9	9.5	8.1	9.4	53	30	71	31	24	937	35	6.7	2.3
10	9.0	7.0	9.7	50	29	66	30	25	865	36	6.1	2.2
11	6.9	6.1	8.8	47	29	64	30	21	1680	34	5.3	3.2
12	7.3	18	11	46	29	64	29	147	3100	31	4.8	3.2
13	47	23	9.4	46	29	60	29	33	3450	29	4.6	2.7
14	50	14	11	46	29	57	28	29	1960	36	4.3	2.7
15	19	10	1360	45	40	56	26	25	286	29	3.9	2.5
16	12	9.3	2270	47	83	55	26	53	213	28	3.7	2.2
17	9.1	8.8	212	282	48	148	26	41	171	26	3.4	813
18	7.6	8.2	279	340	35	145	26	25	144	25	3.1	313
19	6.7	7.4	516	118	32	77	25	21	124	23	3.0	82
20	6.3	7.0	138	72	120	58	25	26	109	21	3.0	30
21	5.8	6.3	82	59	144	52	24	24	97	20	2.7	20
22	6.8	6.1	852	54	83	48	24	19	87	19	2.7	16
23	11	6.6	7760	49	55	46	24	18	79	19	2.7	14
24	12	14	6580	46	263	42	24	16	73	18	2.6	13
25	23	261	409	44	534	40	23	16	68	20	2.6	11
26	13	190	191	41	3060	38	22	15	67	20	2.8	11
27	9.4	41	150	40	3280	38	21	14	62	18	2.7	10
28	7.7	23	122	39	413	38	21	13	55	16	2.7	11
29	6.9	18	106	38	---	35	20	147	51	15	2.8	13
30	6.4	14	96	37	---	33	20	636	49	14	3.1	10
31	6.1	---	86	35	---	34	---	231	---	12	11	---
TOTAL	321.9	782.7	21346.6	2184	8635	2374	817	1834	33254	877	163.9	1428.6
MEAN	10.4	26.1	689	70.5	308	76.6	27.2	59.2	1108	28.3	5.29	47.6
MAX	50	261	7760	340	3280	269	34	636	9370	57	12	813
MIN	2.4	5.6	8.8	35	29	33	20	13	44	12	2.6	2.2
AC-FT	638	1550	42340	4330	17130	4710	1620	3640	65960	1740	325	2830

CAL YR 1986 TOTAL 31340.6 MEAN 85.9 MAX 7760 MIN .51 AC-FT 62160
WTR YR 1987 TOTAL 74018.4 MEAN 203 MAX 9370 MIN 2.2 AC-FT 146800

08164350 NAVIDAD RIVER NEAR SPEAKS, TX

LOCATION.--Lat 29°19'18", long 96°42'32", Lavaca County, Hydrologic Unit 12100102, at right downstream end of bridge on Farm Road 530, 100 ft downstream from Ragsdale Creek, and 4.6 mi north of Speaks.

DRAINAGE AREA.--437 mi².

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 120.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 1-8 and July 19 to Aug. 13. Records good. There are no known diversions above this station.

AVERAGE DISCHARGE.--6 years, 156 ft³/s (4.85 in/yr), 113,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,300 ft³/s May 14, 1982 (gage height, 27.89 ft, from floodmark); minimum daily, 1.1 ft³/s Nov. 3, 1986.

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)
Dec. 17	0200	2,810	16.78	June 5	0300	*8,570	*24.54
Dec. 24	1800	8,380	24.41	June 10	1100	2,970	17.15
Feb. 27	1900	4,480	20.07	June 13	2100	5,870	22.06

Minimum daily discharge, 1.1 ft³/s Nov. 3.

DISCHARGE, IN 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	2.5	1.2	21	87	37	473	39	23	113	60	19	9.2
2	2.4	1.2	18	80	37	212	40	22	72	60	18	18
3	2.3	1.1	15	75	37	143	39	23	776	52	17	9.7
4	2.3	1.2	14	71	37	117	38	22	5710	48	16	6.4
5	2.2	1.5	13	66	37	103	37	22	8180	44	15	4.6
6	2.1	5.8	12	63	36	95	38	115	4630	41	13	3.5
7	2.1	13	11	61	33	88	40	92	384	38	12	2.9
8	2.0	5.1	11	59	33	83	40	48	255	37	11	2.7
9	19	4.1	11	57	32	78	37	33	913	39	11	2.4
10	31	2.6	11	55	31	74	37	37	2550	39	10	2.1
11	11	2.0	11	50	31	71	37	30	2720	38	9.5	1.9
12	22	1.4	11	48	31	70	37	166	3890	35	8.9	1.9
13	95	20	13	47	31	69	36	93	5240	31	8.7	2.2
14	116	20	14	47	31	66	35	53	4700	33	8.4	2.2
15	40	9.6	654	47	50	63	33	46	1550	52	6.7	2.2
16	14	6.4	2200	72	69	61	31	38	286	30	6.3	2.1
17	6.6	4.7	1610	291	80	73	30	95	201	29	5.8	289
18	3.9	4.3	262	748	50	210	30	53	156	29	5.3	880
19	2.6	3.9	812	211	41	109	30	38	130	28	4.7	112
20	1.9	3.2	248	106	95	77	30	40	110	28	4.5	63
21	1.4	2.5	109	82	244	65	29	39	100	27	4.3	34
22	1.6	2.3	475	80	143	59	29	34	92	26	4.1	24
23	2.7	2.1	3560	65	81	57	27	30	85	25	3.8	19
24	4.6	1.9	7520	57	283	53	26	27	79	25	3.2	16
25	5.5	152	4530	53	915	49	25	26	76	24	2.9	15
26	18	349	272	48	2740	47	24	25	88	27	2.7	13
27	6.9	101	168	45	4270	46	23	24	73	27	2.8	12
28	3.8	53	131	43	2580	45	23	24	66	25	2.9	20
29	2.5	36	114	43	---	44	23	47	59	24	2.6	15
30	1.7	28	104	42	---	41	23	813	58	23	3.0	14
31	1.3	---	95	39	---	40	---	444	---	20	3.9	---
TOTAL	430.9	840.1	23050	2938	12115	2881	966	2622	43342	1064	247.0	1600.0
MEAN	13.9	28.0	744	94.8	433	92.9	32.2	84.6	1445	34.3	7.97	53.3
MAX	116	349	7520	748	4270	473	40	813	8180	60	19	880
MIN	1.3	1.1	11	39	31	40	23	22	58	20	2.6	1.9
AC-FT	855	1670	45720	5830	24030	5710	1920	5200	85970	2110	490	3170

CAL YR 1986 TOTAL 38064.9 MEAN 104 MAX 7520 MIN 1.1 AC-FT 75500
WTR YR 1987 TOTAL 92095.7 MEAN 252 MAX 8180 MIN 1.1 AC-FT 182700

08164450 SANDY CREEK NEAR LOUISE, TX

LOCATION.--Lat 29°09'36", long 96°32'46", Jackson County, Hydrologic Unit 12100102, on left bank at downstream end of bridge on Farm Road 710, 0.9 mi upstream from Goldenrod Creek, and 9.1 mi northwest of Louise.

DRAINAGE AREA.--289 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 59.72 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good except those for discharges below 5 ft³/s, which are poor. Much of the low flow during the irrigation season (April to September) comes from drainage from ricefields irrigated by water originally diverted from the Colorado River. No known diversion above station.

AVERAGE DISCHARGE.--10 years, 188 ft³/s (8.83 in/yr), 136,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s Sept. 14, 1978 (gage height, 23.03 ft), from rating curve extended above 7,800 ft³/s; no flow at times.

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)
Dec. 16	0900	2,970	14.30	May 7	1300	1,550	12.22
Dec. 24	0200	3,620	15.33	June 5	2400	3,230	14.80
Jan. 18	0900	1,640	11.51	June 14	1500	*5,660	*17.78
Feb. 27	0500	3,720	15.49				

Minimum daily discharge, no flow May 28, Aug. 18-28.

DISCHARGE, IN 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	92	5.2	5.3	34	9.7	1390	2.9	27	724	299	62	30
2	83	4.4	3.6	26	7.1	686	3.1	32	544	446	31	35
3	76	4.0	2.1	19	8.8	267	3.3	29	952	203	17	33
4	79	7.9	.56	13	7.7	146	6.1	20	2440	100	9.3	23
5	83	21	.22	10	4.3	92	14	62	2770	51	5.8	15
6	67	10	.11	7.4	3.7	60	11	487	2420	25	4.1	13
7	59	6.2	.12	5.3	3.0	44	19	1380	1380	8.1	1.3	1.9
8	86	3.4	.10	3.9	2.4	33	14	1210	976	16	.20	.61
9	100	2.1	.08	3.3	1.6	28	13	1110	896	270	.23	.47
10	122	1.3	.05	3.0	1.2	24	8.6	543	2370	498	.29	.38
11	140	.69	.04	2.9	.64	21	9.8	131	2740	320	.09	.71
12	453	.57	.02	2.9	.22	18	12	393	3390	171	.05	1.2
13	610	.71	.02	2.7	.06	16	12	522	3800	96	.04	4.7
14	654	.46	.45	2.6	.17	15	13	287	5190	75	.26	13
15	476	.12	924	2.6	4.6	14	20	138	3630	90	.23	14
16	233	.12	2580	208	36	13	5.5	57	2020	104	.28	12
17	143	.11	1520	481	24	13	5.3	158	1190	68	.07	9.5
18	85	.09	991	1370	12	24	9.0	136	715	55	.00	8.9
19	45	.07	1040	763	6.3	56	10	68	299	55	.00	10
20	27	.08	660	435	29	31	13	30	121	42	.00	18
21	17	.08	363	181	206	23	14	13	46	42	.00	23
22	16	.11	679	129	125	17	19	14	25	252	.00	21
23	98	.36	2810	97	64	15	27	1.3	16	385	.00	17
24	180	1.3	2760	62	108	13	28	.23	7.3	325	.00	15
25	132	22	1440	41	827	12	18	.09	4.1	368	.00	14
26	62	211	822	31	2570	11	18	.04	114	414	.00	19
27	32	59	441	28	3130	3.7	14	.02	155	348	.00	25
28	20	27	175	41	1940	3.3	7.8	.00	79	202	.00	36
29	13	15	99	27	---	2.9	12	68	42	164	.98	117
30	9.3	8.3	62	19	---	2.9	25	788	31	127	.46	201
31	6.9	---	45	14	---	2.9	---	915	---	90	23	---
TOTAL	4299.2	412.67	17423.77	4065.6	9132.49	3097.7	387.4	8619.68	39086.4	5709.1	156.68	732.37
MEAN	139	13.8	562	131	326	99.9	12.9	278	1303	184	5.05	24.4
MAX	654	211	2810	1370	3130	1390	28	1380	5190	498	62	201
MIN	6.9	.07	.02	2.6	.06	2.9	2.9	.00	4.1	8.1	.00	.38
AC-FT	8530	819	34560	8060	18110	6140	768	17100	77530	11320	311	1450
CFSM	.48	.0	1.94	.45	1.13	.35	.0	.96	4.51	.64	.0	.08
IN.	.55	.05	2.24	.52	1.18	.40	.0	1.11	5.03	.73	.0	.09

CAL YR 1986 TOTAL 54585.05 MEAN 150 MAX 3350 MIN .02 AC-FT 108300 CFSM .52 IN. 7.03
WTR YR 1987 TOTAL 93122.72 MEAN 255 MAX 5190 MIN .00 AC-FT 184700 CFSM .88 IN. 12.0

08164450 SANDY CREEK NEAR LOUISE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1977 to current year. Pesticide analyses: November 1977 to July 1981. Sediment analyses: September 1978 to April 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT 23...	1155	104	210	7.50	22.5	8.2	95	5.0	63	15
DEC 09...	1100	0.15	336	7.00	16.0	8.6	87	3.6	110	7
FEB 12...	1335	0.19	260	7.60	22.5	9.8	112	2.7	82	5
APR 15...	0950	26	624	7.90	15.5	8.8	88	5.3	220	74
JUN 16...	1405	1930	934	7.00	30.0	5.2	69	1.5	37	9

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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 23...	16	5.5	15	0.9	5.1	48	17	32	0.20	18
DEC 09...	31	7.8	20	0.9	5.4	103	11	36	0.20	23
FEB 12...	24	5.4	15	0.7	5.2	77	10	26	0.20	14
APR 15...	66	13	41	1	7.5	144	28	96	0.40	18
JUN 16...	9.9	2.9	2.7	0.2	2.2	28	12	4.1	0.20	12

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 23...	140	--	0.020	<0.100	0.020	1.1	1.1	0.030	--	--
DEC 09...	200	--	<0.010	<0.100	0.110	1.2	1.3	0.150	3	130
FEB 12...	150	--	<0.010	<0.100	0.020	1.1	1.1	0.110	--	--
APR 15...	360	0.260	0.040	0.300	0.090	0.91	1.0	0.080	--	--
JUN 16...	63	0.180	0.020	0.200	0.050	0.55	0.60	0.190	3	50

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 23...	--	--	--	--	--	--	--	--	--	--
DEC 09...	1	<10	1	71	<5	790	<0.1	<1	<1	18
FEB 12...	--	--	--	--	--	--	--	--	--	--
APR 15...	--	--	--	--	--	--	--	--	--	--
JUN 16...	<1	<10	2	370	<5	21	<0.1	<1	<1	14

08164503 WEST MUSTANG CREEK NEAR GANADO, TX

LOCATION.--Lat 29°04'17", long 96°28'01", Jackson County, Hydrologic Unit 12100102, on right bank at downstream end of downstream bridge on U.S. Highway 59, 2.1 mi upstream from Middle Mustang Creek, and 3.6 mi east of Ganado.

DRAINAGE AREA.--178 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 40.12 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Much of low flow during the irrigation season (April to September) comes from drainage from ricefields irrigated by diversions originating from the Colorado River.

AVERAGE DISCHARGE.--10 years, 156 ft³/s (11.9 in/yr), 113,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s Jan. 21, 1980 (gage height, 24.49 ft, from floodmark), from rating curve extended above 8,800 ft³/s; minimum daily, 0.03 ft³/s Jan. 18, 19, 1981.

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)
Dec. 16	2100	2,040	15.13	May 8	0100	1,560	14.21
Feb. 27	0900	*2,620	*15.97	June 11	2200	1,890	14.86

Minimum daily discharge, 1.1 ft³/s Mar. 28.

DISCHARGE, IN 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	35	7.8	15	28	7.5	708	6.6	22	400	49	37	94
2	37	6.9	8.5	21	6.7	296	3.0	29	228	220	31	76
3	41	6.2	5.0	16	5.8	145	5.0	28	607	177	28	60
4	39	24	3.3	12	5.3	91	2.0	18	1000	78	42	39
5	33	115	2.4	8.6	5.4	58	3.6	33	1100	49	51	22
6	24	83	1.8	7.2	4.2	33	5.4	581	1050	35	54	12
7	26	38	1.4	6.7	3.0	21	12	1420	881	20	63	8.8
8	43	25	1.2	7.2	2.2	14	8.2	1460	714	26	60	7.8
9	56	17	1.4	7.1	1.7	10	5.5	1080	936	86	60	7.7
10	54	11	1.5	4.9	1.5	7.0	3.7	588	1460	204	58	6.3
11	44	5.9	1.7	3.6	1.4	6.6	12	219	1720	200	56	7.3
12	245	4.4	1.5	3.0	1.3	5.4	12	107	1770	127	58	9.1
13	857	4.0	1.2	2.7	1.2	4.3	11	71	1680	79	49	14
14	934	3.4	1.3	3.0	1.2	3.5	24	37	1720	52	45	14
15	532	2.9	706	3.2	2.1	3.0	24	18	1400	38	38	27
16	237	2.4	1870	322	3.3	2.4	23	13	783	53	24	29
17	133	2.0	1680	805	2.6	2.4	27	13	329	60	18	25
18	89	1.7	842	984	3.0	2.4	23	28	143	43	13	20
19	68	1.4	629	552	2.6	2.1	26	35	86	55	8.2	21
20	50	1.3	412	219	26	2.0	34	22	53	46	7.5	21
21	42	1.2	211	147	164	1.8	34	27	32	46	6.1	28
22	43	1.2	469	111	95	1.6	40	19	27	90	8.2	28
23	167	8.9	1220	85	52	3.0	36	17	24	161	14	17
24	290	28	1330	57	86	2.2	24	13	22	153	11	15
25	175	309	778	34	429	1.8	21	15	18	198	10	9.1
26	96	447	373	26	1640	1.4	19	11	16	239	8.3	8.3
27	58	133	185	23	2410	1.2	26	9.5	34	152	19	7.1
28	34	69	113	17	1500	1.1	24	6.3	52	126	10	10
29	21	41	76	13	---	2.4	42	127	36	104	17	49
30	15	24	57	13	---	3.3	48	866	31	64	20	86
31	10	---	39	9.1	---	7.0	---	809	---	57	54	---
TOTAL	4528	1425.6	11037.2	3551.3	6464.0	1443.9	585.0	7741.8	18352	3087	978.3	778.5
MEAN	146	47.5	356	115	231	46.6	19.5	250	612	99.6	31.6	25.9
MAX	934	447	1870	984	2410	708	48	1460	1770	239	63	94
MIN	10	1.2	1.2	2.7	1.2	1.1	2.0	6.3	16	20	6.1	6.3
AC-FT	8980	2830	21890	7040	12820	2860	1160	15360	36400	6120	1940	1540

CAL YR 1986 TOTAL 35496.9 MEAN 97.3 MAX 2040 MIN .08 AC-FT 70410
WTR YR 1987 TOTAL 59972.4 MEAN 164 MAX 2410 MIN 1.1 AC-FT 119000

08164503 WEST MUSTANG CREEK NEAR GANADO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1977 to current year. Pesticide analyses: November 1977 to July 1981. Sediment analyses: September 1978 to April 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT 23...	1045	152	268	7.60	22.5	8.0	92	2.7	75	12
DEC 09...	1000	1.5	402	7.50	16.5	7.3	74	7.5	150	65
FEB 12...	1230	1.5	541	7.90	17.0	9.2	94	2.5	170	29
APR 15...	0900	26	949	7.80	17.0	7.0	72	3.1	300	140
JUN 16...	1330	730	132	7.20	29.5	5.1	67	1.4	48	6
AUG 19...	1145	8.8	609	7.70	28.0	6.0	76	0.8	210	42

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 WH WAT TOTAL 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 23...	22	4.8	20	1	6.3	63	15	35	0.20	25
DEC 09...	47	9.0	37	1	7.4	90	34	77	0.20	20
FEB 12...	52	9.0	38	1	5.4	138	30	66	0.20	16
APR 15...	92	17	72	2	9.2	163	48	170	0.40	15
JUN 16...	14	3.1	5.6	0.4	2.7	42	10	6.3	0.20	18
AUG 19...	62	14	53	2	9.0	170	25	99	0.30	27

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 23...	170	0.370	0.030	0.400	0.050	0.65	0.70	0.120	--	--
DEC 09...	290	--	0.020	<0.100	0.040	1.3	1.3	0.200	3	120
FEB 12...	300	--	0.010	<0.100	0.020	1.4	1.4	0.160	--	--
APR 15...	520	0.260	0.040	0.300	0.120	1.7	1.8	0.110	--	--
JUN 16...	85	0.260	0.040	0.300	0.070	1.1	1.2	0.310	5	54
AUG 19...	390	0.090	0.010	0.100	0.040	1.3	1.3	0.120	--	--

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 23...	--	--	--	--	--	--	--	--	--	--
DEC 09...	2	<10	4	29	<5	44	<0.1	<1	<1	10
FEB 12...	--	--	--	--	--	--	--	--	--	--
APR 15...	--	--	--	--	--	--	--	--	--	--
JUN 16...	<1	<10	2	320	<5	13	0.2	<1	<1	14
AUG 19...	--	--	--	--	--	--	--	--	--	--

08164600 GARCITAS CREEK NEAR INEZ, TX

LOCATION.--Lat 28°53'28", long 96°49'08", Victoria County, Hydrologic Unit 12100402, at right downstream end of bridge on U.S. Highway 59 access road, 0.3 mi upstream from Southern Pacific Railroad bridge, 2.0 mi southwest of Inez, and 3.6 mi upstream from Casa Blanca Creek.

DRAINAGE AREA.--91.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 29.16 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known diversion above station. An undetermined amount of return water from irrigation enters stream above station. Recording rain gage at station.

AVERAGE DISCHARGE.--17 years, 56.1 ft³/s (8.31 in/yr), 40,440 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,700 ft³/s June 12, 1981 (gage height, 29.00 ft); no flow for a few days in 1971 and 1985.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage during period 1903-70, 24.5 ft Oct. 26, 1960. In 1929, a flood nearly as high as the 1960 flood occurred, and a flood in September 1967 reached a stage of 23.4 ft, from information by local resident.

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)
Dec. 23	1600	2,600	16.62	June 12	0700	*10,800	*24.42
Feb. 26	2100	1,770	14.95	June 14	1800	5,850	20.67
June 10	0700	2,170	15.80				

Minimum daily discharge, 0.27 ft³/s Oct. 5.

DISCHARGE, IN 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	.37	3.9	7.2	24	6.6	154	3.0	1.3	24	18	6.9	4.0
2	.37	3.2	4.9	20	6.3	71	3.2	1.3	19	21	5.5	1.7
3	.34	2.7	3.7	17	5.9	47	3.3	1.4	93	16	4.3	1.2
4	.32	3.0	2.9	14	5.5	35	3.1	1.6	796	14	4.2	.98
5	.27	2.3	2.5	12	5.2	27	3.0	1.6	218	14	3.8	.90
6	.32	3.0	2.3	11	4.8	22	2.8	2.5	250	11	4.1	.96
7	.34	2.3	2.0	9.9	4.4	18	2.8	2.4	127	11	4.8	1.2
8	.34	1.8	2.0	9.1	4.5	15	2.6	2.2	96	18	5.3	1.1
9	.77	1.9	2.1	8.2	4.0	13	2.5	3.2	778	59	4.9	.71
10	1.3	1.7	1.9	7.4	3.8	11	2.8	3.6	1660	61	5.4	.74
11	13	1.5	1.6	6.5	3.6	10	2.8	2.6	1190	37	4.1	4.4
12	41	1.3	1.4	6.1	3.3	9.8	3.3	2.1	7600	24	3.5	4.8
13	45	1.9	1.3	5.8	3.2	9.4	3.2	62	2110	15	3.1	1.5
14	39	1.6	1.8	6.3	3.2	8.5	2.6	62	3880	12	2.8	1.0
15	25	1.3	98	6.1	3.3	8.1	2.1	30	1630	9.7	2.3	.96
16	15	1.5	340	105	3.1	7.8	1.8	19	257	9.2	1.9	.78
17	8.2	1.4	98	444	2.9	7.4	1.9	10	130	8.1	1.8	.62
18	5.0	1.3	71	370	2.9	6.9	1.9	6.0	120	7.2	1.6	3.5
19	3.6	1.2	89	119	2.9	6.4	1.8	4.4	545	7.0	1.4	4.4
20	3.0	1.2	59	62	11	6.0	1.6	3.3	117	7.2	1.3	2.3
21	3.0	1.2	43	43	9.5	5.8	1.6	2.4	69	7.6	1.4	.86
22	4.0	1.2	372	38	15	5.5	1.6	1.8	50	18	1.4	.58
23	98	1.9	2210	35	13	5.0	1.5	1.7	39	23	1.3	.96
24	104	5.4	986	26	64	5.0	1.5	1.4	33	22	1.0	.93
25	48	34	177	21	223	4.7	1.4	1.2	27	39	.97	.90
26	30	62	94	17	1220	4.3	1.4	1.0	25	35	.61	.91
27	23	38	63	13	964	4.0	1.3	.97	23	22	.74	.92
28	18	23	47	11	280	3.8	1.3	.99	20	18	.86	29
29	12	16	38	9.3	---	3.6	1.3	30	18	13	.95	57
30	8.1	10	33	7.9	---	3.5	1.3	49	18	10	1.2	23
31	5.4	---	28	7.0	---	3.1	---	35	---	7.6	8.8	---
TOTAL	556.04	232.7	4883.6	1491.6	2878.9	541.6	66.3	347.96	21962	594.6	92.23	152.81
MEAN	17.9	7.76	158	48.1	103	17.5	2.21	11.2	732	19.2	2.98	5.09
MAX	104	62	2210	444	1220	154	3.3	62	7600	61	8.8	57
MIN	.27	1.2	1.3	5.8	2.9	3.1	1.3	.97	18	7.0	.61	.58
AC-FT	1100	462	9690	2960	5710	1070	132	690	43560	1180	183	303
CFSM	.20	.08	1.72	.52	1.12	.19	.0	.12	7.98	.21	.0	.06
IN.	.23	.09	1.98	.61	1.17	.22	.0	.14	8.91	.24	.0	.06

CAL YR 1986 TOTAL 8869.56 MEAN 24.3 MAX 2210 MIN .03 AC-FT 17590 CFSM .26 IN. 3.60
WTR YR 1987 TOTAL 33800.05 MEAN 92.6 MAX 7600 MIN .27 AC-FT 67040 CFSM 1.01 IN. 13.7

08164600 GARCITAS CREEK NEAR INEZ, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: April 1965 to current year. Pesticide analyses: July 1970 to July 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT										
22...	1205	3.8	403	8.00	23.5	8.4	99	1.9	130	3
DEC										
09...	1620	2.3	464	8.20	17.0	10.0	103	0.9	180	9
FEB										
12...	1115	3.5	600	8.10	16.5	9.1	92	1.3	240	22
APR										
15...	1555	2.3	657	8.20	24.0	10.8	128	1.7	250	37
JUN										
16...	1525	207	159	7.20	31.0	5.7	77	1.9	62	5
AUG										
19...	1020	1.8	632	7.90	29.5	6.4	83	1.0	220	16

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT										
22...	43	6.5	31	1	3.0	131	20	34	0.20	21
DEC										
09...	58	7.4	27	0.9	2.7	166	33	33	0.20	18
FEB										
12...	82	9.7	33	1	1.5	223	43	40	0.30	22
APR										
15...	79	12	43	1	1.6	210	52	50	0.30	12
JUN										
16...	19	3.6	5.1	0.3	2.8	57	11	5.8	0.10	22
AUG										
19...	71	10	46	1	1.5	202	37	54	0.30	30

DATE	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)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)
OCT										
22...	240	<0.010	<0.100	<0.010	--	1.1	0.140	--	--	--
DEC										
09...	280	<0.010	<0.100	0.040	0.76	0.80	0.040	2	190	1
FEB										
12...	370	<0.010	<0.100	<0.010	--	0.90	0.020	--	--	--
APR										
15...	380	<0.010	<0.100	<0.010	--	1.9	<0.010	--	--	--
JUN										
16...	100	<0.010	<0.100	0.080	1.0	1.1	0.070	4	100	1
AUG										
19...	370	<0.010	<0.100	0.020	0.58	0.60	0.010	--	--	--

DATE	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									
22...	--	--	--	--	--	--	--	--	--
DEC									
09...	<10	<1	36	<5	2	<0.1	<1	<1	5
FEB									
12...	--	--	--	--	--	--	--	--	--
APR									
15...	--	--	--	--	--	--	--	--	--
JUN									
16...	<10	3	300	<5	43	<0.1	<1	<1	33
AUG									
19...	--	--	--	--	--	--	--	--	--

08164800 PLACEDO CREEK NEAR PLACEDO, TX

LOCATION.--Lat 28°43'30", long 96°46'07", Victoria County, Hydrologic Unit 12100401, on right bank at downstream end of bridge on Farm Road 616, 0.1 mi downstream from confluence of Lone Tree Creek and Arroyo Palo Alto, 1.2 mi upstream from Ninemile Creek, and 4.4 mi northeast of Placedo.

DRAINAGE AREA.--68.3 mi².

PERIOD OF RECORD.--June 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5.58 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. No known diversion above station.

AVERAGE DISCHARGE.--17 years, 69.2 ft³/s (50,140 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,300 ft³/s Oct. 31, 1981 (gage height, 30.8 ft); no flow at times in 1971, and 1981-84.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1930, 31.9 ft in September 1967 and 30.4 ft in 1960 (probably October), from information by local resident.

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)
Dec. 23	0700	2,920	21.30	June 12	1900	2,380	20.46
Feb. 26	0900	*3,240	*21.73	June 14	1400	1,850	19.49

Minimum daily discharge, 0.01 ft³/s Oct. 1-7.

DISCHARGE, IN 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	.01	3.4	6.8	8.2	2.8	91	e2.1	.54	e13	4.3	2.1	e2.0
2	.01	2.3	4.4	6.9	2.6	37	e2.1	.58	e10	6.0	1.5	e1.0
3	.01	1.8	3.3	5.2	2.3	19	e2.1	.58	e70	5.1	e1.2	e.80
4	.01	11	2.5	4.4	2.2	12	e2.1	e.58	e500	2.5	e1.1	e.60
5	.01	e40	2.5	4.0	2.5	7.0	e2.0	e.58	e100	1.6	1.1	e.60
6	.01	e32	2.3	3.7	3.0	e5.0	e2.0	e20	e110	1.4	e.90	e.80
7	.01	e16	2.2	3.5	2.1	e4.5	e2.0	e7.0	e80	1.2	e.80	e.80
8	.23	e8.4	2.3	3.4	2.3	e4.0	2.0	e2.3	e60	1.4	e.70	e1.0
9	.19	e5.5	2.4	3.2	3.4	e3.5	2.0	e1.4	e400	4.5	e.60	e.80
10	.05	e20	2.1	2.8	2.6	e3.2	2.0	e1.2	e300	2.1	e.50	e.60
11	28	e10	1.9	2.4	2.3	e3.0	1.9	e1.1	e700	6.0	e.50	e3.0
12	572	e6.0	1.6	2.2	2.0	e2.9	2.0	e1.0	2040	3.3	e.50	e3.5
13	940	e3.6	1.2	2.1	1.8	e2.7	2.0	e4.0	1250	1.5	e.50	e2.0
14	352	24	1.5	2.5	1.7	e2.6	1.8	e2.0	1390	1.1	e.50	e1.4
15	87	12	367	2.4	2.0	e2.6	1.4	e1.0	480	28	e.40	1.2
16	30	9.8	379	196	1.8	e2.5	1.3	e40	116	7.1	e.40	1.1
17	15	5.8	110	465	1.7	e2.5	1.3	e15	50	2.8	e.40	.67
18	8.6	3.7	184	418	1.8	e2.4	1.2	e8.0	30	e2.0	e.40	1.3
19	4.7	2.8	168	131	1.8	e2.4	1.1	e5.0	165	e2.0	e.40	36
20	2.6	2.4	61	55	9.5	e2.3	.90	e2.5	48	e2.5	e.40	16
21	2.0	1.9	69	30	36	e2.3	.97	e2.0	21	e3.0	e.40	5.8
22	4.5	1.9	930	25	16	e2.3	.92	e1.5	12	2.0	e.30	3.5
23	888	43	2230	20	7.5	e2.3	.88	e1.0	8.1	1.5	e.30	2.0
24	459	344	547	13	151	e2.2	.82	e1.0	6.0	1.5	e.30	1.2
25	86	473	151	8.4	477	e2.2	.69	e1.0	4.8	51	e.30	.92
26	38	220	70	5.8	2480	e2.2	.60	e.80	4.1	44	e.30	.68
27	73	69	38	4.6	668	e2.2	.56	e.80	3.3	45	e.40	.95
28	38	32	24	3.9	183	e2.2	.51	e.80	2.8	18	e.60	1.3
29	17	18	17	3.5	---	e2.1	.51	e35	2.6	13	e.80	1.5
30	8.6	12	13	3.1	---	e2.1	.55	e25	3.5	8.4	e1.0	2.8
31	4.8	---	10	2.9	---	e2.1	---	e18	---	3.8	e5.0	---
TOTAL	3659.34	1435.3	5405.0	1442.1	4070.7	236.3	42.31	201.26	7980.2	277.6	24.60	95.82
MEAN	118	47.8	174	46.5	145	7.62	1.41	6.49	266	8.95	.79	3.19
MAX	940	473	2230	465	2480	91	2.1	40	2040	51	5.0	36
MIN	.01	1.8	1.2	2.1	1.7	2.1	.51	.54	2.6	1.1	.30	.60
AC-FT	7260	2850	10720	2860	8070	469	84	399	15830	551	49	190

CAL YR 1986 TOTAL 14119.58 MEAN 38.7 MAX 2230 MIN .01 AC-FT 28010
WTR YR 1987 TOTAL 24870.29 MEAN 68.1 MAX 2480 MIN .01 AC-FT 49330

e Estimated.

08165300 NORTH FORK GUADALUPE RIVER NEAR HUNT, TX

LOCATION.--Lat 30°03'36", long 99°23'40", Kerr County, Hydrologic Unit 12100201, on right bank 410 ft downstream from Ranch Road 1340, 1.3 mi downstream from Bear Creek, 3.7 mi west of Hunt, and 4.1 mi upstream from Honey Creek.

DRAINAGE AREA.--168 mi².

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

REVISED RECORDS.--WRD TX-74-1: 1971(P).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,800.10 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 44.1 ft³/s (3.56 in/yr), 31,950 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft³/s Oct. 19, 1985 (gage height, 29.81 ft, from rating curve extended above 170 ft³/s on basis of slope-area measurements of 7,460 and 38,400 ft³/s); minimum, 0.68 ft³/s May 30, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900 occurred July 1, 1932 (gage height, 37.3 ft), discharge 140,000 ft³/s, by slope-area measurements, combined flow of North Fork Guadalupe River 5 mi upstream and Bear Creek 2 mi upstream from mouth, and adjusted for difference in drainage area.

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)
Oct. 11	1300	1,590	8.38	June 11	2330	6,900	13.21
Dec. 22	2000	639	6.90	July 17	0415	*53,700	*29.30
June 3	1600	7,910	13.98	Sept. 11	0430	536	6.68

Minimum daily discharge, 33 ft³/s May 8, 9, 14, 15.

DISCHARGE, IN 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	47	43	36	57	45	47	35	34	51	75	91	67
2	43	42	35	56	44	47	36	34	47	74	89	65
3	39	41	35	55	44	46	34	35	2620	72	87	64
4	37	57	35	53	44	45	36	38	591	71	85	63
5	37	54	36	53	50	45	38	36	152	69	83	62
6	49	56	36	53	49	44	40	34	117	67	82	61
7	48	56	36	53	45	44	38	34	103	67	80	60
8	52	52	36	53	45	42	38	33	103	66	78	60
9	48	50	36	53	45	42	37	33	96	66	78	59
10	44	49	39	50	45	43	37	34	99	64	78	62
11	405	47	40	49	44	45	37	34	422	63	76	170
12	229	46	38	48	43	45	38	34	922	63	81	89
13	114	44	38	49	42	43	38	34	189	63	76	78
14	79	42	40	49	42	42	36	33	199	62	75	73
15	71	42	43	48	43	42	35	33	120	64	74	72
16	66	42	41	48	43	43	35	37	112	64	72	70
17	62	42	40	49	45	49	36	40	106	11700	70	68
18	59	42	41	47	44	42	35	38	101	211	70	67
19	57	39	41	45	44	43	36	47	96	148	68	64
20	55	39	40	46	46	42	36	44	93	132	66	63
21	57	38	43	47	45	42	36	41	91	125	66	62
22	57	37	164	47	45	42	37	39	94	120	65	60
23	59	37	218	45	47	42	37	37	92	115	64	60
24	54	37	85	45	47	41	36	39	88	110	63	61
25	51	39	76	46	47	41	36	39	84	105	63	60
26	50	39	71	46	58	41	37	37	80	103	64	60
27	48	38	67	45	51	40	35	36	78	102	70	59
28	47	38	65	45	50	40	34	36	76	99	98	59
29	45	36	63	45	---	38	34	47	76	96	75	59
30	45	36	60	45	---	38	34	48	79	94	73	57
31	43	---	58	45	---	35	---	51	---	93	70	---
TOTAL	2197	1300	1732	1515	1282	1321	1087	1169	7177	14423	2330	2034
MEAN	70.9	43.3	55.9	48.9	45.8	42.6	36.2	37.7	239	465	75.2	67.8
MAX	405	57	218	57	58	49	40	51	2620	11700	98	170
MIN	37	36	35	45	42	35	34	33	47	62	63	57
AC-FT	4360	2580	3440	3010	2540	2620	2160	2320	14240	28610	4620	4030
CFSM	.42	.26	.33	.29	.27	.25	.22	.22	1.42	2.77	.45	.40
IN.	.49	.29	.38	.34	.28	.29	.24	.26	1.59	3.19	.52	.45

CAL YR 1986 TOTAL 16596 MEAN 45.5 MAX 5030 MIN 17 AC-FT 32920 CFSM .27 IN. 3.67
WTR YR 1987 TOTAL 37567 MEAN 103 MAX 11700 MIN 33 AC-FT 74510 CFSM .61 IN. 8.32

08165500 GUADALUPE RIVER AT HUNT, TX

LOCATION.--Lat 30°04'08", long 99°19'23", Kerr County, Hydrologic Unit 12100201, on right bank 56 ft upstream and 137 ft right of right end of bridge on State Highway 39, 0.6 mi downstream from confluence of North and South Forks, 0.8 mi east of Hunt, and at mile 430.9.

DRAINAGE AREA.--288 mi².

PERIOD OF RECORD.--October 1941 to September 1949, discharge not computed above 600 ft³/s, and April 1965 to current year. Occasional discharge measurements made 1950-64.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1,722.7 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: May 10-20. Records good except those for estimated daily discharges, which are fair. There are numerous diversions for irrigation above station, but amounts are unknown. Gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years, 81.5 ft³/s (3.84 in/yr), 59,050 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107,800 ft³/s July 17, 1987 (gage height, 28.38 ft) from rating curve extended above 3,700 ft³/s on basis of channel geometry and flow-over-dam measurement of peak flow; minimum, 6.9 ft³/s June 17, 1948.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 36.6 ft July 2, 1932, from information by local resident (discharge, 206,000 ft³/s, determined by slope-area measurement 4.5 mi downstream from gage).

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)
Oct. 11	2015	3,370	9.38	June 12	0115	5,920	11.66
June 3	1700	10,700	14.00	July 17	0500	*107,800	*28.38

Minimum daily discharge, 68 ft³/s Dec. 2, 4.

DISCHARGE, IN 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	103	87	69	130	93	100	87	71	213	213	190	150
2	99	79	68	124	90	98	88	71	171	203	184	138
3	95	76	69	123	89	95	85	81	3750	196	185	134
4	93	164	68	119	89	93	84	120	1770	189	178	130
5	100	130	71	118	99	91	90	95	628	186	173	126
6	137	117	72	118	110	91	94	96	475	179	172	124
7	131	101	77	117	95	91	89	78	405	178	168	122
8	135	105	75	115	91	89	86	86	372	176	163	122
9	121	104	73	120	91	94	85	75	360	174	162	120
10	118	98	85	110	89	96	85	76	390	173	161	120
11	1140	94	90	107	89	104	85	76	567	166	159	263
12	913	88	81	105	88	97	84	74	1730	163	170	173
13	275	89	79	105	88	94	84	74	569	157	166	150
14	172	89	87	106	88	94	78	74	554	158	152	135
15	148	88	101	105	85	94	76	76	420	167	150	140
16	133	88	96	105	81	95	76	77	378	170	149	141
17	122	86	93	106	82	143	76	81	350	22200	147	136
18	115	86	96	107	81	124	76	82	332	869	147	134
19	109	82	94	100	80	110	75	88	314	612	141	130
20	104	80	90	99	87	107	74	92	301	448	136	127
21	105	76	90	102	84	108	78	97	286	333	132	115
22	114	77	159	101	83	108	82	100	292	311	131	117
23	129	76	425	97	82	104	79	88	278	283	129	117
24	121	74	217	98	94	99	79	93	270	260	127	118
25	107	78	186	95	95	98	88	91	257	235	126	118
26	104	74	172	94	130	98	82	86	232	216	126	117
27	98	73	159	93	114	98	76	83	217	218	132	114
28	94	74	152	92	106	94	95	83	215	210	213	124
29	91	71	148	93	---	94	78	258	211	204	159	114
30	88	71	140	91	---	94	71	223	214	200	151	110
31	86	---	134	91	---	92	---	191	---	196	153	---
TOTAL	5500	2675	3616	3286	2573	3087	2465	3036	16521	29643	4832	3979
MEAN	177	89.2	117	106	91.9	99.6	82.2	97.9	551	956	156	133
MAX	1140	164	425	130	130	143	95	258	3750	22200	213	263
MIN	86	71	68	91	80	89	71	71	171	157	126	110
AC-FT	10910	5310	7170	6520	5100	6120	4890	6020	32770	58800	9580	7890
CFSM	.62	.31	.41	.37	.32	.35	.29	.34	1.91	3.32	.54	.46
IN.	.71	.35	.47	.42	.33	.40	.32	.39	2.13	3.83	.62	.51

CAL YR 1986 TOTAL 31254 MEAN 85.6 MAX 5810 MIN 27 AC-FT 61990 CFSM .30 IN. 4.04
WTR YR 1987 TOTAL 81213 MEAN 223 MAX 22200 MIN 68 AC-FT 161100 CFSM .77 IN. 10.5

08166000 JOHNSON CREEK NEAR INGRAM, TX

LOCATION.--Lat 30°06'00", long 99°16'58", Kerr County, Hydrologic Unit 12100201, on right bank 1.6 mi upstream from Henderson Branch, 3.4 mi northwest of Ingram, 3.8 mi upstream from mouth, and 9.2 mi northwest of Kerrville.

DRAINAGE AREA.--114 mi².

PERIOD OF RECORD.--September 1941 to November 1959, October 1961 to current year.

REVISED RECORDS.--WSP 1058: 1942-45. WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,721.30 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. There are numerous small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--44 years (water years 1942-59, 1962-87), 22.0 ft³/s (2.62 in/yr), 15,940 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,900 ft³/s Oct. 4, 1959 (gage height, 24.25 ft), from rating curve extended above 4,400 ft³/s on basis of slope-area measurements of 9,100 and 16,000 ft³/s and conveyance study; minimum daily, 0.4 ft³/s July 26, 27, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35 ft July 2, 1932, from information by local resident; discharge, 138,000 ft³/s, by slope-area measurement at point 0.5 mi downstream from State fish hatchery and 6 or 7 mi upstream from gage. Flood of June 14, 1935, reached a stage of 31 or 32 ft, from information by local resident.

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)
Oct. 11	1200	548	3.04	June 11	2200	1,970	5.40
May 29	1745	1,500	4.87	June 13	1830	1,170	4.38
June 4	0015	2,100	5.52	July 17	0445	*35,400	*15.65

Minimum daily discharge, 15 ft³/s Oct. 4.

DISCHARGE, IN 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	20	33	31	56	40	40	41	33	159	81	112	85
2	19	33	29	56	40	40	39	33	126	75	108	82
3	17	33	28	50	40	40	38	41	410	76	105	82
4	15	62	28	50	37	41	42	57	620	75	98	76
5	23	43	30	53	40	43	44	38	177	73	98	76
6	45	40	31	53	37	41	42	35	159	72	98	73
7	36	41	35	53	37	41	40	33	152	70	95	73
8	30	40	33	53	37	37	41	31	148	68	95	73
9	24	37	31	56	37	38	42	31	141	63	88	70
10	22	35	41	51	37	43	42	32	135	64	84	70
11	131	35	39	47	37	47	43	33	267	64	82	112
12	156	36	35	47	37	43	41	33	309	62	85	78
13	112	31	33	47	37	42	37	32	317	60	95	73
14	70	32	41	47	37	42	32	33	173	57	92	70
15	57	33	45	47	31	42	32	31	139	56	88	71
16	50	33	45	47	32	43	35	77	128	57	88	70
17	46	34	42	47	34	55	37	66	121	2860	88	69
18	43	35	42	42	34	45	37	44	117	196	88	72
19	40	35	42	42	33	46	38	157	114	160	88	68
20	38	34	40	42	34	48	37	119	111	149	88	67
21	39	33	42	45	33	48	38	76	105	141	88	65
22	43	33	79	44	33	48	38	64	93	138	85	63
23	49	32	92	45	38	43	36	56	101	135	85	61
24	44	29	84	40	40	43	39	60	102	132	85	61
25	39	33	77	40	41	43	39	52	98	128	85	61
26	37	30	73	40	61	42	36	53	87	128	82	61
27	37	28	68	40	49	42	35	50	86	122	85	61
28	36	31	67	42	41	41	33	47	85	119	115	61
29	34	31	66	40	---	40	34	337	83	119	92	60
30	33	31	61	40	---	40	33	189	88	115	88	58
31	33	---	58	40	---	40	---	177	---	115	85	---
TOTAL	1418	1046	1488	1442	1064	1327	1141	2150	4951	5830	2838	2122
MEAN	45.7	34.9	48.0	46.5	38.0	42.8	38.0	69.4	165	188	91.5	70.7
MAX	156	62	92	56	61	55	44	337	620	2860	115	112
MIN	15	28	28	40	31	37	32	31	83	56	82	58
AC-FT	2810	2070	2950	2860	2110	2630	2260	4260	9820	11560	5630	4210
CFSM	.40	.31	.42	.41	.33	.38	.33	.61	1.45	1.65	.80	.62
IN.	.46	.34	.49	.47	.35	.43	.37	.70	1.62	1.90	.93	.69

CAL YR 1986 TOTAL 11003 MEAN 30.1 MAX 253 MIN 5.8 AC-FT 21830 CFSM .26 IN. 3.59
WTR YR 1987 TOTAL 26817 MEAN 73.5 MAX 2860 MIN 15 AC-FT 53190 CFSM .64 IN. 8.75

08167000 GUADALUPE RIVER AT COMFORT, TX

LOCATION.--Lat 29°58'10", long 98°53'33", Kendall County, Hydrologic Unit 12100201, on right bank at downstream side of southbound bridge on Interstate Highway 10 at Comfort, 0.5 mi downstream from Cypress Creek, and at mile 396.2.

DRAINAGE AREA.--839 mi².

PERIOD OF RECORD.--May 1939 to current year.

REVISED RECORDS.--WSP 1632: 1958. WSP 1732: 1939(M). WSP 2123: Drainage area, 1944(M), 1952(M), 1957(M), 1960(M).

GAGE.--Water-stage recorder. Datum of gage is 1,369.83 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 27, 1939, nonrecording gage. Nov. 27, 1939, to June 2, 1980, water-stage recorder at site 0.4 mi upstream at datum 2.22 ft higher. June 2, 1980, to Sept. 30, 1986, at present site at datum 2.00 ft higher.

REMARKS.--Estimated daily discharges: Oct. 7, Mar. 9-15. Records good except those for estimated daily discharges, which are fair. Many small diversions above station for irrigation. Several observations of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--48 years (water years 1940-87), 203 ft³/s (147,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 240,000 ft³/s Aug. 2, 1978 (gage height, 40.90 ft), from high-water mark in well, from rating curve extended above 74,000 ft³/s on basis of current-meter measurement of 124,000 ft³/s at gage height 32.47 ft and slope-area measurement of 182,000 ft³/s at gage height 38.4 ft, made at former gaging station "near Comfort" 5 mi upstream; no flow at times in 1952-57, 1963-64. All stages are at site and datum then in use.

Maximum stage since at least 1848, that of Aug. 2, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1869 reached a stage of 42.3 ft, present datum, from report by U.S. Army Corps of Engineers. Flood of July 1, 1932, reached a stage of 38.4 ft, from floodmark, and from information by State Department of Highways and Public Transportation. Flood of July 16, 1900, reached about the same stage as that of July 1, 1932, from information by local residents. All stages are at site and datum then in use.

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)
Oct. 12	1000	9,210	12.89	June 4	0100	30,600	19.20
Dec. 22	--	Unknown	Unknown	June 10	2100	4,830	10.16
May 29	1000	27,200	18.45	June 11	0800	16,600	15.69
May 31	1700	3,330	8.71	June 12	1000	10,300	13.41
June 2	1200	3,010	8.36	June 13	1900	4,380	9.76
June 3	1400	23,800	17.66	July 17	1000	*130,000	*31.50

Minimum daily discharge, 158 ft³/s Oct. 4.

DISCHARGE, IN 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	211	388	321	789	426	542	433	271	2040	885	601	465
2	191	381	313	764	410	524	422	273	1880	818	581	423
3	167	371	307	738	401	500	416	311	11200	759	564	400
4	158	921	302	699	397	484	412	557	14700	728	550	391
5	166	907	306	686	439	478	433	435	3720	706	536	381
6	423	643	310	675	551	473	484	352	2640	678	516	373
7	343	586	353	655	465	465	446	317	2220	646	503	372
8	326	530	347	643	430	460	428	295	2000	629	487	383
9	289	497	329	672	408	470	420	289	2030	625	481	367
10	254	474	447	627	401	480	411	278	2620	646	474	360
11	385	462	539	590	397	570	402	258	5490	598	464	547
12	3900	443	477	575	390	510	399	262	5800	577	460	518
13	1470	435	434	570	386	490	395	255	3390	556	541	431
14	902	415	532	566	388	480	363	261	3060	538	475	400
15	674	410	676	553	400	470	348	247	2310	539	451	390
16	562	405	614	539	360	480	354	278	2030	551	436	395
17	506	393	582	649	363	881	349	358	1830	36700	427	384
18	456	388	609	606	357	659	341	300	1700	2940	416	385
19	419	376	579	536	353	582	334	1100	1560	1460	406	381
20	399	369	549	515	390	549	325	969	1460	1170	396	364
21	396	356	538	523	379	546	321	583	1370	1000	385	356
22	514	348	2700	520	362	535	328	456	1320	953	380	336
23	956	341	2170	493	346	528	343	406	1230	862	375	332
24	756	330	1370	483	433	492	374	394	1180	801	369	327
25	609	495	1160	459	427	484	382	391	1110	762	360	324
26	550	389	1080	446	800	476	348	352	1050	727	359	318
27	496	357	986	444	671	476	315	326	953	718	356	314
28	466	345	929	443	639	466	294	323	933	691	595	315
29	438	337	904	437	---	454	288	8570	890	662	513	320
30	418	327	863	429	---	450	289	3000	897	638	487	312
31	401	---	827	419	---	442	---	2120	---	622	500	---
TOTAL	18201	13419	22453	17743	12169	15896	11197	24587	84613	61185	14444	11364
MEAN	587	447	724	572	435	513	373	793	2820	1974	466	379
MAX	3900	921	2700	789	800	881	484	8570	14700	36700	601	547
MIN	158	327	302	419	346	442	288	247	890	538	356	312
AC-FT	36100	26620	44540	35190	24140	31530	22210	48770	167800	121400	28650	22540

CAL YR 1986 TOTAL 115827 MEAN 317 MAX 4570 MIN 61 AC-FT 229700
WTR YR 1987 TOTAL 307271 MEAN 842 MAX 36700 MIN 158 AC-FT 609500

08167500 GUADALUPE RIVER NEAR SPRING BRANCH, TX

LOCATION.--Lat 29°23'00", long 98°23'00", Comal County, Hydrologic Unit 12100201, at downstream side of bridge on Ranch Road 311, 1.9 mi southeast of Spring Branch Post Office, 7.5 mi downstream from Curry Creek, and at mile 334.4.

DRAINAGE AREA.--1,315 mi².

PERIOD OF RECORD.--June 1922 to current year.
Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 1562: 1923-24, 1926, 1927-28(M), 1929, 1930(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 948.10 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 14, 1981, at site 220 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Several small diversions above station for irrigation. Satellite telemeter at station. One observation of water temperature was made during the year.

AVERAGE DISCHARGE.--65 years, 333 ft³/s (241,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 160,000 ft³/s Aug. 3, 1978 (gage height, 45.25 ft, from floodmark), from rating curve extended above 55,600 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1951-52, 1954-56, and 1963-64.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, about 53 ft in 1869; flood in July 1900 reached a stage of about 49 ft, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 12	0900	11,500	15.15	June 1	0900	7,160	11.42
Dec. 23	0100	7,860	12.06	June 4	2000	31,000	25.86
May 29	1000	6,620	10.91	June 12	0200	22,800	22.43
May 30	0400	20,000	20.99	June 13	0500	15,800	18.38
May 31	2000	6,870	11.14	July 18	0200	*76,500	*35.58

Minimum daily discharge, 249 ft³/s Oct. 5.

DISCHARGE, IN 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	354	907	629	1850	758	1250	733	447	5900	1730	991	683
2	319	872	611	1730	747	1140	721	433	4850	1630	947	634
3	288	844	599	1650	723	1090	699	433	9430	1530	913	580
4	262	912	588	1580	703	1050	686	484	23700	1400	884	548
5	249	1830	581	1510	701	992	683	671	15600	1330	860	528
6	340	1300	582	1430	816	976	721	569	7580	1270	832	516
7	574	1110	602	1380	834	961	733	503	5710	1210	799	507
8	534	1040	646	1340	749	945	691	465	4820	1180	770	515
9	467	950	631	1250	701	916	671	445	4700	1150	742	510
10	416	899	689	1310	678	907	659	435	7020	1140	731	489
11	625	861	1250	1220	673	999	646	429	12800	1120	713	560
12	7090	837	1060	1170	662	1050	626	412	14800	1060	695	738
13	6280	810	941	1130	646	965	610	408	12100	1010	683	665
14	2260	786	934	1110	645	932	582	398	9350	970	750	570
15	1540	779	1590	1080	651	914	555	398	6760	941	674	528
16	1200	773	1520	1050	643	894	542	469	5350	961	639	514
17	1050	761	1390	1050	602	1030	543	498	4640	8310	619	518
18	938	746	1350	1220	594	1250	531	502	4130	32000	600	531
19	849	730	1360	1090	586	1040	522	475	3790	3430	585	521
20	786	720	1270	997	605	979	513	2230	3450	2360	568	498
21	754	698	1200	968	626	956	500	1130	3150	1970	552	473
22	1170	696	4030	969	609	943	498	770	2910	1790	538	459
23	2220	687	6530	934	587	925	505	644	2730	1690	526	438
24	2420	674	4420	917	715	894	517	589	2510	1530	518	434
25	1680	759	3390	890	796	847	549	571	2360	1430	508	425
26	1480	848	3010	847	1460	839	545	554	2200	1350	495	422
27	1320	711	2750	825	1590	831	511	515	2070	1340	483	417
28	1180	674	2400	814	1400	826	481	494	1900	1260	485	418
29	1080	661	2260	813	---	785	460	6000	1810	1180	804	412
30	1010	643	2150	782	---	765	446	13100	1740	1100	717	406
31	955	---	1990	761	---	749	---	4990	---	1040	695	---
TOTAL	41690	25518	52953	35667	21500	29640	17679	40461	189860	81412	21316	15457
MEAN	1345	851	1708	1151	768	956	589	1305	6329	2626	688	515
MAX	7090	1830	6530	1850	1590	1250	733	13100	23700	32000	991	738
MIN	249	643	581	761	586	749	446	398	1740	941	483	406
AC-FT	82690	50610	105000	70750	42650	58790	35070	80250	376600	161500	42280	30660

CAL YR 1986 TOTAL 229937 MEAN 630 MAX 7090 MIN 106 AC-FT 456100
WTR YR 1987 TOTAL 573153 MEAN 1570 MAX 32000 MIN 249 AC-FT 1137000

08167700 CANYON LAKE NEAR NEW BRAUNFELS, TX

LOCATION.--Lat 29°52'07", long 98°11'55", Comal County, Hydrologic Unit 12100201, in intake structure of Canyon Dam on Guadalupe River, 12 mi northwest of New Braunfels, and at mile 303.0.

DRAINAGE AREA.--1,432 mi².

PERIOD OF RECORD.--July 1962 to current year. Prior to October 1970, published as Canyon Reservoir.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Sept. 24, 1964, nonrecording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 6,830 ft long, consisting of the main dam 4,410 ft long, an earthen dike 210 ft long, a 1,260-foot-long uncontrolled broad-crested-type spillway, and a 950-foot concrete and earthen nonoverflow section. Deliberate impoundment began June 16, 1964, and main part of dam was completed in August 1964. The flood-control outlet works consist of a 10.0-foot-diameter conduit controlled by two 5.7 by 10.0-foot hydraulically operated slide gates. The lake was built for water conservation and flood control. Capacity table beginning Oct. 1, 1974, is based on a sedimentation survey of August 1972. Small diversions above the lake for irrigation. 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	974.0	-
Crest of spillway	943.0	736,700
Top of conservation pool	909.0	382,000
Lowest gated outlet (invert)	775.0	240

COOPERATION.--Records furnished by the U.S. Army Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 732,600 acre-ft June 19, 1987 (elevation, 942.68 ft); minimum observed since conservation pool first reached in April 1968, 311,200 acre-ft Nov. 24, 1984 (elevation, 899.85 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 732,600 acre-ft June 19 at 2000 hours (elevation, 942.68 ft); minimum, 339,900 acre-ft Sept. 30 at 2200 hours (elevation, 903.71 ft).

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

903.0	334,500	918.0	460,800	933.0	615,200
908.0	373,800	923.0	508,700	938.0	674,100
913.0	415,900	928.0	560,100	943.0	736,700

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	387700	396500	379900	422500	383000	392900	393200	380200	435400	661400	510000	391100
2	386900	395400	379900	418400	382700	394500	392700	380000	447500	654200	502000	390600
3	385800	394300	379700	414300	382300	396100	392000	379700	468000	646900	493900	389900
4	384800	393800	379700	410100	382000	397300	391100	379900	512600	639200	485800	389200
5	383700	394100	379600	405900	382500	398100	390900	380100	544300	631500	477700	388600
6	383300	393800	379700	402300	382600	398700	390300	380100	558600	624200	469400	387800
7	383000	393300	379900	400200	382700	399500	389800	380200	569500	615800	461200	387200
8	382500	392700	380100	399400	382700	400100	389100	380000	579000	608000	453000	386600
9	382000	391700	380100	399400	382600	400600	388600	379700	588600	600900	444900	384600
10	381400	390800	380800	399100	382500	400900	387900	379500	602200	593600	436800	381900
11	382700	389300	382200	398700	382300	401000	387200	379400	627700	589700	428600	380300
12	398200	388200	383000	398200	382500	401000	386600	379100	657000	581800	420200	380000
13	408300	387000	383700	397600	382400	400900	386100	379000	680900	573600	411900	379400
14	410400	386300	385400	397100	382300	400700	385000	378700	698700	565500	405600	376700
15	408600	385600	387300	396400	382300	400600	384100	378400	711200	557500	404000	373700
16	405700	385100	388800	395700	382000	401000	383200	379100	721300	549300	402200	370700
17	402700	384400	390200	395400	381800	401100	382200	379000	727400	549700	400400	367800
18	399400	383700	391500	394700	381300	401600	381800	378900	730500	599100	398400	366000
19	397300	383000	392700	393800	381300	401700	381800	379200	731300	595300	396900	365600
20	396400	382000	393700	392800	381200	401500	381700	382600	727200	593900	396200	364600
21	396100	381500	394800	392100	381000	401500	381600	384000	722600	593000	395600	361200
22	396500	381200	406200	391000	380700	401400	381400	384400	717500	586300	394900	358100
23	399800	381000	417700	390000	380700	400800	381300	384600	712300	579100	394300	354800
24	402400	381100	425100	389000	381000	399600	381300	384600	706800	571800	393600	351700
25	403700	381000	430600	387800	382300	398300	381300	384600	701400	564400	392800	349500
26	404800	381100	435100	386600	385300	397000	381300	384300	695200	556800	392100	349200
27	404000	380900	437100	385300	388500	396000	371200	384000	688700	549300	391400	348400
28	402000	380700	435600	384200	391000	395700	381000	383400	681900	541700	391300	345400
29	399800	380400	432600	383600	---	395100	380700	394700	675100	533800	391100	342400
30	398400	380200	429400	383400	---	394300	380400	417200	668300	526000	391700	338800
31	397500	---	426000	383100	---	393800	---	425700	---	518000	391400	---
MAX	410400	396500	437100	422500	391000	401700	393200	425700	731300	661400	510000	391100
MIN	381400	380200	379600	383100	380700	392900	371200	378400	435400	518000	391100	338800
(†)	910.85	908.78	914.16	909.13	910.08	910.42	908.81	914.12	937.52	923.93	910.13	903.56
(ϕ)	+8900	-17300	+45800	-42900	+7900	+2800	-13400	+45300	+242600	-150300	-126600	-52600

CAL YR 1986 MAX 437100 MIN 371700 (ϕ) +40500
WTR YR 1987 MAX 731300 MIN 338800 (ϕ) -49800

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

08167800 GUADALUPE RIVER AT SATTLER, TX

LOCATION.--Lat 29°51'32", long 98°10'47", Comal County, Hydrologic Unit 12100202, on right bank 200 ft upstream from Horseshoe Falls, 0.8 mi north of Sattler, 1.8 mi downstream from Canyon Dam, 2.3 mi upstream from Heiser Hollow, 11.2 mi north of New Braunfels, and at mile 301.2.

DRAINAGE AREA.--1,436 mi², of which 1,432 mi² is above Canyon Dam.

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 742.24 ft above National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark).

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated since July 21, 1962, by Canyon Lake (station 08167700) 1.8 mi upstream. Small diversions above station for irrigation. Satellite telemeter at station.

AVERAGE DISCHARGE.--25 years (water years 1962-87) since regulation began at Canyon Lake, 442 ft³/s (320,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft³/s Oct. 29, 1960 (gage height, 12.20 ft). Maximum discharge since closure of Canyon Dam on July 21, 1962, 5,850 ft³/s Aug. 5, 1978 (gage height, 8.31 ft); no flow July 31 to Aug. 6, 1962 (result of closure of Canyon Dam), and part of Jan. 29, 30, Feb. 1, 1965 (result of closure while constructing present control).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1869 (stage unknown) has not been exceeded since that date; flood in July 1900 (stage unknown) exceeded 39 ft; maximum stage since at least 1904, 39 ft in July 1932 and June 1935, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,560 ft³/s June 24 at 1400 hours (gage height, 8.30 ft); minimum daily, 99 ft³/s June 16.

DISCHARGE, IN 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	772	1440	706	3820	988	476	999	574	753	5360	4950	807
2	772	1450	635	3810	988	476	999	574	591	5320	4930	808
3	772	1440	635	3790	988	476	999	574	439	5390	4930	809
4	772	1440	635	3780	931	587	999	574	150	5400	4900	809
5	772	1420	635	3770	800	737	999	574	132	5380	4860	809
6	774	1420	635	3340	790	745	999	574	118	5130	4820	809
7	772	1430	635	2630	791	755	999	502	113	5100	4820	809
8	772	1420	606	1860	800	755	999	555	110	5090	4790	809
9	772	1430	574	1540	800	859	999	555	110	5060	4790	1320
10	647	1430	574	1540	800	1040	999	555	108	4860	4760	1810
11	553	1420	574	1530	800	1070	999	555	120	3010	4760	1530
12	570	1420	574	1540	800	1090	999	510	134	5050	4700	763
13	689	1250	574	1540	800	1090	999	461	117	5050	4700	853
14	1240	1120	574	1540	800	1090	999	565	108	5040	3890	1780
15	2550	1120	691	1540	802	1100	999	581	103	5050	1460	1840
16	2670	1120	818	1540	791	1100	999	580	99	5160	1460	1890
17	2680	1130	818	1540	744	1100	999	574	1150	5040	1460	1890
18	2670	1130	818	1540	800	1100	753	574	2340	5130	1460	1590
19	1970	1130	818	1540	800	1100	616	577	3450	5130	1290	755
20	1270	1130	818	1540	800	1180	590	574	5480	2980	874	851
21	1120	995	818	1540	800	1110	574	574	5470	2220	818	1870
22	1120	876	857	1540	800	1110	574	574	5470	5160	818	1880
23	1130	864	882	1540	789	1270	574	574	5470	5150	818	1870
24	1130	824	866	1550	755	1540	574	574	5450	5130	818	1880
25	1130	774	866	1540	755	1540	574	574	5310	5030	818	1450
26	1130	772	866	1540	359	1540	574	644	5300	5010	818	614
27	1730	772	1830	1540	221	1360	574	692	5280	5010	818	724
28	2290	772	3400	1540	476	1010	574	730	5270	5000	813	1860
29	2290	772	3870	1240	---	1000	574	807	5220	5010	809	1840
30	1850	772	3840	988	---	999	574	792	5280	4970	810	1840
31	1450	---	3830	988	---	999	---	809	---	4960	809	---
TOTAL	40829	34483	35272	60816	21568	31404	24682	18506	69245	151380	83571	39169
MEAN	1317	1149	1138	1962	770	1013	823	597	2308	4883	2696	1306
MAX	2680	1450	3870	3820	988	1540	999	809	5480	5400	4950	1890
MIN	553	772	574	988	221	476	574	461	99	2220	809	614
AC-FT	80980	68400	69960	120600	42780	62290	48960	36710	137300	300300	165800	77690

CAL YR 1986 TOTAL 227820 MEAN 624 MAX 3870 MIN 122 AC-FT 451900
WTR YR 1987 TOTAL 610925 MEAN 1674 MAX 5480 MIN 99 AC-FT 1212000

08167800 GUADALUPE RIVER AT SATTLER, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1962 to August 1982.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: June 1984 to September 1987.

INSTRUMENTATION.--From June 1984 to September 1987, water temperature was continuously recorded at this station.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURE: Maximum, 25.5°C Sept. 3-9, 1987; minimum, 9.5°C Mar. 8-10, 1985.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 25.5°C Sept. 3-9; minimum, 11.0°C on several days during January and February 1987.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	20.0	19.5	20.0	20.0	20.0	20.0	16.5	16.0	16.0	12.5	12.5	12.5
2	20.0	19.5	20.0	20.0	20.0	20.0	16.5	16.0	16.0	12.5	12.5	12.5
3	20.0	20.0	20.0	20.0	20.0	20.0	16.5	15.5	16.0	12.5	12.5	12.5
4	20.5	20.0	20.0	20.0	20.0	20.0	16.0	15.5	16.0	12.5	12.5	12.5
5	20.5	20.0	20.0	20.5	20.0	20.0	16.0	15.5	15.5	12.5	12.5	12.5
6	20.0	20.0	20.0	20.0	20.0	20.0	15.5	15.5	15.5	12.5	12.5	12.5
7	20.0	20.0	20.0	20.0	20.0	20.0	15.5	15.5	15.5	12.5	12.5	12.5
8	20.0	20.0	20.0	20.0	20.0	20.0	15.5	15.0	15.5	12.5	12.5	12.5
9	20.5	20.0	20.0	20.0	20.0	20.0	15.0	15.0	15.0	12.5	12.5	12.5
10	20.0	20.0	20.0	20.0	20.0	20.0	15.0	14.5	15.0	12.5	12.0	12.5
11	20.5	20.0	20.0	20.0	20.0	20.0	14.5	14.5	14.5	12.5	12.0	12.5
12	20.0	19.0	19.5	20.0	19.5	20.0	15.0	14.5	14.5	12.5	12.0	12.5
13	20.5	19.5	20.0	19.5	19.0	19.5	14.5	14.0	14.5	12.5	12.0	12.5
14	21.0	20.0	20.5	19.0	19.0	19.0	14.0	14.0	14.0	12.5	12.0	12.5
15	21.0	21.0	21.0	19.0	18.0	18.5	14.0	14.0	14.0	12.5	12.5	12.5
16	21.0	20.5	21.0	18.5	18.0	18.0	14.0	14.0	14.0	12.5	12.5	12.5
17	20.5	20.0	20.5	18.0	17.5	18.0	14.0	14.0	14.0	12.0	12.0	12.0
18	20.5	20.0	20.5	18.0	17.5	17.5	14.0	13.5	14.0	12.0	11.5	12.0
19	20.0	19.5	20.0	17.5	17.5	17.5	14.0	13.5	14.0	12.0	11.5	11.5
20	20.0	19.5	19.5	17.5	17.0	17.5	14.0	13.5	14.0	12.0	11.5	11.5
21	19.5	19.5	19.5	17.5	17.0	17.0	13.5	13.5	13.5	11.5	11.5	11.5
22	19.5	19.5	19.5	17.0	16.5	17.0	13.5	13.0	13.0	11.5	11.0	11.5
23	20.0	19.5	19.5	16.5	16.5	16.5	13.5	13.0	13.0	11.5	11.0	11.5
24	20.0	19.5	19.5	16.5	16.5	16.5	13.5	13.0	13.0	11.5	11.0	11.5
25	20.0	19.5	19.5	17.0	16.5	16.5	13.5	13.0	13.0	11.5	11.0	11.5
26	20.0	19.5	19.5	16.5	16.5	16.5	13.0	13.0	13.0	11.5	11.0	11.5
27	20.0	19.5	20.0	16.5	16.5	16.5	13.0	12.5	13.0	11.5	11.0	11.0
28	20.5	20.0	20.0	16.5	16.0	16.5	13.0	12.5	13.0	11.5	11.0	11.0
29	20.5	20.0	20.0	16.5	16.0	16.5	12.5	12.5	12.5	11.5	11.0	11.0
30	20.0	20.0	20.0	16.5	16.0	16.0	12.5	12.5	12.5	11.5	11.0	11.0
31	20.0	20.0	20.0	---	---	---	12.5	12.5	12.5	11.0	11.0	11.0
MONTH	21.0	19.0	20.0	20.5	16.0	18.5	16.5	12.5	14.0	12.5	11.0	12.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	11.0	11.0	11.0	13.5	12.0	12.5	14.5	13.5	14.0	14.5	14.0	14.5
2	11.5	11.0	11.0	13.5	12.0	12.5	14.0	13.5	14.0	14.5	14.0	14.5
3	11.5	11.0	11.0	13.0	12.0	12.5	14.5	13.5	14.0	14.5	14.0	14.5
4	11.0	11.0	11.0	13.5	12.0	12.5	14.0	13.5	14.0	14.5	14.0	14.5
5	11.0	11.0	11.0	13.0	12.0	12.5	13.5	13.5	13.5	14.5	14.0	14.5
6	11.5	11.0	11.0	13.0	12.0	12.5	14.5	13.5	14.0	15.0	14.0	14.5
7	12.0	11.5	11.5	13.0	12.0	12.5	14.5	14.0	14.0	15.5	14.0	14.5
8	12.0	11.5	11.5	13.0	12.0	12.5	14.5	14.0	14.0	15.0	14.0	14.5
9	12.0	11.0	11.5	13.0	12.5	12.5	14.5	13.5	14.0	15.0	14.0	14.5
10	11.5	11.0	11.5	13.0	12.5	12.5	14.5	14.0	14.0	15.0	14.0	14.5
11	12.0	11.5	11.5	12.5	12.5	12.5	14.5	14.0	14.0	14.5	14.0	14.5
12	12.0	11.5	11.5	12.5	12.5	12.5	14.5	14.0	14.0	16.0	14.0	14.5
13	12.0	11.5	11.5	13.0	12.5	12.5	14.5	14.0	14.0	15.0	14.0	14.5
14	12.0	11.5	11.5	13.0	12.5	12.5	14.5	14.0	14.0	15.0	14.0	14.5
15	12.0	11.5	11.5	12.5	12.5	12.5	14.5	14.0	14.0	15.0	14.0	14.5
16	12.5	11.5	12.0	13.0	12.5	12.5	14.5	14.0	14.0	14.5	14.0	14.5
17	12.5	11.5	12.0	13.0	12.5	13.0	14.5	14.0	14.5	15.0	14.0	14.5
18	12.5	11.5	12.0	13.5	12.5	13.0	15.0	14.0	14.5	15.0	14.5	14.5
19	12.0	11.5	12.0	13.0	12.5	13.0	15.0	14.0	14.5	15.0	14.0	14.5
20	12.0	11.5	12.0	13.5	12.5	13.0	15.0	14.0	14.5	15.0	14.0	14.5
21	12.0	12.0	12.0	13.0	13.0	13.0	14.5	14.0	14.0	15.5	14.5	14.5
22	12.5	12.0	12.0	13.5	13.0	13.0	15.0	14.0	14.0	15.0	14.5	14.5
23	12.5	12.0	12.0	14.0	13.0	13.5	15.0	14.0	14.5	15.0	14.5	14.5
24	12.0	12.0	12.0	14.0	13.0	13.5	14.5	14.0	14.0	15.0	14.5	14.5
25	12.0	12.0	12.0	13.5	13.0	13.0	15.0	14.0	14.0	15.0	14.5	14.5
26	13.0	12.0	12.5	13.5	13.0	13.5	15.0	14.0	14.5	15.0	14.5	15.0
27	13.5	12.0	13.0	13.5	13.0	13.5	15.0	14.0	14.5	15.0	14.5	14.5
28	13.0	11.5	12.5	13.5	13.0	13.5	15.0	14.0	14.5	15.0	14.5	15.0
29	---	---	---	13.5	13.0	13.5	15.0	14.0	14.5	15.5	14.5	15.0
30	---	---	---	14.0	13.5	13.5	15.0	14.0	14.5	15.5	14.5	15.0
31	---	---	---	14.5	14.0	14.0	---	---	---	15.5	14.5	15.0
MONTH	13.5	11.0	11.5	14.5	12.0	13.0	15.0	13.5	14.0	16.0	14.0	14.5

08167800 GUADALUPE RIVER AT SATTLER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	15.5	15.0	15.0	19.0	19.0	19.0	23.5	23.0	23.5	25.0	24.5	25.0
2	16.0	15.0	15.5	19.5	19.0	19.0	23.5	23.0	23.5	25.0	24.5	25.0
3	17.5	15.0	16.0	19.5	19.0	19.5	23.5	23.5	23.5	25.5	24.5	25.0
4	18.0	17.0	17.5	20.0	19.5	19.5	23.5	23.5	23.5	25.5	24.5	25.0
5	19.5	16.5	17.5	20.0	19.5	20.0	24.0	23.5	23.5	25.5	24.5	25.0
6	18.5	16.5	17.5	20.0	20.0	20.0	24.0	23.5	24.0	25.5	24.5	25.0
7	18.0	16.0	17.0	20.5	20.0	20.5	24.0	23.5	24.0	25.5	25.0	25.0
8	17.0	16.0	16.5	20.5	20.5	20.5	24.0	24.0	24.0	25.5	25.0	25.0
9	17.0	16.0	16.5	20.5	20.5	20.5	24.5	24.0	24.0	25.5	25.0	25.0
10	17.0	16.0	16.5	21.0	20.5	20.5	24.5	24.0	24.5	---	---	---
11	18.0	16.0	17.0	21.0	19.5	20.5	24.5	24.5	24.5	---	---	---
12	20.0	17.0	18.5	21.0	21.0	21.0	25.0	24.5	24.5	---	---	---
13	18.0	17.5	17.5	21.0	21.0	21.0	25.0	24.5	25.0	---	---	---
14	19.0	16.5	17.5	21.5	21.0	21.5	25.0	24.0	25.0	---	---	---
15	19.5	16.0	17.5	21.5	21.5	21.5	24.5	24.0	24.5	---	---	---
16	19.5	16.0	17.5	21.5	21.5	21.5	24.5	24.0	24.5	---	---	---
17	17.0	15.0	16.0	22.0	21.5	21.5	24.5	24.0	24.5	---	---	---
18	15.5	15.0	15.5	22.0	21.5	22.0	25.0	24.5	24.5	---	---	---
19	15.5	15.0	15.5	22.0	21.5	22.0	25.0	24.0	24.5	---	---	---
20	16.0	15.5	16.0	22.0	21.0	21.5	24.5	24.0	24.5	---	---	---
21	16.5	16.0	16.0	22.0	21.0	21.5	24.5	24.0	24.5	---	---	---
22	16.5	16.0	16.5	22.5	22.0	22.5	24.5	24.0	24.5	---	---	---
23	16.5	16.5	16.5	22.5	22.0	22.5	25.0	24.0	24.5	---	---	---
24	17.0	16.5	17.0	22.5	22.5	22.5	25.0	24.0	24.5	---	---	---
25	17.0	16.5	17.0	22.5	22.5	22.5	25.0	24.5	24.5	---	---	---
26	17.5	17.5	17.5	22.5	22.5	22.5	25.0	24.5	24.5	---	---	---
27	18.0	17.5	18.0	23.0	22.5	23.0	25.0	24.5	24.5	---	---	---
28	18.5	18.0	18.0	23.0	23.0	23.0	24.5	24.5	24.5	---	---	---
29	18.5	18.5	18.5	23.0	23.0	23.0	24.5	24.5	24.5	---	---	---
30	19.0	18.5	18.5	23.0	23.0	23.0	25.0	24.5	24.5	---	---	---
31	---	---	---	23.5	23.0	23.0	25.0	24.5	24.5	---	---	---
MONTH	20.0	15.0	17.0	23.5	19.0	21.5	25.0	23.0	24.5	25.5	24.5	25.0

08168500 GUADALUPE RIVER ABOVE COMAL RIVER AT NEW BRAUNFELS, TX

LOCATION.--Lat 29°42'53", long 98°06'35", Comal County, Hydrologic Unit 12100202, on right bank at New Braunfels, 1.1 mi upstream from Comal River, 21.9 mi downstream from Canyon Lake, and at mile 281.1.

DRAINAGE AREA.--1,518 mi².

PERIOD OF RECORD.--December 1927 to current year.

REVISED RECORDS.--WSP 898: 1935. WSP 1562: 1932. WSP 2123: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 586.65 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Small diversions for irrigation below station 08167800 and above this station. Since July 21, 1962, flow is largely regulated by Canyon Lake (station 08167700) 21.9 mi upstream. Several observations of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--34 years (water years 1929-62) prior to regulation by Canyon Lake, 372 ft³/s (269,500 acre-ft/yr); 25 years (water years 1963-87) regulated, 535 ft³/s (387,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 101,000 ft³/s June 15, 1935 (gage height, 32.95 ft); no flow July 8, 9, July 17 to Aug. 20, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1845, 38 ft July 8, 1869, and in December 1913, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,180 ft³/s June 25 at 2000 hours (gage height, 7.35 ft); minimum daily, 328 ft³/s Feb. 27.

DISCHARGE, IN 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	839	1550	810	4010	1080	674	1140	688	1270	5490	5270	973
2	840	1550	698	3970	1080	669	1140	688	1120	5470	5260	970
3	838	1550	698	3930	1080	660	1140	686	1690	5460	5260	967
4	836	1560	698	3910	1060	677	1140	689	1270	5450	5260	967
5	836	1550	698	3890	900	894	1140	683	925	5450	5250	967
6	857	1550	698	3560	895	894	1140	683	723	5450	5240	962
7	851	1550	698	2780	894	876	1140	613	623	5440	5220	961
8	848	1550	689	2050	894	870	1140	667	560	5430	5200	955
9	843	1550	647	1620	894	885	1140	669	545	5460	5180	1290
10	769	1550	655	1600	894	1150	1140	669	562	5440	5170	2020
11	639	1540	650	1590	894	1190	1140	669	685	3050	5160	1960
12	936	1540	648	1590	894	1230	1140	637	919	5380	5150	917
13	870	1440	649	1590	899	1220	1140	545	768	5370	5130	893
14	1080	1200	667	1590	905	1220	1140	667	674	5360	4830	1890
15	2560	1200	772	1590	900	1220	1140	672	594	5350	1840	2050
16	2780	1200	960	1590	894	1230	1140	706	528	5350	1750	2110
17	2730	1200	952	1620	849	1250	1130	691	995	5350	1740	2110
18	2720	1210	951	1590	906	1230	1000	678	2720	5370	1730	2040
19	2290	1200	942	1590	909	1230	749	687	3190	5390	1680	916
20	1470	1200	942	1580	913	1280	720	688	5670	4080	1120	887
21	1230	1130	942	1590	906	1220	698	687	5640	1580	1010	1960
22	1240	923	1610	1580	906	1210	698	685	5620	5330	995	2090
23	1240	918	1710	1580	905	1250	698	678	5600	5330	993	2090
24	1250	898	1350	1580	864	1630	698	675	5590	5330	993	2110
25	1240	855	1240	1580	876	1630	698	669	5680	5320	991	1920
26	1240	840	1180	1580	848	1630	695	700	5600	5310	990	723
27	1550	838	1620	1580	328	1600	688	781	5540	5310	990	727
28	2310	837	3320	1580	677	1160	688	803	5520	5290	1020	1930
29	2320	836	4130	1410	---	1150	688	1170	5510	5280	982	2080
30	2080	836	4080	1080	---	1140	688	1080	5510	5280	1010	2080
31	1560	---	4050	1080	---	1140	---	1120	---	5270	980	---
TOTAL	43692	37351	40354	63460	24944	35309	28776	22423	81841	159220	93394	44515
MEAN	1409	1245	1302	2047	891	1139	959	723	2728	5136	3013	1484
MAX	2780	1560	4130	4010	1080	1630	1140	1170	5680	5490	5270	2110
MIN	639	836	647	1080	328	660	688	545	528	1580	980	723
AC-FT	86660	74090	80040	125900	49480	70040	57080	44480	162300	315800	185200	88300

CAL YR 1986 TOTAL 266482 MEAN 730 MAX 4130 MIN 167 AC-FT 528600
WTR YR 1987 TOTAL 675279 MEAN 1850 MAX 5680 MIN 328 AC-FT 1339000

08169000 COMAL RIVER AT NEW BRAUNFELS, TX

LOCATION.--Lat 29°42'21", long 98°07'20", Comal County, Hydrologic Unit 12100202, on right bank 200 ft upstream from San Antonio Street viaduct in New Braunfels and 1.1 mi upstream from mouth.

DRAINAGE AREA.--130 mi². Normal flow of river comes from springs; drainage area not applicable.

PERIOD OF RECORD.--1882 to current year (1882 to November 1927, discharge measurements only).

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Oct. 1, 1955. Datum of gage is 582.80 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. The flow from Comal Springs emerges from the Edwards and associated limestones in the Balcones Fault Zone. Except during periods of rainfall, flow of river is primarily from Comal Springs about 1.0 mi upstream. Flow is affected at times by cleanup operations by the city of New Braunfels at Landa Park Lake and at times by discharge from the flood-detention pools of five floodwater-retarding structures with a combined detention capacity of 17,580 acre-ft. These structures control runoff from 74.6 mi² above station. Several observations of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--55 years (water years 1933-87), 295 ft³/s (213,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,800 ft³/s May 11, 1972 (gage height, 36.55 ft, from floodmark), from rating curve extended above 13,000 ft³/s on basis of contracted-opening measurements on Blieders and Dry Comal Creeks and unit rainfall-runoff studies; no flow from Comal Springs from June 13 to Nov. 3, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information begins with flood of July 8, 1869, which reached a stage of 36.91 ft, from painted and dated marks in old Remmert Brewery 0.5 mi downstream; the flood of Oct. 17, 1870, reached a stage of 37.65 ft at same site (probably some backwater from Guadalupe River).

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)
Dec. 22	1900	*4,020	*10.19	June 11	1600	1,680	6.65
June 3	1330	1,430	6.23	June 25	2230	1,350	7.15
June 10	1830	2,200	7.50				

Minimum daily discharge, 245 ft³/s Oct. 4, 5.

DISCHARGE, IN 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	248	299	312	375	349	396	351	326	552	400	384	343
2	246	301	310	375	347	390	368	326	678	400	384	346
3	246	302	310	374	343	377	356	330	907	394	381	345
4	245	305	307	372	342	373	355	335	861	399	377	345
5	245	303	311	373	352	375	366	331	503	394	373	350
6	259	304	315	365	350	372	365	330	390	390	376	350
7	257	304	314	351	346	371	364	326	375	390	369	350
8	250	308	313	351	345	371	360	322	420	385	371	345
9	250	308	313	352	347	372	360	322	493	432	368	345
10	250	309	318	350	343	371	360	326	828	404	369	350
11	322	305	313	350	345	380	359	326	1070	384	362	345
12	520	308	314	350	345	372	355	322	569	385	365	350
13	290	303	313	350	344	375	362	322	664	384	360	350
14	278	304	339	351	354	371	354	322	449	380	355	350
15	277	305	478	349	435	371	351	317	426	381	360	355
16	278	307	339	349	360	375	342	361	409	381	357	353
17	280	307	326	432	350	375	342	333	413	379	355	352
18	280	307	360	374	345	371	341	322	416	383	345	371
19	283	308	332	357	350	370	339	334	408	390	340	360
20	284	308	326	352	360	370	339	338	411	378	344	355
21	292	308	330	354	354	365	335	338	414	368	344	358
22	299	309	2140	353	349	365	330	326	411	384	349	355
23	306	311	916	352	353	365	326	335	409	382	350	355
24	303	320	398	354	500	360	330	333	405	377	344	355
25	297	326	361	355	503	360	330	330	589	380	339	355
26	297	313	355	354	763	360	335	322	501	380	339	350
27	306	310	350	348	444	360	338	322	409	382	342	396
28	299	312	362	348	478	360	326	326	404	378	340	365
29	297	312	384	350	---	360	326	434	407	378	343	355
30	300	312	375	348	---	360	322	374	403	378	344	355
31	300	---	376	348	---	360	---	506	---	377	343	---
TOTAL	8884	9238	12910	11116	10796	11473	10387	10517	15594	11977	11072	10609
MEAN	287	308	416	359	386	370	346	339	520	386	357	354
MAX	520	326	2140	432	763	396	368	506	1070	432	384	396
MIN	245	299	307	348	342	360	322	317	375	368	339	343
AC-FT	17620	18320	25610	22050	21410	22760	20600	20860	30930	23760	21960	21040

CAL YR 1986 TOTAL 107976 MEAN 296 MAX 1900 MIN 226 AC-FT 214200
WTR YR 1987 TOTAL 134573 MEAN 369 MAX 2140 MIN 245 AC-FT 266900

08169580 GUADALUPE RIVER BELOW NEW BRAUNFELS, TX

LOCATION.--Lat 29°40'00", long 98°04'14", Comal County, Hydrologic Unit 12100202, in Lake Dunlap, 8 mi southeast of New Braunfels, and 15 mi downstream from Interstate Highway 35 bridge.

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: June 1986 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 (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)
OCT 08...	1512	448	7.90	21.0	7.8	90	1.1	210	18	59	16
FEB 03...	1600	482	8.00	17.0	9.2	98	0.8	240	23	69	16
APR 08...	1052	483	7.80	17.0	9.3	98	0.5	230	26	65	16
JUN 11...	0938	360	7.70	24.0	6.6	81	2.2	160	5	52	7.5
JUL 31...	1433	425	7.80	25.0	7.7	95	1.5	210	17	63	13

DATE	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL 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)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)
OCT 08...	11	0.3	2.0	195	19	15	0.20	11	250	0.580	0.020
FEB 03...	11	0.3	1.6	215	18	19	0.20	10	270	--	<0.010
APR 08...	12	0.4	2.0	202	22	19	0.20	9.9	270	0.890	0.010
JUN 11...	9.7	0.3	4.1	156	19	13	0.20	15	210	0.570	0.030
JUL 31...	7.5	0.2	2.4	194	15	11	0.20	12	240	--	<0.010

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)
OCT 08...	0.600	0.090	0.41	0.50	0.060	--	--	--	--	--	--
FEB 03...	0.800	0.030	0.47	0.50	0.110	--	--	--	--	--	--
APR 08...	0.900	0.030	0.47	0.50	0.040	--	--	--	--	--	--
JUN 11...	0.600	0.090	0.71	0.80	0.850	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010
JUL 31...	0.600	0.030	0.17	0.20	0.020	--	--	--	--	--	--

DATE	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)
OCT 08...	--	--	--	--	--	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--
APR 08...	--	--	--	--	--	--	--	--	--	--	--
JUN 11...	<0.010	0.02	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01
JUL 31...	--	--	--	--	--	--	--	--	--	--	--

DATE	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
OCT 08...	--	--	--	--	--	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--
APR 08...	--	--	--	--	--	--	--	--	--	--	--
JUN 11...	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.05	<0.01	<0.01
JUL 31...	--	--	--	--	--	--	--	--	--	--	--

08170000 SAN MARCOS RIVER SPRINGFLOW AT SAN MARCOS, TX

LOCATION.--Lat 29°52'06", long 97°55'38", Hays County, Hydrologic Unit 12100203, on left bank 0.7 mi downstream from bridge on Interstate Highway 35 and U.S. Highway 81, 1.2 mi southeast of courthouse in San Marcos, and 2.1 mi upstream from Blanco River.

DRAINAGE AREA.--93.0 mi². Normal flow of river comes from springs, drainage area of stream not applicable.

PERIOD OF RECORD.--May 1956 to current year. June 1915 to January 1916, March 1916 to September 1921, and May to September 1956, published as San Marcos River at San Marcos; records include some surface runoff. Periodic measurements of springflow were made at this location outside period of records since Nov. 14, 1894, and are published as miscellaneous measurements.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 536.82 ft above National Geodetic Vertical Datum of 1929. June 10, 1915, to Jan. 19, 1916, nonrecording gage at site 1.2 mi upstream, and Mar. 13, 1916, to Sept. 7, 1921, water-stage recorder near present site, datum relations unknown.

REMARKS.--Records fair. Flow is slightly regulated by utilities dam about 1.5 mi upstream. Flow is affected at times by discharge from the flood-detention pool of one floodwater-retarding structure with a detention capacity of 8,580 acre-ft. This structure controls runoff from 33.6 mi. Entire flow of river is from San Marcos springs, about 1.8 mi upstream, except during periods of local runoff. San Marcos springs emerge from the Edwards and associated limestones in the Balcones Fault Zone. There is a small diversion for operation of State fish hatchery, some of which is returned above gage. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years (water years 1957-87), 168 ft³/s (121,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily spring discharge (estimated), 427 ft³/s June 14, 1987; maximum discharge, 76,600 ft³/s May 15, 1970 (gage height, 35.12 ft); minimum daily spring discharge, 46 ft³/s Aug. 15, 16, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1913, 38.6 ft Sept. 10, 1921 (from floodmark, backwater from Blanco River), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum daily spring discharge (estimated), 427 ft³/s June 14; maximum gage height, 14.67 ft June 4 at 1000 hours (flood runoff); minimum daily spring discharge, 165 ft³/s Oct. 10.

DISCHARGE, IN 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	186	194	171	272	230	242	239	204	246	340	334	289
2	181	192	168	268	226	239	236	202	290	339	333	288
3	177	191	167	266	227	238	233	207	315	337	331	289
4	175	191	167	262	225	245	226	215	369	335	329	283
5	180	188	167	257	224	253	228	205	383	332	326	285
6	175	188	166	258	222	262	228	206	383	328	323	284
7	175	186	166	259	218	262	227	204	372	330	321	288
8	175	186	166	261	217	260	226	204	370	328	318	282
9	172	185	166	266	212	259	225	190	373	329	318	278
10	165	185	167	262	210	258	224	187	383	328	318	278
11	177	185	168	257	211	270	224	186	404	328	316	281
12	196	185	168	255	209	257	225	185	415	325	314	277
13	212	184	168	255	207	256	226	184	425	322	313	274
14	201	184	173	255	208	255	223	182	427	321	311	271
15	197	183	185	252	207	254	221	184	424	314	310	270
16	193	183	188	250	207	253	219	204	416	321	307	267
17	190	183	184	253	205	255	215	200	403	320	305	265
18	189	183	188	253	202	253	213	192	405	381	302	263
19	186	181	186	250	199	251	215	204	388	364	300	267
20	186	179	185	246	207	249	213	206	380	357	305	265
21	191	178	185	246	203	248	210	193	372	352	303	261
22	199	178	225	241	201	248	212	185	367	353	302	257
23	199	178	245	240	196	251	212	185	363	352	300	259
24	218	177	255	241	210	250	210	187	359	351	299	255
25	213	180	260	236	207	247	210	186	355	351	296	253
26	206	175	265	236	254	246	209	184	352	347	295	252
27	203	175	268	235	246	245	206	184	348	345	293	250
28	200	173	270	234	244	252	207	182	346	341	298	252
29	197	172	273	234	---	246	207	195	343	341	292	249
30	196	171	275	231	---	241	206	212	342	338	293	246
31	195	---	273	230	---	240	---	227	---	337	289	---
TOTAL	5905	5473	6258	7761	6034	7785	6575	6071	11118	10487	9594	8078
MEAN	190	182	202	250	215	251	219	196	371	338	309	269
MAX	218	194	275	272	254	270	239	227	427	381	334	289
MIN	165	171	166	230	196	238	206	182	246	314	289	246
AC-FT	11710	10860	12410	15390	11970	15440	13040	12040	22050	20800	19030	16020

CAL YR 1986	TOTAL	73345	MEAN	201	MAX	275	MIN	156	AC-FT	145500
WTR YR 1987	TOTAL	91139	MEAN	250	MAX	427	MIN	165	AC-FT	180800

08171000 BLANCO RIVER AT WIMBERLEY, TX

LOCATION.--Lat 29°59'39", long 98°05'19", Hays County, Hydrologic Unit 12100203, on left bank at downstream side of highway, near left end of bridge on Ranch Road 12, 0.3 mi southeast of Wimberley, 2,200 ft downstream from Cypress Creek, and at mile 29.0.

DRAINAGE AREA.--355 mi².

PERIOD OF RECORD.--August 1924 to September 1926, June 1928 to current year.

REVISED RECORDS.--WSP 1562: 1929, 1930-31(M), 1935-36(M), 1938(M), 1941-42(M), 1947(M), 1949(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 797.23 ft above National Geodetic Vertical Datum of 1929. Aug. 6, 1924, to Sept. 30, 1926, nonrecording gage at site 1,030 ft upstream at datum 5.00 ft higher. Recording gage from June 6, 1928, to June 12, 1975, at site 1,000 ft upstream at datum 5.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are fair. There are many small diversions above station. Several observations of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--61 years (water years 1925-26, 1929-87), 130 ft³/s (4.97 in/yr), 94,180 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 113,000 ft³/s May 28, 1929 (gage height, 33.3 ft, from floodmark), present site and datum, from rating curve extended above 30,000 ft³/s on basis of slope-area measurements of 95,000 and 113,000 ft³/s; minimum, 0.6 ft³/s Aug. 16, 1956.
Maximum stage since at least 1869, that of May 28, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1869 reached a stage of 25 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 12	0800	9,680	11.77	June 4	1030	5,730	9.55
Oct. 23	1230	5,080	9.13	June 9	0900	1,930	6.63
Dec. 22	1900	9,740	11.80	June 10	1730	7,830	10.79
May 29	1800	2,310	6.99	June 11	1130	9,640	11.75
June 1	0030	4,150	8.48	June 13	2330	10,200	12.03
June 2	2230	10,600	12.22	July 17	1530	*21,600	*16.54

Minimum daily discharge, 66 ft³/s May 28.

DISCHARGE, IN 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	91	377	191	735	232	477	220	115	1920	358	187	92
2	91	355	184	671	225	451	213	136	4520	346	180	89
3	87	339	177	637	218	430	205	130	3980	315	176	86
4	84	347	174	576	214	415	200	114	4170	304	171	84
5	83	444	170	545	212	391	200	106	2400	e280	166	81
6	96	339	168	524	209	386	203	105	1710	e270	160	78
7	91	330	172	494	206	367	202	105	1340	e260	153	84
8	91	319	183	465	199	354	193	105	1240	e260	145	79
9	91	300	179	467	193	340	187	104	1650	e280	142	78
10	91	285	188	449	188	333	183	100	3370	e320	139	79
11	125	274	431	417	188	356	178	97	6760	e280	132	85
12	3410	259	323	398	180	346	173	96	3540	e250	128	87
13	1000	251	291	386	177	325	168	97	4840	e230	123	88
14	532	244	313	381	174	316	159	98	3500	e220	120	86
15	417	243	644	367	180	307	156	98	2030	e220	116	85
16	356	243	565	351	176	303	152	112	1640	e950	113	85
17	320	238	516	359	163	407	149	110	1360	3800	111	85
18	290	228	562	366	156	355	147	108	1220	751	105	81
19	270	216	562	334	155	317	141	129	1040	381	105	86
20	247	208	511	320	165	303	135	121	902	322	102	83
21	243	199	486	312	181	292	130	115	799	293	100	83
22	298	199	4790	309	167	288	126	121	714	287	98	80
23	2170	199	4090	294	161	285	125	115	640	275	96	76
24	1180	199	2120	290	201	270	126	103	589	262	94	73
25	779	253	1680	277	271	260	123	92	534	253	91	73
26	652	257	1440	264	873	252	122	84	484	239	89	75
27	570	215	1220	256	601	248	118	73	441	230	88	76
28	505	203	1070	252	572	244	115	66	408	225	94	77
29	456	199	975	248	---	232	113	926	385	219	86	75
30	426	196	887	241	---	225	111	948	372	206	95	75
31	399	---	807	230	---	224	---	1440	---	195	97	---
TOTAL	15541	7958	26069	12215	6837	10099	4773	6269	58498	13081	3802	2444
MEAN	501	265	841	394	244	326	159	202	1950	422	123	81.5
MAX	3410	444	4790	735	873	477	220	1440	6760	3800	187	92
MIN	83	196	168	230	155	224	111	66	372	195	86	73
AC-FT	30830	15780	51710	24230	13560	20030	9470	12430	116000	25950	7540	4850
CFSM	1.41	.75	2.37	1.11	.69	.92	.45	.57	5.49	1.19	.35	.23
IN.	1.63	.83	2.73	1.28	.72	1.06	.50	.66	6.13	1.37	.40	.26

CAL YR 1986 TOTAL 97300 MEAN 267 MAX 6220 MIN 47 AC-FT 193000 CFSM .75 IN. 10.2
WTR YR 1987 TOTAL 167586 MEAN 459 MAX 6760 MIN 66 AC-FT 332400 CFSM 1.29 IN. 17.6

e Estimated.

08171300 BLANCO RIVER NEAR KYLE, TX

LOCATION.--Lat 29°58'45", long 97°54'35", Hays County, Hydrologic Unit 12100203, on left bank 800 ft downstream from Tarbutton Ranch House (Hatchett Ranch), 2.2 mi southwest of Kyle, 4.2 mi downstream from Halifax Creek, and 6.3 mi upstream from bridge on U.S. Highway 81.

DRAINAGE AREA.--412 mi².

PERIOD OF RECORD.--May 1956 to current year.

REVISED RECORDS.--WSP 1923: 1957-58, 1960(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 620.12 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--No estimated daily discharges. Records good. Small diversions above station for irrigation. Most of the low flow of the Blanco River enters the Edwards and associated limestones in the Balcones Fault Zone which crosses the basin upstream from this station and below the station at Wimberley. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years, 158 ft³/s (5.21 in/yr), 114,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,000 ft³/s May 2, 1958 (gage height, 36.3 ft, from floodmark), from rating curve extended above 37,000 ft³/s on basis of slope-area measurement of 139,000 ft³/s and slope-conveyance study; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1882, about 40 ft in May 1929, from information by local residents (discharge, 139,000 ft³/s). Flood of Sept. 11, 1952, reached a stage of 38.0 ft (discharge, 115,000 ft³/s).

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)
Oct. 12	0930	7,900	15.80	June 10	2200	6,940	15.10
Oct. 23	1530	4,080	12.53	June 11	1530	9,290	16.73
Dec. 22	2400	7,070	15.19	June 13	1200	6,240	14.55
June 1	0430	4,140	12.60	June 14	0300	9,190	16.67
June 3	0130	10,500	17.47	July 17	1900	*19,500	*21.66
June 4	1400	5,710	14.10				

Minimum daily discharge, 57 ft³/s Sept. 30.

DISCHARGE, IN 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	66	403	192	825	250	602	234	107	2480	496	188	95
2	70	377	185	759	245	545	227	107	3500	474	183	89
3	65	358	179	724	234	515	218	107	4880	428	179	85
4	65	361	173	663	231	487	212	117	4370	394	170	83
5	67	451	170	625	228	464	211	107	2820	366	161	80
6	75	364	167	601	228	447	214	104	1960	340	156	78
7	86	342	171	572	226	432	211	101	1560	319	151	87
8	79	332	177	545	217	415	203	100	1390	305	144	84
9	77	312	181	539	209	400	194	100	1850	307	139	74
10	77	292	187	522	202	387	190	96	2700	332	135	77
11	105	279	393	481	199	407	185	93	6550	295	132	85
12	2890	265	349	460	198	411	180	90	4000	270	129	85
13	1320	257	303	445	193	373	179	89	3870	255	125	82
14	652	250	317	435	190	358	168	89	4230	249	120	79
15	493	248	627	419	195	350	162	91	2250	246	116	76
16	407	244	634	402	192	339	159	105	1840	241	113	72
17	354	235	568	420	181	443	157	122	1560	3170	110	72
18	314	225	585	426	169	426	152	101	1500	1160	107	68
19	285	216	617	393	169	364	149	110	1260	496	103	70
20	259	207	559	369	184	342	144	145	1100	384	101	70
21	250	199	532	357	195	332	139	114	985	331	96	68
22	288	197	3290	352	186	324	136	113	900	310	93	67
23	1710	199	4400	333	176	317	132	110	829	290	92	64
24	1290	196	2270	326	199	300	132	99	770	273	88	61
25	824	242	1780	312	285	282	129	94	711	261	85	60
26	699	277	1540	294	837	275	125	88	661	250	85	60
27	620	223	1330	284	796	269	120	85	606	244	84	65
28	551	207	1170	277	694	262	116	84	559	227	96	67
29	503	201	1060	272	---	253	113	762	526	218	90	62
30	463	197	973	261	---	241	110	1270	507	207	91	57
31	431	---	891	251	---	238	---	1340	---	196	102	---
TOTAL	15435	8156	25970	13944	7508	11600	5001	6240	62724	13334	3764	2222
MEAN	498	272	838	450	268	374	167	201	2091	430	121	74.1
MAX	2890	451	4400	825	837	602	234	1340	6550	3170	188	95
MIN	65	196	167	251	169	238	110	84	507	196	84	57
AC-FT	30620	16180	51510	27660	14890	23010	9920	12380	124400	26450	7470	4410
CFSM	1.21	.66	2.03	1.09	.65	.91	.40	.49	5.07	1.04	.29	.18
IN.	1.39	.74	2.34	1.26	.68	1.05	.45	.56	5.66	1.20	.34	.20

CAL YR 1986 TOTAL 97417 MEAN 267 MAX 5340 MIN 26 AC-FT 193200 CFSM .65 IN. 8.80
WTR YR 1987 TOTAL 175898 MEAN 482 MAX 6550 MIN 57 AC-FT 348900 CFSM 1.17 IN. 15.9

08172000 SAN MARCOS RIVER AT LULING, TX

LOCATION.--Lat 29°39'54", long 97°38'59", Caldwell-Guadalupe County line, Hydrologic Unit 12100203, on left bank 390 ft downstream from bridge on State Highway 80, 1.0 mi south of U.S. Post Office at Luling, and 9.4 mi upstream from Plum Creek.

DRAINAGE AREA.--838 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 958: 1940. WSP 1312: 1940(M), 1945(M), 1947(M). WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 322.05 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow is affected at times by discharge from the flood-detention pools of 18 floodwater-retarding structures with a combined detention capacity of 26,830 acre-ft. These structures control runoff from 105 mi² in the Town and York Creeks drainage basins. Satellite telemeter at station.

AVERAGE DISCHARGE.--48 years, 383 ft³/s (277,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft³/s Sept. 12, 1952 (gage height, 34.95 ft); minimum daily, 43 ft³/s Aug. 12, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1859, 40.4 ft in 1869 or 1870, from information by State Department of Highways and Public Transportation. Flood of May 29, 1929, reached a stage of 37.1 ft and is the second highest known.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 13	1100	4,080	20.51	June 4	1100	*27,000	*31.41
Dec. 23	0600	9,860	28.73	June 9	2300	4,450	20.94
Feb. 26	1300	7,250	26.59	June 11	2200	13,700	29.02
May 20	1400	6,400	25.31	June 13	1500	11,000	28.11
May 30	0200	4,750	21.90	June 14	2400	8,150	26.54
June 1	0800	16,500	29.77	July 18	1900	5,370	22.98

Minimum daily discharge, 241 ft³/s Oct. 5.

DISCHARGE, IN 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	250	660	396	1270	575	1450	535	335	10100	1060	567	394
2	246	631	387	1180	566	1190	530	333	4500	1020	557	377
3	247	605	378	1110	560	1040	513	333	10100	971	546	354
4	249	599	363	1060	548	953	500	438	23200	912	530	352
5	241	596	361	997	536	888	499	429	10100	864	517	336
6	243	666	364	962	530	842	499	655	4510	821	504	341
7	250	599	354	937	524	807	495	429	3080	790	491	357
8	259	578	356	909	521	784	493	368	2700	759	478	374
9	255	566	378	893	512	762	492	358	3540	756	468	365
10	248	541	363	874	501	741	475	346	3810	753	461	332
11	270	526	402	844	496	726	467	326	8290	754	451	342
12	511	506	552	806	489	748	461	319	10800	719	448	351
13	3070	492	558	792	487	740	452	317	9060	686	438	348
14	1410	477	546	775	483	711	454	315	7230	663	429	338
15	921	471	1620	761	604	694	430	309	5670	642	414	329
16	754	468	1410	743	532	685	413	361	3480	636	409	326
17	654	464	1050	782	500	694	421	699	2920	619	397	322
18	591	458	988	883	480	766	402	458	2700	2810	388	344
19	543	444	1130	830	470	758	405	409	2600	1680	383	361
20	503	433	935	756	585	696	396	4140	2210	972	374	333
21	486	417	843	719	658	668	391	853	1960	825	373	328
22	534	409	2900	703	549	647	383	532	1780	768	372	321
23	544	401	8970	690	512	642	376	430	1660	739	364	312
24	1690	408	5360	671	1520	626	373	362	1560	718	356	308
25	1330	466	2970	655	1420	607	367	315	1480	686	352	299
26	1010	457	2390	644	5820	589	361	285	1620	673	347	298
27	899	491	2100	624	2480	576	356	264	1370	648	350	298
28	830	445	1850	609	1980	565	349	253	1240	632	368	332
29	775	418	1660	602	---	562	344	1580	1150	614	384	319
30	732	406	1520	590	---	554	339	3210	1090	601	379	298
31	692	---	1380	579	---	540	---	2310	---	584	391	---
TOTAL	21237	15098	44834	25250	25438	23251	12971	22071	145510	26375	13286	10089
MEAN	685	503	1446	815	908	750	432	712	4850	851	429	336
MAX	3070	666	8970	1270	5820	1450	535	4140	23200	2810	567	394
MIN	241	401	354	579	470	540	339	253	1090	584	347	298
AC-FT	42120	29950	88930	50080	50460	46120	25730	43780	288600	52310	26350	20010

CAL YR 1986 TOTAL 196506 MEAN 538 MAX 8970 MIN 179 AC-FT 389800
WTR YR 1987 TOTAL 385410 MEAN 1056 MAX 23200 MIN 241 AC-FT 764500

08172000 SAN MARCOS RIVER AT LULING, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1944 to February 1959, September 1961 to April 1966, November 1968 to current year. Pesticide analyses: June 1986 to current year. Sediment analyses: October 1960 to April 1966.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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)
NOV 19...	1019	445	535	--	19.0	260	0	75	18	13	0.4	1.5
JAN 07...	1435	948	547	7.90	15.0	250	27	74	16	12	0.3	1.4
MAY 13...	1000	316	561	7.90	25.0	270	31	80	18	18	0.5	1.8
JUN 23...	1020	1750	550	8.00	28.0	270	38	80	17	16	0.4	1.9
JUL 22...	1610	766	556	7.70	26.0	270	42	81	17	16	0.4	2.1
AUG 25...	0855	323	567	8.00	26.5	260	28	76	18	16	0.4	1.7

DATE	ALKA-LINITY WH WAT TOTAL 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)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)
NOV 19...	--	26	20	0.20	9.7	--	--	--	--	--	--
JAN 07...	224	25	16	0.20	10	290	--	--	--	--	--
MAY 13...	243	31	27	0.30	11	330	--	--	--	--	--
JUN 23...	232	27	22	0.20	13	320	--	--	--	--	--
JUL 22...	230	25	23	0.20	12	310	--	--	--	--	--
AUG 25...	236	28	22	0.20	9.3	310	<0.1	<0.10	<0.010	<0.1	<0.010

DATE	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)
NOV 19...	--	--	--	--	--	--	--	--	--	--	--
JAN 07...	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	--	--	--	--	--	--	--	--	--	--	--
JUN 23...	--	--	--	--	--	--	--	--	--	--	--
JUL 22...	--	--	--	--	--	--	--	--	--	--	--
AUG 25...	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01

DATE	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
NOV 19...	--	--	--	--	--	--	--	--	--	--	--
JAN 07...	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	--	--	--	--	--	--	--	--	--	--	--
JUN 23...	--	--	--	--	--	--	--	--	--	--	--
JUL 22...	--	--	--	--	--	--	--	--	--	--	--
AUG 25...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01

08172400 PLUM CREEK AT LOCKHART, TX

LOCATION.--Lat 29°55'22", long 97°40'44", Caldwell County, Hydrologic Unit 12100203, on right bank 548 ft upstream from bridge on U.S. Highway 183, 2.7 mi north of Lockhart, 3.7 mi upstream from Town Creek, 5.0 mi downstream from Brushy Creek, and 30.4 mi upstream from mouth.

DRAINAGE AREA.--112 mi².

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

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 431.19 ft above National Geodetic Vertical Datum of 1929. Apr. 30, 1959, to July 25, 1968, at site 548 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Records good. No known diversion above station. Flow is affected at times by discharge from the flood-detention pools of 17 floodwater-retarding structures with a combined capacity of 24,850 acre-ft. These structures control runoff from 67.8 mi² above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--28 years, 50.0 ft³/s (36,220 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,700 ft³/s Nov. 24, 1985 (gage height, 20.89 ft); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, 22 ft in June 1936 at present site; flood in 1951 reached a stage of 20 ft at present site, 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)
Dec. 22	2230	5,090	16.04	June 3	2230	3,690	15.59
Feb. 26	0530	3,100	15.34	June 4	1300	*6,120	*16.33
May 29	1600	2,920	15.23	June 11	2000	2,530	14.97
June 2	2230	2,790	15.15	June 13	0900	4,650	15.90

Minimum discharge, no flow for many days.

DISCHARGE, IN 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	.02	7.6	4.0	115	15	357	3.5	.05	717	11	.01	.00
2	.01	7.0	3.2	91	14	270	3.4	.02	632	8.7	.00	.00
3	.00	6.5	3.0	67	13	179	3.2	.01	1700	6.9	.00	.00
4	.00	7.2	2.6	49	12	136	3.0	.17	3510	5.4	.00	.00
5	.00	7.9	2.4	36	12	105	3.1	.78	1010	4.2	.00	.00
6	.00	6.9	2.3	30	11	77	3.7	92	560	3.2	.00	.00
7	.00	6.0	2.4	26	11	56	3.6	43	462	2.7	.00	.00
8	.02	6.0	2.7	24	10	45	3.2	25	522	2.3	.00	.00
9	.12	6.1	3.4	27	8.8	37	2.8	19	783	2.8	.00	.00
10	.09	5.0	4.8	28	7.9	31	2.8	15	881	4.4	.00	.00
11	.24	4.1	16	23	7.7	38	2.9	13	1660	3.8	.00	.00
12	228	3.6	16	21	7.7	41	2.8	11	1400	2.5	.00	.00
13	234	3.4	13	19	7.7	35	3.0	10	2780	1.9	.00	.00
14	159	3.1	25	20	7.4	30	3.1	7.3	1170	1.5	.00	.00
15	105	3.1	662	21	10	27	3.2	4.4	572	1.3	.00	.00
16	76	3.0	304	21	10	25	2.5	4.7	478	1.1	.00	.00
17	53	3.0	172	109	7.4	48	2.2	21	386	1.5	.00	.00
18	36	3.4	236	191	6.0	46	1.8	19	354	1.4	.00	.00
19	25	3.4	139	104	5.8	34	1.6	20	297	1.3	.00	.00
20	19	3.4	91	70	42	26	1.4	213	250	1.9	.00	.00
21	17	3.1	70	55	41	20	1.2	63	197	2.1	.00	.00
22	53	4.0	2320	49	30	15	.95	41	133	3.6	.00	.00
23	86	3.6	2630	40	24	14	.84	25	95	3.7	.00	.00
24	72	3.7	767	32	301	15	.78	16	76	3.3	.00	.00
25	48	14	550	27	284	10	.67	13	59	3.0	.00	.00
26	32	14	434	23	2180	7.9	.51	10	42	2.8	.00	.00
27	24	8.9	373	20	570	6.2	.37	8.3	26	2.0	.00	.00
28	18	7.0	315	19	519	5.5	.26	6.6	19	.66	.00	.00
29	15	5.8	225	18	---	6.8	.19	1300	14	.23	.00	.00
30	11	4.9	169	17	---	5.5	.10	576	11	.08	.00	.00
31	8.7	---	142	15	---	4.3	---	390	---	.04	.00	---
TOTAL	1320.20	168.7	9699.8	1407	4175.4	1753.2	62.67	2967.33	20796	91.31	.01	.00
MEAN	42.6	5.62	313	45.4	149	56.6	2.09	95.7	693	2.95	.0	.00
MAX	234	14	2630	191	2180	357	3.7	1300	3510	11	.01	.00
MIN	.00	3.0	2.3	15	5.8	4.3	.10	.01	11	.04	.00	.00
AC-FT	2620	335	19240	2790	8280	3480	124	5890	41250	181	.0	.0

CAL YR 1986 TOTAL 23148.34 MEAN 63.4 MAX 3010 MIN .00 AC-FT 45910
WTR YR 1987 TOTAL 42441.44 MEAN 116 MAX 3510 MIN .00 AC-FT 84180

08173000 PLUM CREEK NEAR LULING, TX

LOCATION.--Lat 29°41'58", long 97 36'12", Caldwell County, Hydrologic Unit 12100203, near left bank at downstream side of pier of bridge on county road, 1.2 mi upstream from West Fork, 1.9 mi upstream from Southern Pacific Railroad Co. bridge, 2.2 mi upstream from McNeil Creek, 2.9 mi northeast of Luling, and at mile 7.5.

DRAINAGE AREA.--309 mi².

PERIOD OF RECORD.--March 1930 to current year.
Water-quality records.--Chemical analysis: February 1944, April 1961 to September 1986. Sediment analysis: November 1965 to June 1966. Specific conductance: October 1967 to September 1986. Water temperatures: October 1967 to September 1986.

REVISED RECORDS.--WSP 1923: 1933. WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 321.57 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 18, 1976, at datum 5.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. Low flow is slightly regulated by oilfield operations above station. At end of year, flow from 119 mi above this station was partly controlled by 27 floodwater-retarding structures with a combined detention capacity of 41,840 acre-ft. No other known diversion above station.

AVERAGE DISCHARGE.--57 years, 106 ft³/s (76,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,500 ft³/s July 1, 1936 (gage height, 30.7 ft, from floodmarks), present datum, from rating curve extended above 37,500 ft³/s; no flow at times.
Maximum stage since at least 1868, that of July 1, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached about same stage as that of July 1, 1936, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 23	1100	8,240	22.44	June 4	1700	*26,900	a*26.48
Feb. 26	1800	6,420	21.91	June 12	0200	3,700	20.40
May 30	1500	2,370	18.47	June 14	1000	5,430	21.52
June 1	0600	10,500	22.95				

a From floodmark.

Minimum daily discharge, 4.8 ft³/s Oct. 6.

DISCHARGE, IN 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	7.4	19	18	176	34	835	26	11	7250	124	23	17
2	6.9	18	17	150	34	442	25	10	2380	118	22	16
3	7.4	17	16	128	32	304	24	11	3110	106	21	9.8
4	5.5	19	15	104	31	221	24	20	19200	96	20	8.7
5	4.9	21	15	84	29	179	24	24	7880	85	19	8.2
6	4.8	19	15	72	28	149	25	265	2410	72	18	8.2
7	6.2	18	15	66	28	127	27	105	1310	59	18	8.6
8	7.8	17	15	61	27	109	25	50	1250	54	17	17
9	7.2	17	16	59	26	95	25	43	1430	52	16	13
10	6.5	17	18	61	25	84	24	26	2290	64	15	11
11	8.9	16	24	57	24	82	24	20	3100	54	14	12
12	149	14	29	52	25	83	24	17	3420	50	12	13
13	474	14	29	48	25	75	24	16	3470	44	10	9.8
14	231	14	29	47	25	67	22	13	4550	41	9.5	9.4
15	150	15	745	47	76	61	20	13	2020	39	8.9	9.0
16	107	15	1150	46	62	58	20	20	1160	37	8.3	8.6
17	80	15	391	80	38	128	20	47	911	35	7.7	8.3
18	56	15	295	310	30	140	19	28	795	34	6.9	14
19	41	15	446	218	26	89	18	27	794	34	6.8	17
20	32	15	191	140	99	69	17	1140	563	32	7.1	16
21	27	14	131	106	183	60	15	264	469	31	6.9	11
22	79	14	1050	87	96	53	15	118	376	37	6.7	9.5
23	182	14	6610	76	65	48	15	74	292	34	6.7	8.5
24	173	15	3290	64	681	43	14	51	248	33	6.6	8.5
25	94	39	1150	57	798	39	14	41	217	31	6.7	8.4
26	57	45	762	52	4600	35	14	33	193	30	6.8	8.4
27	43	30	585	46	3600	33	13	29	167	29	7.2	8.4
28	34	24	446	42	1310	30	12	25	149	28	7.6	9.0
29	27	21	339	41	---	27	12	556	139	26	7.8	9.1
30	25	19	249	39	---	27	12	2190	131	24	8.4	8.1
31	21	---	206	35	---	27	---	1350	---	23	9.9	---
TOTAL	2155.5	565	18307	2651	12057	3819	593	6637	71674	1556	361.5	323.5
MEAN	69.5	18.8	591	85.5	431	123	19.8	214	2389	50.2	11.7	10.8
MAX	474	45	6610	310	4600	835	27	2190	19200	124	23	17
MIN	4.8	14	15	35	24	27	12	10	131	23	6.6	8.1
AC-FT	4280	1120	36310	5260	23920	7570	1180	13160	142200	3090	717	642

CAL YR 1986 TOTAL 41873.2 MEAN 115 MAX 6610 MIN 2.9 AC-FT 83060
WTR YR 1987 TOTAL 120699.2 MEAN 331 MAX 19200 MIN 4.8 AC-FT 239400

08175000 SANDIES CREEK NEAR WESTHOFF, TX

LOCATION.--Lat 29°12'54", long 97°26'57", De Witt County, Hydrologic Unit 12100202, on left bank 100 ft downstream from bridge on county highway, 1.9 mi upstream from Birds Creek, 2.0 mi northeast of Westhoff, and 20.4 mi upstream from mouth.

DRAINAGE AREA.--549 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1930 to November 1934, August 1959 to current year.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 178.27 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 9, 1934, water-stage recorder at site 150 ft upstream at datum 0.86 ft higher. Aug. 10, 1959, to Feb. 2, 1960, non-recording gage at present site and datum.

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

AVERAGE DISCHARGE.--32 years (water years 1931-34, 1960-87), 129 ft³/s (3.19 in/yr), 93,460 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,700 ft³/s Sept. 22, 1967 (gage height, 32.34 ft), from rating curve extended above 21,000 ft³/s on basis of slope-area measurement of 92,700 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1864, 92,700 ft³/s July 2, 1936 (gage height, 33.1 ft, from floodmarks), on basis of computation of peak flow, at present site and datum.
Flood in October 1913 reached a stage of 26.0 ft, present site and datum, 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)
Dec. 24	1200	5,110	22.37	June 4	1000	16,400	25.91
Feb. 27	2200	5,470	22.65	June 12	1800	*20,100	*26.54

Minimum daily discharge, 1.7 ft³/s Oct. 20, 21.

DISCHARGE, IN 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	3.6	2.8	14	28	10	2480	11	8.0	1230	25	12	5.0
2	3.5	2.3	10	25	10	981	10	7.8	1940	25	12	10
3	3.3	1.9	8.2	21	10	266	10	7.6	4100	23	11	9.1
4	3.1	2.0	6.7	18	10	113	10	7.5	14200	22	11	7.0
5	3.0	2.9	6.2	15	9.9	71	10	8.3	11100	20	9.5	6.0
6	2.7	2.1	5.8	14	9.9	52	9.7	30	7010	19	8.9	5.5
7	2.5	2.0	5.7	14	9.9	41	11	94	4680	18	8.5	4.9
8	2.5	2.0	5.6	14	9.1	34	12	97	2560	17	8.3	4.7
9	2.4	2.0	5.4	14	9.6	29	12	55	1190	17	8.2	4.5
10	2.8	2.0	5.4	13	10	25	12	26	1420	17	8.1	3.9
11	4.8	2.0	5.4	13	10	24	12	15	3450	18	7.9	5.5
12	5.6	2.0	5.4	13	9.3	22	12	12	13200	18	7.9	6.0
13	6.8	1.9	5.4	13	8.9	22	11	9.0	9870	17	7.7	5.1
14	8.0	1.9	6.3	12	8.9	22	11	7.9	4370	16	7.4	4.7
15	10	1.9	220	12	10	21	9.7	6.8	e2120	91	7.1	4.8
16	9.0	1.9	633	14	10	20	9.8	6.0	e700	672	6.8	5.0
17	5.8	1.9	772	132	11	20	9.0	5.8	332	599	6.6	5.3
18	3.3	1.9	611	518	11	18	8.9	6.5	177	176	6.4	5.3
19	2.3	2.0	239	573	11	18	8.8	7.0	211	65	6.0	5.3
20	1.7	2.1	151	455	16	19	8.4	7.4	187	36	5.6	5.3
21	1.7	2.1	81	149	39	19	9.1	7.4	122	26	5.3	5.3
22	5.6	2.1	599	68	58	18	8.5	8.6	81	22	5.2	5.3
23	19	2.1	2590	42	64	16	8.5	14	63	19	5.0	5.3
24	144	2.2	4840	30	253	15	8.5	11	50	23	5.0	5.4
25	258	74	3410	22	657	14	8.7	8.7	46	23	5.0	4.8
26	102	467	1360	18	1790	14	8.7	6.9	48	21	5.0	5.0
27	22	483	208	15	4490	13	8.5	5.8	40	21	4.9	4.8
28	10	285	82	13	4470	13	8.5	5.1	37	18	4.5	4.7
29	5.9	65	57	12	---	13	8.7	21	34	16	4.3	4.8
30	4.1	25	45	11	---	12	8.7	224	28	15	4.5	5.1
31	3.6	---	35	11	---	11	---	390	---	13	4.8	---
TOTAL	662.6	1449.0	16028.5	2322	12025.5	4456	294.7	1127.1	84596	2128	220.4	163.4
MEAN	21.4	48.3	517	74.9	429	144	9.82	36.4	2820	68.6	7.11	5.45
MAX	258	483	4840	573	4490	2480	12	390	14200	672	12	10
MIN	1.7	1.9	5.4	11	8.9	11	8.4	5.1	28	13	4.3	3.9
AC-FT	1310	2870	31790	4610	23850	8840	585	2240	167800	4220	437	324
CFSM	.0	.09	.94	.14	.78	.26	.0	.07	5.14	.13	.0	.0
IN.	.0	.10	1.09	.16	.81	.30	.0	.08	5.73	.14	.0	.0

CAL YR 1986 TOTAL 26049.5 MEAN 71.4 MAX 4840 MIN 1.7 AC-FT 51670 CFSM .13 IN. 1.77
WTR YR 1987 TOTAL 125472.8 MEAN 344 MAX 14200 MIN 1.7 AC-FT 248900 CFSM .63 IN. 8.50

e Estimated.

08175000 SANDIES CREEK NEAR WESTHOFF, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1962 to current year. Sediment analyses: November 1965 to May 1966.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 24...	1300	145	1210	21.0	46	0	14	2.7	230
DEC 11...	1130	5.4	740	10.0	79	0	24	4.6	120
FEB 13...	1345	8.9	1250	19.0	170	0	52	10	200
APR 16...	1155	9.8	1630	19.5	230	0	68	15	260
JUN 17...	1315	251	398	29.5	100	16	30	6.1	36
AUG 20...	1240	5.5	1300	28.5	230	0	67	15	240

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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 24...	15	7.3	207	25	230	0.60	10	640
DEC 11...	6	10	158	44	110	0.30	16	420
FEB 13...	7	11	242	94	220	0.40	12	740
APR 16...	8	10	352	120	250	0.70	15	950
JUN 17...	2	8.5	84	41	41	0.20	23	240
AUG 20...	7	9.7	266	100	270	0.50	17	880

08175800 GUADALUPE RIVER AT CUERO, TX

LOCATION.--Lat 29°03'57", long 97°19'16", De Witt County, Hydrologic Unit 12100204, on left bank at downstream side of bridge on U.S. Highways 77A, 87, and 183, 2.1 mi upstream from Gohlke Creek, 2.4 mi southwest of Cuero, 4.2 mi downstream from Sandies Creek, and at mile 100.6.

DRAINAGE AREA.--4,934 mi², of which 1,432 mi² is above Canyon Dam.

PERIOD OF RECORD.--December 1902 to December 1906, August 1916 to December 1935, and January 1964 to current year. Published as "near Cuero" 1902-6, and as "below Cuero" 1916-35. Gage-height records collected at site 7.1 mi upstream from Sandies Creek from 1941 to 1966 (published in reports of the National Weather Service) and at present site since June 12, 1968.
Water-quality records.--Chemical analyses: March 1968 to September 1985.

REVISED RECORDS.--WDR TX-68-1, TX-69-1: Drainage areas at all sites.

GAGE.--Water-stage recorder. Datum of gage is 128.64 ft above National Geodetic Vertical Datum of 1929. From Dec. 26, 1902, to June 1903, nonrecording gage at site 7.1 mi upstream at different datum, gage heights moved to site 3.3 mi upstream from present site before computation; from July 1903 to December 1906 nonrecording gage 3.3 mi upstream at different datum; and Aug. 19, 1916, to Dec. 16, 1935, water-stage recorder at site 5.0 mi downstream at datum 3.19 ft lower.

REMARKS.--Records good. Since July 21, 1962, flow regulated by Canyon Lake (station 08167700) 202.4 mi upstream. Flow below New Braunfels is partly regulated by a series of small power dams, combined capacity of six largest dams 33,550 acre-ft. Flow is affected at times by discharge from the flood-detention pools of 53 floodwater-retarding structures with a combined detention capacity of 87,200 acre-ft. These structures control runoff from 302 mi² in the Comal, San Marcos, and Plum Creek drainage basins. Many small diversions above station. Satellite telemeter at station.

AVERAGE DISCHARGE.--20 years (water years 1904-6, 1917-18, 1921-35) prior to regulation by Canyon Lake, 1,303 ft³/s (944,000 acre-ft/yr); 23 years (water years 1965-87) regulated, 2,086 ft³/s (1,511,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 132,000 ft³/s Sept. 1, 1981 (gage height, 41.83 ft); minimum daily, 28 ft³/s July 22, 1984.
Floods at this station since at least 1900 occurred Mar. 1, 1903, 43.0 ft, at different site and datum; Oct. 20, 1919, 32.2 ft, site and datum then in use; May 30, 1929, 35.2 ft, site and datum then in use; all from information by local residents.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, probably occurred July 2, 1936, 44.33 ft, present site and datum, from information by State Department of Highways and Public Transportation. Other floods at this station occurred Oct. 4, 1913, 37.57 ft, at different site and datum; Dec. 6, 1913, 34.57 ft, at different site and datum; June 21, 1961, 37.0 ft, present site and datum; all from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 102,000 ft³/s June 6 at 0300 hours (gage height, 40.01 ft); minimum daily, 810 ft³/s Oct. 1.

DISCHARGE, IN 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	e810	3270	1740	5970	2550	17200	2350	1500	9230	7200	5910	2150
2	e900	2790	1690	5850	2410	17700	2340	1510	9760	7110	5880	2160
3	e1010	2700	1690	5690	2400	10300	2340	1490	12500	7040	5880	2080
4	e980	2700	1590	5500	2340	3810	2330	1480	22700	6920	5820	2030
5	e1000	2680	1480	5380	2340	3060	2260	1570	77900	6830	5790	1990
6	1240	2680	1460	5270	2330	2840	2280	1850	90300	6730	5750	1960
7	1260	2670	1440	5190	2280	2760	2320	1910	53800	6640	5760	1930
8	1330	2700	1420	5130	2170	2660	2310	2690	33900	6560	5710	2000
9	1360	2650	1480	4590	2110	2580	2280	1960	24200	6490	5690	2000
10	1280	2650	1450	3960	2060	2520	2270	1720	17000	6480	5670	1960
11	1380	2620	1510	3310	2070	2550	2260	1610	14700	6470	5640	1980
12	e1420	2590	1450	3240	2040	2580	2250	1580	16100	6520	5570	2500
13	1480	2550	1430	3170	1850	2660	2230	1560	24800	5540	5520	3010
14	2920	2540	1570	3130	2000	2700	2230	1460	35500	5550	5480	2450
15	4340	2580	1920	3110	1970	2720	2230	1430	32800	6110	5480	2040
16	3180	2270	4590	3150	2050	2720	2210	1350	29200	6410	5370	2100
17	3020	2180	7060	3250	2180	2720	2180	1600	23700	6840	3960	2860
18	3570	2180	7320	4030	2190	2700	2150	1730	17800	6510	3130	2950
19	3510	2140	4430	4650	2230	2900	2150	2120	11800	6310	3030	3110
20	3480	2140	3510	4530	2160	2860	2100	1770	7750	7370	2960	3250
21	3390	2140	3210	3660	2170	2740	2030	3170	7460	7330	2990	2560
22	2800	2150	4030	3230	2730	2690	1870	7570	7760	6360	2610	2120
23	2660	2140	10300	3100	2710	2840	1540	4820	8200	4240	2310	2420
24	2690	2110	13100	3060	2690	2530	1460	2600	8170	4940	2210	2790
25	2880	2230	15900	3010	4060	2530	1590	2200	7990	5900	2130	2890
26	3720	3520	21600	2950	9190	2700	1690	1930	7970	6060	2090	2900
27	3210	3830	20200	2900	12300	2830	1670	1830	7790	6070	2070	2850
28	2820	3650	12800	2930	14400	2840	1560	1660	8070	6050	2030	2340
29	2790	2310	5330	2900	---	2820	1500	1550	7890	6030	2040	1980
30	3300	1890	5490	2850	---	2760	1420	2480	7380	6010	2050	2230
31	3350	---	6030	2870	---	2420	---	7320	---	5970	2080	---
TOTAL	73080	77250	168220	121560	93980	122240	61400	71020	644120	196590	128610	71590
MEAN	2357	2575	5426	3921	3356	3943	2047	2291	21470	6342	4149	2386
MAX	4340	3830	21600	5970	14400	17700	2350	7570	90300	7370	5910	3250
MIN	810	1890	1420	2850	1850	2420	1420	1350	7380	4240	2030	1930
AC-FT	145000	153200	333700	241100	186400	242500	121800	140900	1278000	389900	255100	142000

CAL YR 1986 TOTAL 707677 MEAN 1939 MAX 21600 MIN 579 AC-FT 1404000
WTR YR 1987 TOTAL 1829660 MEAN 5013 MAX 90300 MIN 810 AC-FT 3629000

e Estimated.

08176500 GUADALUPE RIVER AT VICTORIA, TX
(National stream-quality accounting network)

LOCATION.--Lat 28°47'34", long 97°00'46", Victoria County, Hydrologic Unit 12100204, on left bank just upstream from pier of upstream bridge of two bridges on U.S. Highway 59 in Victoria, 1,300 ft upstream from Southern Pacific Railroad Co. bridge, 15 mi upstream from Coleto Creek, and at mile 50.7.

DRAINAGE AREA.--5,198 mi², of which 1,432 mi² is above Canyon Dam..

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1934 to current year. Gage-height records collected in this vicinity since 1904 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 2123: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 29.15 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Since July 21, 1962, flow regulated by Canyon Lake (station 08167700) 252.3 mi upstream. There are many diversions above station. Records provided by the city of Victoria show that during the year about 7,750 acre-ft (sewage effluent) was released into the river below station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08175800. A satellite telemeter at station.

AVERAGE DISCHARGE.--27 years (water years 1936-62) prior to regulation by Canyon Lake, 1,626 ft³/s (1,178,000 acre-ft/yr); 25 years (water years 1963-87) regulated, 2,075 ft³/s (1,503,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 179,000 ft³/s July 3, 1936 (gage height, 31.22 ft); minimum daily, 14 ft³/s Aug. 20, 1956.
Maximum stage since at least 1833, that of July 3, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1929, reached a stage of 30.2 ft, present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 83,400 ft³/s June 7 at 0200 hours (gage height, 30.45 ft); minimum daily, 865 ft³/s Oct. 1.

DISCHARGE, IN 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	865	3380	1790	6750	2940	14000	2510	1560	8100	7930	6270	2160
2	1040	3150	1700	6610	2620	16900	2480	1550	9190	7620	6220	2190
3	1180	2670	1600	6460	2500	17900	2450	1570	9990	7500	6200	2170
4	1150	2610	1640	6250	2450	10500	2450	1550	14300	7390	6180	2110
5	1170	2590	1480	6100	2430	4560	2410	1560	20000	7270	6130	2070
6	1220	2570	1440	5960	2420	3610	2370	1780	61800	7170	6110	2030
7	1270	2560	1430	5850	2360	3320	2390	1800	80700	7080	6100	2010
8	1290	2580	1430	5780	2300	3160	2410	2290	66100	7060	6070	1990
9	1330	2570	1440	5550	2190	3000	2380	2400	47200	6980	6020	2040
10	1310	2510	1440	4940	2150	2910	2350	1870	31500	6870	6000	2010
11	1460	2510	1480	4260	2120	2880	2340	1700	30500	6840	5960	2000
12	1490	2490	1420	3680	2100	2900	2320	1650	29200	6830	5940	2070
13	1450	2480	1400	3600	2000	2890	2300	1690	21100	6710	5900	2580
14	1650	2450	1430	3540	1980	2960	2290	1600	35800	5780	5860	2860
15	3710	2440	1950	3450	1980	2980	2260	1590	37800	6160	5840	2200
16	4170	2390	2830	3870	1970	2980	2240	1450	35800	6510	5810	2020
17	2890	2140	5850	3950	2040	2990	2230	1540	30500	6890	5430	2240
18	3160	2090	7570	4220	2160	2970	2190	1630	25400	7110	3730	2800
19	3590	2080	6930	4950	2160	2940	2180	1940	20100	6760	3290	2940
20	3520	2060	4240	5240	2200	3220	2160	2040	12800	6860	3150	3130
21	3510	2020	3710	4790	2170	3040	2110	1780	8910	7910	3060	3130
22	3390	2000	4350	3970	2340	2900	2030	5000	8180	7450	3090	2330
23	3340	2060	9660	3540	2830	2940	1820	7500	8440	6130	2600	2100
24	2930	2050	11100	3390	3090	2940	1580	4080	8660	4690	2430	2480
25	2780	2120	12200	3310	3460	2700	1600	2500	8580	5800	2310	2730
26	3160	2450	14300	3230	7760	2720	1690	2120	8430	6350	2230	2790
27	3770	3720	18100	3180	10600	2910	1750	1910	8330	6430	2180	2810
28	3080	3980	19800	3130	12000	3000	1670	1820	8230	6420	2140	2710
29	2710	3300	14200	3110	---	2980	1610	1800	8420	6360	2120	2210
30	2840	2070	6930	3070	---	2960	1510	1800	8300	6340	2120	1990
31	3340	---	6550	3040	---	2800	---	4040	---	6320	2170	---
TOTAL	73765	76090	171390	138770	89320	141460	64080	69110	712360	209520	138660	70900
MEAN	2380	2536	5529	4476	3190	4563	2136	2229	23750	6759	4473	2363
MAX	4170	3980	19800	6750	12000	17900	2510	7500	80700	7930	6270	3130
MIN	865	2000	1400	3040	1970	2700	1510	1450	8100	4690	2120	1990
AC-FT	146300	150900	340000	275300	177200	280600	127100	137100	1413000	415600	275000	140600

CAL YR 1986 TOTAL 731631 MEAN 2004 MAX 19800 MIN 559 AC-FT 1451000
WTR YR 1987 TOTAL 1955420 MEAN 5357 MAX 80700 MIN 865 AC-FT 3879000

08176500 GUADALUPE RIVER AT VICTORIA, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1945 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: February 1974 to August 1981. Sediment analyses: April 1959, August 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1945 to September 1981.
WATER TEMPERATURE: November 1950 to September 1981.

INSTRUMENTATION.--From March to May 1973, specific conductance and water temperature were continuously recorded at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,950 microsiemens on several days during January 1946; minimum daily, 135 microsiemens Sept. 3, 1981.
WATER TEMPERATURE: Maximum daily, 32.0°C Aug. 4, 27, 1952; minimum daily, 2.0°C Jan. 11, 12, 1962, Jan. 24, 1963.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
OCT												
23...	1530	3660	370	8.10	23.0	87	8.4	98	2.9	160	200	170
FEB												
11...	1130	2110	547	8.30	16.0	14	9.8	98	0.7	K50	K24	260
JUN												
23...	1645	8520	512	8.00	28.0	120	6.3	81	0.6	130	160	250
AUG												
19...	1630	3260	432	8.00	28.0	42	6.2	79	0.1	120	100	250

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 WH WAT TOTAL 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												
23...	12	49	12	11	0.4	2.5	160	16	14	0.20	11	227
FEB												
11...	31	74	17	20	0.6	2.0	224	33	30	0.20	10	315
JUN												
23...	28	75	14	16	0.5	2.7	217	27	22	0.20	14	305
AUG												
19...	31	73	16	16	0.5	2.3	218	22	30	0.20	14	294

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT												
23...	210	--	<0.010	0.480	<0.010	<0.010	--	1.1	0.020	0.020	0.040	0.12
FEB												
11...	320	--	<0.010	0.980	<0.010	<0.010	--	0.70	0.080	0.040	0.040	0.12
JUN												
23...	300	0.920	0.010	0.930	0.020	0.030	0.98	1.0	0.200	0.070	0.050	0.15
AUG												
19...	310	--	<0.010	0.810	0.020	0.040	0.68	0.70	0.080	0.030	0.020	0.06

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)
OCT												
23...	114	1130	76	20	2	57	<0.5	<1	<1	<3	2	25
FEB												
11...	52	296	88	<10	1	56	<0.5	1	<1	<3	2	6
JUN												
23...	331	7610	95	<10	2	76	<0.5	<1	<1	3	1	9
AUG												
19...	135	1190	93	<10	2	63	<0.5	<1	<1	<3	<1	6

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT											
23...	<5	11	1	0.1	<10	<1	<1	<1	310	<6	14
FEB											
11...	<5	14	3	<0.1	<10	1	<1	1	480	<6	<3
JUN											
23...	<5	12	<1	<0.1	<10	<1	<1	<1	390	<6	18
AUG											
19...	<5	7	5	0.1	<10	<1	<1	<1	430	<6	6

08176550 FIFTEENMILE CREEK NEAR WESER, TX

LOCATION.--Lat 28°53'51", long 97°21'17", De Witt County, Hydrologic Unit 12100204, at DeWitt-Goliad County line, on left downstream end of bridge on U.S. Highway 183, and 2.4 mi northeast of Weser.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--October 1984 to September 1985.

GAGE.--Water-stage recorder. Datum of gage is 158.37 ft (revised) above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known diversions above station. Guadalupe-Blanco River Authority gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,380 ft³/s June 11, 1987 (gage height, 15.07 ft), from rating curve extended above 530 ft³/s; minimum daily, 0.86 ft³/s Aug. 10, 1986.

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)
Dec. 22	2400	3,800	13.03	June 5	1000	5,500	14.43
Feb. 26	1400	1,620	10.47	June 11	1900	*6,380	*15.07
June 3	1700	1,620	10.47				

Minimum daily discharge, 0.90 ft³/s Oct. 5.

DISCHARGE, IN 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	1.2	5.1	4.5	15	11	118	13	8.7	255	28	10	7.5
2	1.4	4.8	4.3	14	11	55	13	8.7	108	27	9.8	6.4
3	1.2	4.6	4.2	14	10	37	13	8.6	711	25	9.1	5.9
4	1.0	4.6	4.2	13	10	30	13	8.6	668	24	8.7	5.6
5	.90	4.6	4.2	13	11	26	13	8.7	3070	23	8.6	5.3
6	1.0	4.5	4.2	12	14	25	13	28	228	22	8.1	5.4
7	1.6	4.5	4.2	12	13	24	13	17	95	21	7.7	5.6
8	1.8	4.5	4.2	12	11	22	13	13	61	21	7.4	6.2
9	2.0	4.5	4.2	12	11	21	12	11	164	21	7.3	6.5
10	2.1	4.4	4.1	11	10	20	12	9.7	245	20	7.2	6.2
11	52	4.3	4.1	11	10	23	12	9.1	3660	20	7.1	6.6
12	28	4.2	4.0	10	11	24	12	8.8	1140	19	7.4	5.7
13	18	4.4	3.9	10	11	21	12	8.4	221	18	6.7	5.4
14	17	4.5	4.5	11	11	20	11	8.1	220	17	6.6	4.9
15	9.1	4.5	10	11	12	19	11	7.9	98	17	6.4	4.7
16	6.9	4.5	19	175	11	19	11	7.9	76	16	6.2	4.4
17	4.9	4.5	11	133	11	21	11	8.1	64	16	6.1	4.2
18	3.8	4.5	8.7	77	10	20	11	8.1	77	15	5.9	4.0
19	3.3	4.5	7.5	36	10	20	11	7.8	68	15	5.9	4.2
20	3.0	4.4	6.6	21	14	18	10	7.5	51	14	5.8	4.0
21	4.9	4.2	6.4	17	15	17	10	7.3	45	14	5.8	4.0
22	65	4.2	763	16	13	15	10	7.1	42	13	5.7	3.8
23	204	4.3	1960	14	12	15	9.8	6.8	39	12	5.8	3.6
24	51	4.4	215	13	129	15	9.7	6.7	37	13	5.8	3.4
25	17	6.7	72	12	133	14	9.8	6.7	36	13	5.8	3.4
26	11	6.3	37	12	1150	14	10	6.5	38	13	5.6	3.4
27	11	6.1	27	11	363	14	9.7	6.5	36	13	5.6	3.6
28	8.4	5.3	22	11	246	14	9.2	6.7	32	13	6.0	3.6
29	7.0	4.9	20	11	---	14	8.9	43	30	12	6.0	3.4
30	6.0	4.6	18	11	---	13	8.6	100	29	11	8.8	3.2
31	5.4	---	17	11	---	13	---	29	---	11	14	---
TOTAL	550.90	141.4	3279.0	762	2284	741	335.7	430.0	11644	537	222.9	144.1
MEAN	17.8	4.71	106	24.6	81.6	23.9	11.2	13.9	388	17.3	7.19	4.80
MAX	204	6.7	1960	175	1150	118	13	100	3660	28	14	7.5
MIN	.90	4.2	3.9	10	10	13	8.6	6.5	29	11	5.6	3.2
AC-FT	1090	280	6500	1510	4530	1470	666	853	23100	1070	442	286

CAL YR 1986 TOTAL 6181.92 MEAN 16.9 MAX 1960 MIN .86 AC-FT 12260
WTR YR 1987 TOTAL 21071.87 MEAN 57.7 MAX 3660 MIN .90 AC-FT 41800

08176900 COLETO CREEK AT ARNOLD ROAD CROSSING NEAR SCHROEDER, TX

LOCATION.--Lat 28°51'41", long 97°13'34", Goliad County, Hydrologic Unit 12100204, on right bank at downstream side of Arnold Road Crossing, 0.7 mi downstream from confluence of Twelvemile and Fifteenmile Creeks, 3.2 mi north of Schroeder, 12.8 mi upstream from Coleto Creek Reservoir, and 26.0 mi upstream from mouth.

DRAINAGE AREA.--357 mi².

PERIOD OF RECORD.--October 1978 to current year. Records equivalent for January 1930 to December 1933 and October 1952 to September 1979, published as "near Schroeder".

GAGE.--Water-stage recorder. Datum of gage is 100.43 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known diversion above station. Wireless telemeter at station.

AVERAGE DISCHARGE.--9 years, 83.5 ft³/s (60,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft³/s Aug. 31, 1981 (gage height, 17.78 ft); minimum daily, 1.0 ft³/s Aug. 1-5, 1986.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharges since at least 1872 at site 3.5 mi downstream, 122,000 ft³/s Sept. 21, 1967 (slope-area measurement of peak flow), 63,700 ft³/s Oct. 16, 1946, and 46,700 ft³/s in October 1925, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 23	0200	*10,600	*16.30	June 11	1400	7,910	14.87
June 5	1400	5,180	13.06	June 14	0400	7,460	14.60

Minimum daily discharge, 1.4 ft³/s Oct. 5.

DISCHARGE, IN 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	2.0	16	11	50	29	318	27	18	86	43	18	20
2	1.6	15	9.9	45	29	131	28	19	203	40	17	15
3	1.5	14	9.6	42	29	83	27	19	720	38	16	13
4	1.5	14	9.4	38	29	65	28	19	1700	36	16	11
5	1.4	13	9.0	36	30	55	28	19	4260	34	16	11
6	1.9	12	8.8	35	35	48	28	30	774	33	15	10
7	3.4	12	8.5	34	33	44	27	65	268	31	15	9.6
8	3.5	12	8.4	33	30	41	26	34	166	31	14	9.3
9	3.3	11	8.3	32	28	39	25	26	230	30	14	9.2
10	3.1	11	7.9	31	27	37	24	22	754	30	14	8.9
11	41	10	8.1	29	27	41	23	20	5070	29	13	8.8
12	138	9.6	8.1	28	26	46	22	19	2710	28	13	8.8
13	100	10	8.1	28	26	42	22	19	1060	27	13	8.5
14	120	10	9.1	29	26	38	20	18	3110	26	13	8.1
15	52	10	60	30	27	37	19	17	429	25	12	8.0
16	28	10	94	374	27	36	19	18	220	24	12	7.8
17	20	10	53	475	27	38	19	19	154	23	11	7.5
18	15	10	37	276	26	39	19	16	157	23	11	7.7
19	12	10	28	133	26	37	19	16	170	22	11	7.9
20	10	9.9	23	79	45	35	18	16	112	21	11	7.4
21	11	9.4	22	62	72	34	18	16	85	24	11	7.3
22	146	9.4	2120	56	47	33	18	16	72	22	10	7.1
23	1060	9.9	5330	48	38	32	18	16	66	20	10	6.7
24	448	10	717	43	398	30	18	16	61	20	9.9	6.4
25	117	15	238	38	401	29	18	16	58	20	9.5	6.1
26	61	16	133	35	2530	29	18	16	58	21	9.5	6.0
27	49	18	95	34	996	29	18	16	57	21	9.5	6.6
28	41	15	76	33	635	29	18	16	50	21	9.3	7.8
29	27	12	68	32	---	28	18	25	46	20	9.4	7.0
30	22	11	62	31	---	26	18	53	44	19	12	6.3
31	18	---	56	29	---	26	---	64	---	18	26	---
TOTAL	2559.2	355.2	9336.2	2298	5699	1575	648	719	22950	820	401.1	264.8
MEAN	82.6	11.8	301	74.1	204	50.8	21.6	23.2	765	26.5	12.9	8.83
MAX	1060	18	5330	475	2530	318	28	65	5070	43	26	20
MIN	1.4	9.4	7.9	28	26	26	18	16	44	18	9.3	6.0
AC-FT	5080	705	18520	4560	11300	3120	1290	1430	45520	1630	796	525

CAL YR 1986 TOTAL 16406.7 MEAN 44.9 MAX 5330 MIN 1.0 AC-FT 32540
WTR YR 1987 TOTAL 47625.4 MEAN 130 MAX 5330 MIN 1.4 AC-FT 94460

08176990 COLETO CREEK RESERVOIR INFLOW (GUADALUPE DIVERSION) NEAR SCHROEDER, TX

LOCATION.--Lat 28°50'21", long 97°11'20", Victoria County, Hydrologic Unit 12100204, on right bank of small tributary 1,200 ft upstream from Coleto Creek and 2.6 mi northeast of Schroeder.

PERIOD OF RECORD.--March 1980 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 100.52 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Discharge represents flow diverted by pumping from the Guadalupe River to be used as makeup water for the Central Power and Light Co. generating plant on Coleto Creek Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 36 ft^3/s Apr. 2, 11, Sept. 11, 1980; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 30 ft^3/s Oct. 1, 5-10; no flow most of time.

DISCHARGE, IN 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	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	30	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.4	.00
11	14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.32	.00
12	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	5.3	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	4.2	.00	.00	.00	.00	11	.00
25	.00	.00	.00	.00	.00	5.9	.00	.00	.00	.00	18	.00
26	.00	.00	.00	.00	.00	.28	.00	.00	.00	.00	18	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	18	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	17	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	17	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	17	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	7.4	---
TOTAL	311.01	.00	.00	.00	.00	10.38	.00	.00	.00	.00	132.45	.00
MEAN	10.0	.00	.00	.00	.00	.33	.00	.00	.00	.00	4.27	.00
MAX	30	.00	.00	.00	.00	5.9	.00	.00	.00	.00	18	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	617	.0	.0	.0	.0	21	.0	.0	.0	.0	263	.0

CAL YR 1986	TOTAL	2421.59	MEAN	6.63	MAX	35	MIN	.00	AC-FT	4800
WTR YR 1987	TOTAL	453.84	MEAN	1.24	MAX	30	MIN	.00	AC-FT	900

08177300 PERDIDO CREEK AT FARM ROAD 622 NEAR FANNIN, TX

LOCATION.--Lat 28°45'05", long 97°19'01", Goliad County, Hydrologic Unit 12100204, at right downstream end of bridge on Farm Road 622, 1.2 mi downstream from Farmer Creek, 3.1 mi upstream from Kilgore Creek, and 6.1 mi northwest of Fannin.

DRAINAGE AREA.--28.0 mi².

PERIOD OF RECORD.--June 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 134.66 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. No known diversion above gage. Gage-height telemeter at station.

AVERAGE DISCHARGE.--9 years, 6.31 ft³/s (3.06 in/yr), 4,570 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,600 ft³/s May 29, 1981 (gage height, 13.80 ft, from floodmark), from rating curve extended above 1,160 ft³/s; maximum gage height, 14.60 ft Oct. 31, 1981; no flow July 17 to Aug. 5, 1986.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 20, 1976, reached a stage of 26.28 ft, and flood of Sept. 15, 16, 1967, reached a stage of 26.08 ft, from information by the State Department of Highways and Public Transportation.

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)
Oct. 22	2130	1,190	8.07	June 11	0730	1,400	8.34
Dec. 22	2000	*3,010	*9.90	June 12	1930	1,520	8.49
Feb. 26	0400	485	6.79	June 13	2400	2,270	9.28
June 5	0300	1,040	7.84				

Minimum daily discharge, 0.13 ft³/s Aug. 20, 21.

DISCHARGE, IN 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	.20	.49	.28	1.9	.94	10	.90	.52	1.8	1.3	.33	e.45
2	.17	.49	.26	1.7	.86	6.1	.90	.52	.49	1.1	.30	e.38
3	.14	.49	.24	1.6	.86	4.5	.86	.36	6.0	1.0	.27	e.35
4	.14	.60	.24	1.4	.86	3.8	.86	.38	26	.92	.25	e.33
5	.14	.43	.24	1.4	1.9	3.6	.90	.38	245	.92	.21	e.31
6	.24	.38	.24	1.4	1.4	3.3	.87	.76	10	.87	.21	e.29
7	.63	.38	.24	1.4	.87	3.1	.75	.47	3.8	.95	.19	e.28
8	.43	.37	.24	1.4	.86	2.9	.67	.37	3.8	1.5	.17	e.27
9	.38	.33	.30	1.3	.85	2.7	.65	.33	29	1.4	.57	e.26
10	.28	.33	.24	1.1	.78	2.5	.65	.89	125	1.2	.73	e.26
11	12	.28	.24	1.0	.78	3.2	.61	.60	467	.94	.25	e.25
12	28	.24	.24	.95	.86	2.5	.59	.38	197	.86	.21	e.24
13	16	.51	.24	.95	.95	2.2	.60	.33	151	.82	.18	e.24
14	6.1	.34	.64	1.3	.95	2.0	.51	.33	314	.77	.19	e.24
15	1.1	.33	45	1.1	1.2	2.0	.53	.30	15	.82	.16	e.23
16	.83	.33	5.8	17	.74	2.0	.56	1.1	8.1	.75	.14	e.23
17	.62	.33	2.0	24	.78	2.2	.56	.83	5.4	.68	.14	e.23
18	.49	.33	4.6	8.4	.76	1.5	.52	.36	22	.64	.18	e.23
19	.43	.33	3.0	3.3	.94	1.4	.51	.30	8.2	.56	.16	e.23
20	.43	.32	1.2	2.0	2.2	1.4	.49	.28	4.2	.49	.13	e.23
21	41	.26	4.3	2.1	1.1	1.5	.49	.25	3.0	1.1	e.13	e.23
22	227	.28	871	1.7	.95	1.4	.49	.25	2.4	.75	e.14	e.23
23	236	.64	150	1.3	.79	1.3	.49	.24	2.0	.56	e.15	e.22
24	15	.52	14	1.2	49	1.1	.49	.24	1.9	.76	e.15	e.22
25	2.9	2.6	7.0	1.2	62	1.1	.49	.25	1.8	.92	e.15	e.22
26	51	.42	4.7	1.1	264	1.1	.49	.22	1.7	.80	e.14	e.22
27	47	.33	3.5	.96	21	1.1	.49	.22	1.3	1.2	e.14	e.22
28	3.9	.32	2.9	1.0	37	1.1	.53	.24	1.2	.76	e.14	e.22
29	1.2	.28	3.0	1.0	---	1.0	.52	1.8	1.2	.46	e.14	e.22
30	.70	.28	2.6	1.0	---	.93	.49	.52	1.4	.41	e.14	e.22
31	.59	---	2.1	.95	---	.91	---	.47	---	.37	e.60	---
TOTAL	695.04	13.56	1130.58	88.11	456.18	75.44	18.46	14.49	1660.69	26.58	6.99	7.75
MEAN	22.4	.45	36.5	2.84	16.3	2.43	.62	.47	55.4	.86	.23	.26
MAX	236	2.6	871	24	264	10	.90	1.8	467	1.5	.73	.45
MIN	.14	.24	.24	.95	.74	.91	.49	.22	.49	.37	.13	.22
AC-FT	1380	27	2240	175	905	150	37	29	3290	53	14	15
CFSM	.80	.0	1.30	.10	.58	.09	.0	.0	1.98	.0	.0	.0
IN.	.92	.0	1.50	.12	.61	.10	.0	.0	2.21	.0	.0	.0

CAL YR 1986 TOTAL 1942.17 MEAN 5.32 MAX 871 MIN .00 AC-FT 3850 CFSM .19 IN. 2.58
WTR YR 1987 TOTAL 4193.79 MEAN 11.5 MAX 871 MIN .13 AC-FT 8320 CFSM .41 IN. 5.57

e Estimated.

08177360 COLETO CREEK RESERVOIR (CONDENSER NO. 1) NEAR FANNIN, TX

LOCATION.--Lat 28°43'24", long 97°12'16", Goliad County, Hydrologic Unit 12100204, on right bank of discharge canal 4,000 ft below Central Power and Light powerplant, 2.7 mi northeast of Fannin, and 13.3 mi southwest of Victoria.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1980 to current year.

INSTRUMENTATION.--Beginning May 1980, water temperature is recorded continuously at this station.

REMARKS: Prior to Feb. 19, 1982, water temperature recording site was 4,000 ft upstream at Condenser No. 1 cooling water outlet.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 41.0°C Aug. 10, 11, 1987; minimum, 4.5°C Dec. 26, 1983.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 41.0°C Aug. 10, 11; minimum, 14.0°C Feb. 26.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	37.5	36.5	37.5	32.0	28.5	31.0	25.0	23.0	24.5	21.5	20.5	21.5
2	37.5	37.0	37.0	31.5	27.5	30.5	25.0	23.5	24.5	22.0	20.5	21.5
3	37.0	36.5	37.0	31.0	27.5	30.0	25.0	24.5	24.5	22.0	21.5	21.5
4	37.5	37.0	37.0	31.5	29.0	31.0	24.5	24.0	24.5	21.5	21.0	21.5
5	37.5	37.0	37.5	31.0	27.5	29.5	24.5	21.0	24.0	21.5	21.0	21.5
6	37.5	36.0	36.5	30.0	27.5	29.5	24.5	23.5	24.5	22.0	20.5	21.5
7	36.0	34.0	35.0	31.0	27.5	29.5	25.5	22.5	24.5	23.0	19.5	22.0
8	34.5	32.0	34.0	31.5	29.5	31.0	26.0	23.5	25.0	23.5	21.0	23.0
9	35.0	32.5	34.5	31.5	31.0	31.0	26.0	23.5	25.0	24.0	22.0	23.5
10	35.5	33.5	35.0	32.0	30.5	31.5	25.0	21.5	23.0	24.0	23.0	23.5
11	35.0	33.5	34.5	31.5	29.0	30.0	23.0	22.0	22.5	23.0	22.5	22.5
12	35.0	31.5	33.0	29.5	27.0	28.0	22.0	21.5	21.5	22.5	22.0	22.0
13	31.0	27.5	30.0	27.5	25.0	26.0	22.5	21.0	22.0	22.0	21.0	22.0
14	30.5	26.5	29.5	24.5	23.5	24.5	22.5	20.5	22.0	25.5	22.0	22.5
15	31.5	27.0	30.0	25.0	24.5	25.0	23.0	21.0	22.0	28.5	20.0	23.5
16	34.0	27.5	30.5	26.0	22.5	25.0	23.5	21.0	23.0	23.5	22.5	23.0
17	32.0	28.5	31.0	27.0	23.0	25.5	23.5	22.0	23.0	23.5	23.0	23.0
18	32.0	29.5	31.5	27.5	24.0	26.5	24.0	23.5	23.5	23.0	21.5	22.0
19	32.0	29.5	31.0	28.0	26.0	27.5	23.5	23.0	23.5	22.0	21.0	21.5
20	31.5	30.0	31.0	28.5	25.0	27.5	23.5	22.5	23.5	27.5	21.0	22.5
21	32.0	28.0	30.5	28.0	25.0	27.0	23.0	22.5	23.0	21.0	20.0	20.5
22	32.5	30.5	31.5	29.0	24.5	28.0	22.5	17.5	20.0	20.0	19.5	20.0
23	32.0	31.0	31.5	29.0	28.0	28.5	18.0	17.0	17.5	20.5	19.0	20.0
24	32.5	30.0	31.5	27.5	25.5	26.5	20.5	18.0	19.5	21.0	19.0	20.5
25	32.5	28.5	31.5	26.0	25.5	26.0	21.0	19.5	20.5	21.0	18.5	20.0
26	32.5	28.5	31.0	26.0	25.0	25.5	21.0	20.5	21.0	20.5	19.0	20.0
27	31.5	28.0	30.5	25.5	23.0	24.0	21.5	20.5	21.0	22.5	20.5	21.5
28	32.0	27.5	31.0	24.5	23.0	24.0	21.0	21.0	21.0	23.0	19.0	21.0
29	32.5	29.0	31.5	24.5	22.5	24.0	21.0	20.5	21.0	23.0	20.5	21.5
30	32.0	28.5	31.0	25.0	23.0	24.0	21.0	20.5	21.0	23.0	20.5	20.0
31	32.0	28.5	31.0	---	---	---	22.0	21.0	21.5	21.5	20.5	20.5
MONTH	37.5	26.5	33.0	32.0	22.5	27.5	26.0	17.0	22.5	28.5	18.5	21.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	23.0	21.0	21.5	25.5	24.0	24.5	18.0	16.5	17.5	33.0	30.5	32.0
2	25.0	21.0	23.0	25.5	24.0	25.0	18.0	17.0	17.5	33.5	31.0	32.5
3	25.0	21.0	24.0	26.0	23.0	25.0	18.0	16.0	17.0	33.5	31.0	32.5
4	25.5	22.5	24.0	26.0	20.0	23.5	17.5	17.0	17.5	34.0	32.0	33.0
5	---	---	---	26.5	23.5	26.0	17.0	16.0	16.5	34.5	30.0	33.0
6	25.0	24.0	24.5	27.5	23.0	26.0	16.5	16.0	16.0	34.0	31.5	33.0
7	24.5	23.5	24.0	27.5	25.0	27.0	17.0	16.0	16.5	34.0	29.5	31.5
8	25.0	23.0	24.0	27.5	24.5	26.5	18.5	16.5	17.0	34.5	29.0	33.0
9	24.5	23.5	24.5	34.0	24.5	30.0	18.5	17.0	17.5	35.0	26.0	28.0
10	25.0	23.5	24.5	33.5	28.5	32.5	19.0	17.5	18.0	35.0	31.0	33.5
11	26.0	24.5	25.0	33.5	30.0	32.0	20.5	18.5	19.5	34.5	31.0	33.5
12	26.5	25.0	25.5	33.0	32.5	33.0	20.5	19.5	19.5	35.0	31.0	33.5
13	26.5	24.5	26.0	33.5	31.0	32.5	21.5	20.0	20.5	35.5	32.0	33.5
14	26.5	24.5	26.0	33.0	31.0	32.5	21.5	20.5	21.0	36.0	34.0	35.5
15	26.5	24.0	26.0	33.0	27.5	30.5	21.5	20.5	21.0	36.0	34.0	35.5
16	25.5	23.5	25.0	33.5	28.5	32.0	21.0	20.5	20.5	36.5	32.5	35.0
17	25.5	24.0	24.5	34.0	30.0	33.0	22.0	20.5	21.0	36.0	32.5	35.0
18	24.5	24.0	24.0	34.0	28.0	30.5	23.0	21.0	22.0	36.0	32.0	34.5
19	24.5	24.0	24.0	34.5	30.0	33.0	22.5	22.0	22.5	36.0	32.0	34.5
20	24.0	23.0	23.5	34.5	28.5	32.5	23.5	22.0	22.5	36.0	32.0	34.5
21	23.0	22.5	23.0	30.0	20.5	21.5	23.0	22.0	22.5	36.5	32.5	35.5
22	23.0	22.5	23.0	22.0	20.5	21.0	27.5	22.0	23.5	37.0	34.0	36.0
23	23.0	23.0	23.0	21.5	21.0	21.5	31.0	24.0	28.5	37.5	34.5	36.5
24	23.0	22.0	22.5	21.0	20.0	20.5	31.5	27.5	30.0	37.5	34.0	36.0
25	22.0	15.0	17.5	21.0	20.5	20.5	32.5	28.0	30.5	37.5	32.5	36.0
26	19.0	14.0	14.5	21.0	20.0	20.5	33.0	28.5	31.0	37.0	33.5	36.0
27	25.0	19.5	22.0	20.5	20.0	20.0	33.5	25.0	31.0	36.5	35.0	36.0
28	25.0	23.0	25.0	21.5	20.0	20.5	33.5	29.0	32.0	36.0	35.0	35.5
29	---	---	---	20.5	17.0	18.5	33.0	29.5	31.5	35.5	33.0	34.5
30	---	---	---	17.0	16.0	16.5	33.5	29.0	32.0	34.0	30.0	33.0
31	---	---	---	18.0	16.0	16.5	---	---	---	35.0	30.5	33.5
MONTH	26.5	14.0	23.5	34.5	16.0	26.0	33.5	16.0	22.5	37.5	26.0	34.0

08177360 COLETO CREEK RESERVOIR (CONDENSER NO. 1) NEAR FANNIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	35.5	31.0	34.0	39.5	36.5	38.5	40.0	39.0	39.5	36.5	35.5	36.0
2	35.5	32.0	34.5	39.5	37.5	38.5	40.0	39.0	39.5	38.0	35.0	36.5
3	35.5	32.0	34.0	39.5	37.5	38.5	40.5	39.0	39.5	38.5	36.0	37.0
4	35.0	31.0	33.5	39.5	37.5	39.0	40.5	39.0	39.5	37.5	36.5	37.0
5	35.0	29.5	32.5	39.5	37.5	39.0	40.5	39.0	40.0	37.5	36.5	37.0
6	35.5	32.5	34.5	40.0	38.5	39.0	40.5	39.0	40.0	37.5	36.5	37.0
7	36.0	32.0	34.5	39.5	38.5	39.0	40.5	39.5	40.0	37.5	36.5	37.0
8	35.5	32.0	34.5	39.0	37.5	38.5	40.0	39.5	40.0	38.0	36.5	37.0
9	35.0	31.5	34.0	39.0	37.0	38.5	40.5	39.5	40.0	39.0	37.0	37.5
10	35.5	32.5	35.0	38.5	37.0	37.5	41.0	40.0	40.0	38.0	37.0	37.5
11	36.0	32.5	34.0	39.5	37.0	38.5	41.0	39.0	40.5	37.5	36.5	37.0
12	37.0	32.5	35.5	39.5	37.5	39.0	39.5	38.5	39.5	37.5	36.5	37.0
13	37.0	34.5	36.0	39.5	38.0	39.0	39.0	37.5	38.5	37.5	36.5	37.0
14	37.0	33.0	36.0	40.0	38.0	39.5	39.5	37.5	38.5	38.0	36.5	37.5
15	38.5	35.5	37.5	40.5	39.5	40.0	39.5	37.5	38.5	38.0	37.0	37.5
16	38.0	36.5	37.5	40.0	39.5	40.0	39.0	37.5	38.5	38.0	37.0	37.5
17	38.0	35.5	37.0	39.5	38.5	39.0	39.5	37.5	38.5	38.5	37.0	37.5
18	38.0	35.0	37.0	39.5	37.5	39.0	39.5	37.5	38.5	38.5	30.0	37.0
19	38.5	37.0	38.0	39.5	37.5	39.0	40.0	38.0	38.5	30.0	29.5	29.5
20	38.5	36.5	38.0	39.5	36.5	38.0	39.5	37.5	38.5	29.5	29.0	29.5
21	39.0	37.0	38.0	39.5	38.0	39.0	39.5	37.5	38.5	30.0	29.0	29.5
22	39.5	37.0	38.5	40.0	37.5	39.0	39.0	37.5	38.5	29.5	29.0	29.0
23	39.5	37.5	38.5	40.0	39.0	39.5	39.0	37.5	38.5	35.0	30.5	34.0
24	40.0	37.5	39.0	39.5	38.5	39.0	39.5	37.5	39.0	35.0	28.0	33.0
25	40.0	37.5	39.0	38.5	37.0	38.0	40.0	38.5	39.0	35.0	32.0	34.0
26	39.5	35.5	38.5	39.0	36.5	38.0	39.0	37.5	38.5	35.0	34.0	34.5
27	40.0	36.0	39.0	39.0	36.5	38.0	39.0	37.5	38.5	35.0	34.5	35.0
28	40.0	35.5	38.5	39.5	35.5	38.5	38.5	37.5	38.0	35.5	34.5	35.0
29	40.0	37.0	39.0	39.5	38.5	39.0	38.0	37.5	38.0	35.0	34.0	34.5
30	39.5	37.0	38.5	40.0	38.5	39.5	37.5	37.0	37.0	34.0	31.5	33.0
31	---	---	---	40.0	39.0	39.5	37.0	35.5	36.5	---	---	---
MONTH	40.0	29.5	36.5	40.5	35.5	39.0	41.0	35.5	39.0	39.0	28.0	35.5

08177400 COLETO CREEK RESERVOIR NEAR VICTORIA, TX

LOCATION.--Lat 28°43'51", long 97°09'53", Victoria County, Hydrologic Unit 12100204, on right bank 175 ft upstream from right end of spillway of dam on Coleto Creek, 1.6 mi upstream from U.S. Highway 59, 11.6 mi west of Victoria, and 12.8 mi upstream from mouth.

DRAINAGE AREA.--494 mi².

PERIOD OF RECORD.--February 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is 80.00 ft above National Geodetic Vertical Datum of 1929.
Supplementary gage (Turkey Creek Arm).--Water-stage recorder 2.7 mi upstream at datum 90.00 ft above National Geodetic Vertical Datum of 1929. Coleto Creek Reservoir (Turkey Creek Arm) near Schroeder (station 08177240) is locally known as Dike No. 2.
Supplementary gage (Sulphur Creek Arm).--Water-stage recorder 2.8 mi upstream at datum 90.00 ft above National Geodetic Vertical Datum of 1929. Coleto Creek Reservoir (Sulphur Creek Arm) near Fannin (station 08177380) is known locally as Dike No. 1.

REMARKS.--The reservoir system consists of the main reservoir (station 08177400), Turkey Creek Arm (station 08177240), and Sulphur Creek Arm (station 08177380). Figures shown below are the total contents for each of the three stations. Cooling water is diverted from the main reservoir through a Central Power and Light coal-fired generating plant, through a canal to the Sulphur Creek Arm, and then through a canal to Turkey Creek Arm where it is released back into the main reservoir. The system was built for the Guadalupe-Blanco River Authority, and storage began in February 1980.
The main reservoir is formed by a compacted earthfill dam 20,800 ft long, including a 2,000-foot uncontrolled spillway and a 403-foot wide concrete outlet structure with seven 40- x 28-foot spillway gates. Low-flow releases are made through the dam by a controlled 8-inch pipe. Turkey Creek Arm is formed by a compacted earthfill dam 2,250 ft long, including a 186-foot wide concrete outlet structure with two 40- x 11-foot spillway gates. Sulphur Creek Arm is formed by a compacted earthfill dam 1,030 ft long, including a 186-foot wide concrete outlet structure with two 40- by 11-foot spillway gates. Data regarding the dams and reservoirs are given in the following table:

	Coleto Creek Reservoir		Turkey Creek Arm		Sulphur Creek Arm	
	Gage height (feet)	Contents (acre-feet)	Gage height (feet)	Contents (acre-feet)	Gage height (feet)	Contents (acre-feet)
Top of dam.....	39.0	140,200	17.0	7,330	17.0	2,550
Spillway.....	27.3	63,560	--	--	--	--
Top of spillway gates...	19.0	34,000	12.9	4,950	12.9	1,640
Crest of spillway.....	-9.0	954	1.89	1,400	1.91	306

COOPERATION.--Elevations and capacity tables were provided by Forrest and Cotton Engineers, Consulting Engineers for the Guadalupe-Blanco River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 40,330 acre-ft Feb. 25, 1982; no appreciable storage prior to Feb. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 38,720 acre-ft Dec. 22; minimum, 34,930 acre-ft Oct. 4, 5.

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35050	37000	37060	37010	37440	37550	37780	37350	36990	37530	37590	36380
2	35030	36960	37000	37200	37440	37310	37810	37330	37310	37560	37550	36370
3	34990	37010	37000	37140	37480	37250	37790	37320	36920	37560	37500	36280
4	34930	36980	37010	37110	37540	37480	37790	37330	37590	37560	37440	36220
5	34930	36850	36980	37250	37280	37660	37810	37310	37380	37560	37390	36190
6	34950	36880	37060	37120	37240	37780	37880	37350	37020	37560	37290	36120
7	35040	36970	37060	37230	37280	37920	37900	37350	36920	37530	37250	36080
8	35080	36990	37060	37260	37360	38060	37950	37410	36960	37700	37180	36060
9	35080	36920	36850	37210	37270	37780	37950	37400	37190	37760	37470	35980
10	35030	36940	36730	37180	37530	37530	37990	37370	37660	37660	37430	35920
11	36170	36630	36640	37140	37620	37670	38010	37380	37470	37620	37360	36160
12	36600	36620	36620	37240	37700	37750	38050	37360	37880	37610	37290	36090
13	37020	36530	36680	37350	37770	37840	37650	37360	38140	37610	37220	36060
14	37280	36600	36880	37510	37640	37910	37590	37290	37240	37580	37130	35990
15	37340	36640	37290	37600	37470	37680	37590	37260	37360	37580	37050	35930
16	37310	36790	37280	37440	37470	37800	37590	37590	37030	37540	36960	35890
17	37310	36770	37480	37260	37430	37570	37590	37580	37370	37450	36860	35810
18	37250	36770	37130	36950	37430	37600	37590	37540	37200	37420	36810	36400
19	37250	36800	37220	36900	37540	37610	37570	37490	37310	37380	36730	36440
20	37190	36710	37290	37040	37210	37660	37550	37460	37540	37350	36660	36420
21	37470	36640	37630	37210	37320	37740	37570	37430	37400	37630	36600	36360
22	38020	36760	38720	37240	37390	37800	37550	37370	37540	37600	36540	36210
23	37360	36990	37600	37440	37510	37830	37520	37310	37680	37610	36460	36100
24	37320	37030	37020	36970	37570	37870	37560	37230	37790	37670	36390	36030
25	37410	37200	37020	36930	38000	37870	37530	37170	37640	37720	36360	35950
26	37160	37220	37310	37010	37230	37930	37530	37070	37620	37710	36310	35960
27	36900	37150	36710	37110	37120	37930	37480	37000	37660	37810	36270	35960
28	36970	37120	36850	37210	37340	38000	37480	36970	37700	37810	36280	36070
29	36980	37120	37040	37270	---	37890	37410	37320	37740	37770	36260	35980
30	36970	37120	37220	37220	---	37800	37390	37410	37440	37710	36390	35850
31	37010	---	36950	37370	---	37810	---	37540	---	37680	36410	---
MAX	38020	37220	38720	37600	38000	38060	38050	37590	38140	37810	37590	36440
MIN	34930	36530	36620	36900	37120	37250	37390	36970	36920	37350	36260	35810
(†)	+1920	+110	-170	+420	-30	+470	-420	+150	-100	+240	-1270	-560

CAL YR 1986 MAX 38720 MIN 33710 (†) +230
WTR YR 1987 MAX 38720 MIN 34930 (†) +760

(†) Change in contents, in acre-feet.

08177410 COLETO CREEK RESERVOIR (OUTFLOW) NEAR VICTORIA, TX

LOCATION.--Lat 28°43'54", long 97°09'50", Victoria County, Hydrologic Unit 12100204, on top of Coleto Creek Dam at Pier No. 4, 1.6 mi upstream from U.S. Highway 59, and 11.6 mi west of Victoria.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1980 to current year.

INSTRUMENTATION: Beginning May 1980, water temperature is recorded continuously at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 32.5°C July 16, 1983; minimum, 7.5°C Dec. 31, 1983, Jan. 1, 2, 1984.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum 29.5°C Oct. 1-4, Sept. 18-21; minimum, 9.5°C Dec. 25-29.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08177410 COLETO CREEK RESERVOIR (OUTFLOW) NEAR VICTORIA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08177500 COLETO CREEK NEAR VICTORIA, TX

LOCATION.--Lat 28°43'51", long 97°08'18", Victoria County, Hydrologic Unit 12100204, on left bank at downstream side of westbound bridge on U.S. Highway 59, 1.6 mi downstream from Coleto Creek dam, 9.0 mi southwest of Victoria, and 11.2 mi upstream from mouth.

DRAINAGE AREA.--514 mi².

PERIOD OF RECORD.--June 1939 to September 1954, June 1978 to current year.

REVISED RECORDS.--WSP 1562: 1939-40. WSP 1732: 1941.

GAGE.--Water-stage recorder. Datum of gage is 44.18 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1955, at datum 5.0 ft higher.

REMARKS.--Records good except those for estimated daily discharges, and those below 4 ft³/s, which are fair. Since Feb. 21, 1980, flow is completely regulated by Coleto Creek Reservoir, 1.6 mi upstream. Diversions from the Guadalupe River basin to the Coleto Creek basin upstream from Coleto Creek Reservoir began Mar. 6, 1980 (see station 08176990). There are no other large diversions above station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--16 years (water years 1940-54, 1979) prior to regulation by Coleto Creek Reservoir, 92.7 ft³/s (67,160 acre-ft/yr); 7 years (water years 1981-87) regulated, 104 ft³/s (75,350 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 89,000 ft³/s Oct. 16, 1946 (gage height, 36.64 ft, present datum, from floodmark) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since at least 1875, 236,000 ft³/s Sept. 22, 1967 (gage height, 42.0 ft, from floodmark), present site and datum, on basis of slope-area measurement of peak flow. Flood of Apr. 20, 1976, reached a stage of 37.85 ft, at site 0.2 mi upstream at present datum. Flood of July 1, 1936, reached a stage of 32.2 ft, present site and datum, from information by railroad company.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,100 ft³/s June 11 at 1400 hours (gage height, 19.15 ft); minimum daily, 0.58 ft³/s Dec. 20.

DISCHARGE, IN 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	1.8	3.6	4.6	24	6.4	258	6.5	4.6	233	19	6.8	4.8
2	1.9	3.0	3.5	20	5.6	262	6.3	4.8	82	10	6.4	4.6
3	1.8	2.7	3.1	18	5.1	130	6.5	4.6	1330	8.2	6.5	4.5
4	1.9	2.9	3.4	17	4.8	14	6.3	4.8	2460	7.2	6.4	4.4
5	1.8	2.2	3.5	17	179	9.9	6.6	4.9	4710	6.4	5.9	4.4
6	2.2	1.9	3.7	112	14	8.7	6.8	4.8	1260	5.9	5.9	4.4
7	3.2	2.0	3.9	14	6.5	8.0	6.6	4.8	276	5.5	5.5	4.4
8	2.7	2.0	4.0	7.8	5.2	7.4	6.5	4.6	219	6.4	5.3	4.2
9	2.3	1.9	4.2	6.8	4.8	136	6.6	4.7	814	6.9	6.2	4.0
10	2.1	1.7	3.9	6.5	4.5	104	6.5	4.6	1180	82	6.7	4.1
11	11	1.8	3.9	6.5	6.1	10	6.5	4.9	8430	13	5.3	5.0
12	11	1.8	3.8	5.9	5.8	7.4	6.3	4.8	4880	6.4	4.8	7.6
13	8.9	3.3	4.7	4.3	5.6	6.9	181	5.7	3070	6.0	4.6	5.2
14	6.8	2.6	6.0	4.4	4.9	6.8	9.6	5.9	4570	5.9	4.6	4.6
15	4.5	2.1	625	3.8	4.9	117	6.8	4.9	291	5.8	4.7	4.2
16	2.9	2.0	174	692	4.9	8.4	6.2	5.7	e15	5.6	4.8	3.9
17	2.2	1.9	5.1	815	4.9	130	6.0	6.2	e7.5	5.4	4.6	3.9
18	2.1	1.7	217	470	4.8	11	5.9	4.6	359	5.3	4.5	23
19	2.0	1.6	3.5	200	5.6	6.6	5.9	3.7	e42	5.2	4.4	35
20	2.0	1.5	.58	18	242	20	5.5	3.5	22	7.2	4.4	8.0
21	2.4	1.9	38	13	15	7.3	5.4	3.3	113	8.6	4.4	6.1
22	424	2.4	4550	11	12	5.9	5.1	3.5	13	6.6	4.4	5.4
23	3100	33	1870	10	10	5.5	5.2	3.7	9.8	5.7	4.4	5.4
24	528	74	720	241	807	5.4	5.1	3.6	8.3	7.1	4.6	5.4
25	129	84	275	16	892	5.2	5.1	3.5	119	12	4.6	5.2
26	198	39	67	8.7	4260	5.1	4.9	3.5	31	8.4	5.3	5.4
27	335	22	340	8.1	1370	5.9	4.8	3.5	6.1	7.4	4.6	5.5
28	24	13	27	7.9	605	6.4	4.9	3.6	4.7	7.8	4.7	7.2
29	10	8.6	30	7.3	---	6.5	4.9	5.4	4.1	8.7	4.7	6.3
30	6.3	6.0	26	6.7	---	6.5	4.9	4.1	487	7.9	5.1	5.8
31	4.5	---	138	6.5	---	6.7	---	3.5	---	7.0	5.5	---
TOTAL	4836.3	328.1	9162.38	2799.2	8496.4	1328.5	355.2	138.3	35046.5	310.5	160.6	201.9
MEAN	156	10.9	296	90.3	303	42.9	11.8	4.46	1168	10.0	5.18	6.73
MAX	3100	84	4550	815	4260	262	181	6.2	8430	82	6.8	35
MIN	1.8	1.5	.58	3.8	4.5	5.1	4.8	3.3	4.1	5.2	4.4	3.9
AC-FT	9590	651	18170	5550	16850	2640	705	274	69510	616	319	400

CAL YR 1986 TOTAL 16520.34 MEAN 45.3 MAX 4550 MIN .58 AC-FT 32770
WTR YR 1987 TOTAL 63163.41 MEAN 173 MAX 8430 MIN .58 AC-FT 125300

e Estimated.

08177700 OLMOS CREEK AT DRESDEN DRIVE, SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°29'56", long 98°30'36", Bexar County, Hydrologic Unit 12100301, on right bank 30 ft downstream from low-water bridge on Dresden Drive at San Antonio, 0.15 mi west of intersection of Blanco Road and Dresden Drive, and 4.0 mi upstream from Olmos Dam.

DRAINAGE AREA.--21.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to September 1981 (as a continuous-record station), October 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 726.10 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Recording rain gage at station, with three additional recording rain gages in the watershed. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--13 years (water years 1968-81), 4.34 ft³/s (2.78 in/yr), 3,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/s June 4, 1986 (gage height, 9.85 ft); maximum gage height, 14.82 ft (from floodmark) Sept. 13, 1978; no flow at times.
Maximum stage since 1935, that of Sept. 13, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in September and November 1947 reached a stage of 8.5 ft, from information by local resident.

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)
Oct. 6	0410	986	5.13	May 29	0755	3,810	7.59
Oct. 11	0805	1,590	5.79	May 31	1455	*5,080	*8.36
Oct. 12	0535	1,580	5.78	June 2	0345	1,990	6.13
Dec. 22	1420	776	4.80	June 3	1140	3,210	7.16
May 5	1945	1,400	5.60	June 4	1305	2,010	6.15
May 6	1430	1,210	5.40	June 10	1545	1,710	5.90
May 19	2030	926	5.04	June 11	0630	2,370	6.49

Minimum discharge, no flow most of year.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: October 1972 to September 1973. Water temperatures: November 1968 to current year. Bacteria analyses: April 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
DEC											
22...	1400	1050	124	7.00	7.5	130	170	7.7	--	4.9	16000
MAY											
19...	0915	391	192	7.50	22.0	34	140	8.4	99	6.0	--
29...	1110	1630	121	6.10	24.5	85	66	--	--	6.3	--
29...	1420	590	135	7.80	--	65	120	--	--	3.4	--
JUN											
11...	1120	1720	184	8.10	24.0	39	39	8.3	--	--	1100
JUL											
16...	1245	32	664	7.74	29.0	8	0.30	13.7	183	1.8	720
SEP											
02...	1135	43	735	7.70	27.0	5	0.70	14.0	180	1.5	340

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
DEC											
22...	70000	54	4	20	1.1	2.3	0.1	2.9	50	9.4	2.2
MAY											
19...	65000	74	13	27	1.7	11	0.6	3.2	61	15	15
29...	--	52	3	19	1.2	2.3	0.1	3.8	49	10	3.0
29...	--	58	2	21	1.4	2.6	0.2	3.6	56	9.8	3.2
JUN											
11...	18000	75	8	28	1.3	2.3	0.1	3.8	67	13	2.9
JUL											
16...	300	260	87	90	9.0	37	1	3.3	175	96	41
SEP											
02...	360	280	68	90	13	42	1	4.3	210	86	39

08177700 OLMOS CREEK AT DRESDEN DRIVE, SAN ANTONIO, TX--Continued
(Flood-hydrograph partial-record station)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
DEC											
22...	<0.10	5.4	73	320	27	0.370	0.030	0.400	0.060	1.4	1.5
MAY											
19...	<0.10	4.4	110	334	76	0.550	0.050	0.600	0.550	1.2	1.8
29...	<0.10	5.2	74	109	44	0.460	0.040	0.500	0.160	1.6	1.8
29...	<0.10	6.2	81	212	52	0.440	0.060	0.500	0.130	0.97	1.1
JUN											
11...	<0.10	11	100	55	12	0.270	0.030	0.300	0.090	1.1	1.2
JUL											
16...	0.40	20	400	<1	<1	1.69	0.010	1.70	0.050	0.85	0.90
SEP											
02...	0.40	24	420	13	8	--	<0.010	0.700	0.060	1.2	1.3

DATE	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
DEC											
22...	0.180	11	2	16	<1	<10	2	46	<5	<1	<0.1
MAY											
19...	0.090	44	1	<100	1	<10	5	60	<5	30	<0.1
29...	0.220	14	1	15	<1	<10	2	53	<5	5	<0.1
29...	0.260	14	--	--	--	--	--	--	--	--	--
JUN											
11...	0.200	6.9	--	--	--	--	--	--	--	--	--
JUL											
16...	0.030	7.5	2	62	<1	20	<1	18	<5	5	0.1
SEP											
02...	0.030	7.9	--	--	--	--	--	--	--	--	--

DATE	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
DEC											
22...	<1	<1	8	<0.1	<0.10	<0.010	<0.1	<0.010	0.010	<0.010	0.15
MAY											
19...	<1	<1	50	<0.1	<0.10	<0.010	0.1	<0.010	<0.010	0.010	0.27
29...	<1	<1	26	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUN											
11...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	<1	<1	8	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.08
SEP											
02...	--	--	--	--	--	--	--	--	--	--	--

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
DEC										
22...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY										
19...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.10	<0.01	0.05
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
JUN										
11...	--	--	--	--	--	--	--	--	--	--
JUL										
16...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
SEP										
02...	--	--	--	--	--	--	--	--	--	--

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
DEC										
22...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.01	<0.01	<0.01
MAY										
19...	<0.01	<0.01	0.01	<0.1	<0.01	<1	<0.01	0.04	<0.01	<0.01
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
JUN										
11...	--	--	--	--	--	--	--	--	--	--
JUL										
16...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.01	<0.01	0.04
SEP										
02...	--	--	--	--	--	--	--	--	--	--

08177800 OLMOS RESERVOIR AT SAN ANTONIO, TX

LOCATION.--Lat 29°28'24", long 98°28'26", Bexar County, Hydrologic Unit 12100301, in gate house near middle of dam on Olmos Drive, 0.8 mi upstream from Hildebrand Street, 1.5 mi upstream from Brackenridge Park Zoo, and 4.0 mi downstream from gaging station 08177700.

DRAINAGE AREA.--32.4 mi².

PERIOD OF RECORD.--June 1968 to September 1971, April 1976 to current year.

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

REMARKS.--The dam is a concrete gravity-type structure with a maximum height of 50 ft with a total length of 1,941 ft, and a spillway crest length of 1,051 ft. The dam, spillway section, and gate house, were rebuilt in 1980. The outlet structure consists of six vertical slide-gate-controlled concrete conduits with entrance dimensions of 5.75 ft wide by 7.83 ft high. Gates are maintained and operated by city of San Antonio Fire Department as required to control downstream flooding. Reservoir is empty except during flooding when it is used as a detention reservoir. The reservoir has a surface area of about 950 acres at top of dam. Dam is owned by city of San Antonio. A rain gage and gage-height telemeter are located at station. Prior to the 1983 water year, elevation published at 2400 hours. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Design flood (probably maximum flood)	736.4	24,150
Floor of gate operating room	736.0	23,560
Top of dam (crest of spillway)	728.0	14,240
Lowest gated outlet (invert)	680.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 708.65 ft June 4, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 701.52 ft June 11.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	681.66	681.66	681.66	682.01	e681.66	682.66	681.66	681.66	700.51	681.66	681.66	681.66
2	681.66	681.66	681.66	682.04	681.66	682.20	681.66	681.66	696.69	681.66	681.66	681.66
3	681.66	681.66	681.66	682.21	681.66	682.13	681.66	681.66	697.03	681.66	681.66	681.66
4	681.66	685.38	681.66	682.21	681.66	682.12	681.66	688.51	695.63	681.66	681.66	681.66
5	684.55	681.95	682.27	682.31	686.05	682.13	681.66	690.23	693.47	681.66	681.66	681.66
6	691.00	681.66	682.81	682.29	682.56	682.19	681.66	689.24	681.73	681.66	681.66	681.66
7	683.48	681.66	684.29	682.30	681.66	682.16	681.66	684.04	681.66	681.66	681.66	694.35
8	681.66	681.66	682.62	683.52	681.66	682.15	681.66	681.66	685.21	681.66	681.66	694.37
9	681.66	681.66	682.62	682.78	681.66	682.16	681.66	681.66	684.59	681.66	681.66	681.84
10	681.66	682.06	685.54	682.17	681.66	682.23	681.66	681.66	695.14	681.66	681.66	681.85
11	693.82	683.34	682.83	681.92	681.66	686.70	681.66	681.66	701.52	681.66	681.66	681.82
12	696.59	683.55	681.66	681.95	681.66	682.00	681.66	681.69	700.04	681.66	681.66	681.82
13	683.74	683.40	681.66	682.03	681.66	682.00	681.66	686.76	690.71	681.66	681.66	681.82
14	681.81	681.66	687.79	682.29	681.66	681.93	681.66	687.16	682.73	682.06	681.66	681.82
15	681.66	681.66	688.09	682.25	685.57	682.02	681.66	681.98	682.43	681.85	681.66	681.82
16	681.66	681.66	681.97	682.19	681.66	682.26	681.66	681.86	682.45	681.66	681.66	681.82
17	681.66	681.66	681.66	687.66	681.71	685.92	681.66	681.66	682.49	681.67	681.66	681.82
18	681.66	681.66	683.49	683.39	681.76	681.76	681.66	681.66	682.58	681.66	681.66	682.33
19	681.66	681.66	681.66	682.08	682.72	681.66	681.66	694.88	682.54	681.66	681.66	681.83
20	681.66	681.66	681.66	681.98	685.42	681.66	681.66	694.74	682.52	681.66	681.66	681.82
21	685.33	681.66	685.84	685.67	681.98	681.66	681.66	689.39	682.51	681.66	681.66	681.82
22	687.21	681.66	700.70	683.00	681.97	681.66	681.66	683.27	682.50	681.66	681.66	681.83
23	685.17	683.91	700.11	682.22	682.23	684.05	681.66	681.70	682.39	681.66	681.66	681.82
24	683.08	689.09	688.51	682.09	687.88	681.88	686.40	681.75	681.66	681.66	681.66	681.82
25	681.74	689.07	682.78	682.00	690.27	681.66	682.10	681.81	681.70	681.66	681.66	681.82
26	683.17	681.66	682.36	e681.90	689.13	681.66	681.66	681.79	681.67	681.66	681.66	681.82
27	682.69	681.66	682.20	e681.80	686.86	681.66	681.66	681.78	681.66	681.66	681.66	681.82
28	681.66	681.66	682.10	e681.75	686.84	681.66	681.66	681.82	681.66	681.66	681.66	685.37
29	681.66	681.66	684.22	e681.70	---	681.66	681.66	701.25	681.66	681.66	681.66	682.56
30	681.66	681.66	682.45	e681.66	---	681.66	681.66	698.87	681.66	681.66	681.66	681.84
31	681.66	---	682.05	e681.66	---	681.66	---	700.88	---	681.66	681.66	---
MAX	696.59	689.09	700.70	687.66	690.27	686.70	686.40	701.25	701.52	682.06	681.66	694.37
MIN	681.66	681.66	681.66	681.66	681.66	681.66	681.66	681.66	681.66	681.66	681.66	681.66

CAL YR 1986 MAX 708.65 MIN 681.66
WTR YR 1987 MAX 701.52 MIN 681.66

e Estimated.

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX

LOCATION.--Lat 29°24'34", long 98°29'41", Bexar County, Hydrologic Unit 12100301, on left bank 193 ft downstream from South Alamo Street Bridge in San Antonio, 2.1 mi upstream from San Pedro Creek, and 230.6 mi upstream from mouth.

DRAINAGE AREA.--41.8 mi². Flow of river comes from intermittent spring flow and from artesian wells; drainage area of streams not applicable.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1895 to June 1906 (periodic discharge measurements only), January 1915 to November 1929, February 1939 to current year. Ground-water discharge into river is discussed by Petit and George, Texas Board of Water Engineers Bull. 5608, vol. 1 (1956, p. 45).

REVISED RECORDS.--WSP 1312: 1917. WSP 1923: Drainage area. WDR TX-72-1: 1971(m).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 605.26 ft above National Geodetic Vertical Datum of 1929. Jan. 26, 1915, to Feb. 27, 1916, nonrecording gage at site 1.3 mi upstream at different datum. Feb. 28, 1916, to Apr. 7, 1920, nonrecording gage at site 1.1 mi upstream at different datum. Apr. 8, 1920, to Nov. 16, 1929, and Feb. 15, 1939, to Apr. 25, 1967, water-stage recorder in vicinity of South Alamo Street Bridge at 7.00-foot higher datum. Apr. 25, 1967, to May 13, 1969, water-stage recorder at site 307 ft downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Floodflow is regulated by Olmos flood-control reservoir (capacity, 14,240 acre-ft), about 8.5 mi upstream. Olmos Dam was completed in 1926 and rebuilt in 1980. Springs emerge intermittently from the Edwards and associated limestones along the Balcones Fault Zone upstream from station. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--62 years, 54.9 ft³/s (17.84 in/yr), 39,780 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft³/s Sept. 10, 1921 (gage height, 20.14 ft, from floodmark), at former site and datum, from rating curve extended above 2,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times due to regulation.
Maximum stage since 1819, that of Sept. 10, 1921.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,170 ft³/s May 19 at 2055 hours (gage height, 13.91 ft); minimum daily, 2.7 ft³/s Oct. 9.

DISCHARGE, IN 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	6.3	20	24	85	87	101	86	e22	656	140	97	71
2	9.6	21	23	91	86	110	84	e13	1090	134	109	69
3	7.2	21	22	82	85	109	84	e76	769	129	105	69
4	6.6	55	22	82	83	110	82	e60	705	126	122	66
5	64	27	23	83	145	110	89	e94	311	125	92	65
6	285	23	26	83	87	111	88	e82	143	120	79	64
7	37	14	50	83	85	111	85	e68	141	116	104	254
8	9.3	20	30	88	85	112	82	e58	163	114	94	202
9	2.7	22	31	86	92	110	81	e54	181	118	91	96
10	8.1	26	43	86	81	110	81	e52	376	117	90	77
11	320	25	18	67	82	137	79	e52	914	117	86	88
12	580	26	14	80	65	108	77	53	751	116	82	81
13	37	26	19	81	82	108	76	88	319	112	78	91
14	14	21	114	82	83	107	73	88	187	129	57	114
15	14	21	142	82	125	107	70	62	184	198	67	96
16	12	21	26	84	82	116	48	61	182	114	66	73
17	5.4	21	29	160	84	137	58	59	180	139	66	85
18	9.6	21	39	88	81	104	56	59	184	125	73	89
19	12	20	31	85	85	102	53	555	178	122	58	93
20	13	21	29	85	131	101	67	313	178	134	55	91
21	55	20	42	99	85	100	39	158	177	133	35	105
22	113	20	1110	83	85	98	54	69	176	132	52	96
23	48	43	583	68	86	102	54	65	172	129	53	94
24	23	61	164	84	195	94	124	64	167	128	66	93
25	20	74	89	85	241	92	51	62	167	127	52	91
26	37	25	96	84	283	92	50	62	148	136	48	90
27	12	25	100	85	134	91	e48	61	155	134	48	94
28	18	24	84	97	142	91	e45	63	153	122	42	108
29	20	24	118	69	---	89	e42	715	151	120	59	107
30	20	24	91	85	---	89	e37	574	146	121	61	96
31	20	---	95	84	---	88	---	491	---	117	69	---
TOTAL	1838.8	812	3327	2666	3067	3247	2043	4353	9404	3944	2256	2908
MEAN	59.3	27.1	107	86.0	110	105	68.1	140	313	127	72.8	96.9
MAX	580	74	1110	160	283	137	124	715	1090	198	122	254
MIN	2.7	14	14	67	65	88	37	13	141	112	35	64
AC-FT	3650	1610	6600	5290	6080	6440	4050	8630	18650	7820	4470	5770
CFSM	1.42	.65	2.57	2.06	2.62	2.51	1.63	3.36	7.50	3.04	1.74	2.32
IN.	1.64	.72	2.96	2.37	2.73	2.89	1.82	3.87	8.37	3.51	2.01	2.59

CAL YR 1986 TOTAL 18868.3 MEAN 51.7 MAX 2260 MIN .53 AC-FT 37430 CFSM 1.24 IN. 16.8
WTR YR 1987 TOTAL 39865.8 MEAN 109 MAX 1110 MIN 2.7 AC-FT 79070 CFSM 2.61 IN. 35.5

e Estimated.

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: June 1965 to current year. Sediment analyses: October 1968 to September 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
APR 09...	1256	82	495	8.00	22.5	1	9.6	13.0	153	1.1	280
JUN 11...	1020	650	323	7.70	25.0	100	200	8.0	100	--	20000
JUL 16...	1500	110	470	7.85	26.5	<1	6.4	7.9	101	0.8	5200
SEP 02...	1230	74	498	7.72	24.5	5	22	8.3	101	0.6	1800

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
APR 09...	84	240	31	71	16	13	0.4	1.8	212	25	23
JUN 11...	17000	140	--	47	6.4	8.4	0.3	4.4	--	20	12
JUL 16...	690	250	47	74	16	12	0.3	1.4	204	26	27
SEP 02...	240	210	30	62	14	10	0.3	1.8	182	24	16

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
APR 09...	0.20	10	290	2	<1	1.59	0.010	1.60	0.010	--	<0.20
JUN 11...	0.10	12	--	326	49	0.970	0.030	1.00	0.110	1.2	1.3
JUL 16...	0.20	13	290	7	<1	1.79	0.010	1.80	0.090	0.51	0.60
SEP 02...	0.20	13	250	29	4	--	<0.010	1.60	0.030	--	<0.20

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	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)
APR 09...	0.020	12	--	--	--	--	--	--	--	--	--
JUN 11...	0.250	10	--	--	--	--	--	--	--	--	--
JUL 16...	0.040	1.5	<1	65	<1	<10	<1	<3	25	7	0.1
SEP 02...	0.020	0.9	--	--	--	--	--	--	--	--	--

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
APR 09...	--	--	--	--	--	--	--	--	--	--	--
JUN 11...	--	--	--	--	--	--	--	--	--	--	--
JUL 16...	<1	<1	<3	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.01
SEP 02...	--	--	--	--	--	--	--	--	--	--	--

08178000 SAN ANTONIO RIVER AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
APR 09...	--	--	--	--	--	--	--	--	--	--
JUN 11...	--	--	--	--	--	--	--	--	--	--
JUL 16...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
SEP 02...	--	--	--	--	--	--	--	--	--	--

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
APR 09...	--	--	--	--	--	--	--	--	--	--
JUN 11...	--	--	--	--	--	--	--	--	--	--
JUL 16...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01
SEP 02...	--	--	--	--	--	--	--	--	--	--

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX

LOCATION.--Lat 29°19'18", long 98°26'57", Bexar County, Hydrologic Unit 12100301, on left bank, 0.2 mi downstream from Loop 410, at Camino Coahuilteca crossing.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March to August 1987. Sediment analyses: October 1968 to September 1973.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1986 to September 1987.
pH: December 1986 to September 1987.
WATER TEMPERATURE: December 1986 to September 1987.
DISSOLVED OXYGEN: December 1986 to September 1987.

INSTRUMENTATION.--Beginning December 1986, a four-parameter water-quality monitor continuously records specific conductance, ph, water temperature, 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.

SPECIFIC CONDUCTANCE: Maximum, 980 microsiemens Apr. 22; minimum, 130 microsiemens Dec. 22, 1986.
pH: Maximum, 8.1 units Feb. 9, May 5, Sept. 17; minimum, 7.1 units June 12.
WATER TEMPERATURE: Maximum, 30.0°C on several days during August and September.
DISSOLVED OXYGEN: Maximum, 10.6 mg/L Dec. 22; minimum, 2.9 mg/L Aug. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
MAR										
04...	1400	290	870	7.90	21.0	9.1	102	17	300	33
MAY										
12...	1020	206	792	7.80	26.0	7.9	99	16	250	21
AUG										
04...	1230	253	730	7.80	27.5	8.1	105	13	250	0
SEP										
01...	1200	210	750	7.90	27.0	6.8	86	--	260	10

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)
MAR									
04...	91	17	63	2	4.7	264	71	69	0.40
MAY									
12...	72	18	56	2	5.4	233	54	68	0.40
AUG									
04...	74	17	46	1	4.5	258	41	50	0.40
SEP									
01...	76	16	51	1	5.8	246	45	56	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-PHORUS, TOTAL (MG/L AS P)
MAR									
04...	15	490	2.44	0.260	2.70	3.90	0.90	4.8	0.460
MAY									
12...	13	430	1.08	0.520	1.60	6.50	0.90	7.4	2.10
AUG									
04...	13	400	1.32	0.280	1.60	4.20	14	18	1.90
SEP									
01...	15	410	1.09	0.210	1.30	4.70	0.10	4.8	1.50

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1							---	---	---	730	690	711
2							---	---	---	780	670	699
3							---	---	---	790	700	728
4							---	---	---	720	670	700
5							---	---	---	760	670	708
6							---	---	---	750	690	719
7							---	---	---	740	700	718
8							---	---	---	740	700	714
9							---	---	---	790	730	752
10							---	---	---	874	754	796
11							---	---	---	892	838	857
12							---	---	---	905	868	888
13							---	---	---	896	808	842
14							---	---	---	829	786	804
15							---	---	---	839	763	797
16							---	---	---	813	761	783
17							---	---	---	824	293	543
18							---	---	---	712	519	613
19							---	---	---	808	679	744
20							---	---	---	816	750	782
21							790	640	761	805	611	721
22							570	130	201	807	663	737
23							380	250	332	877	716	768
24							760	380	598	868	747	787
25							820	710	766	779	721	750
26							860	720	775	802	686	752
27							840	720	771	814	765	790
28							800	700	746	815	701	781
29							770	660	714	877	761	801
30							810	700	727	840	774	795
31							790	710	746	807	767	791
MONTH							860	130	649	905	293	754

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	807	740	767	922	715	818	861	748	805	872	802	847
2	823	742	779	936	825	875	863	791	830	887	805	849
3	826	765	798	945	847	891	836	752	799	858	778	821
4	838	768	805	---	---	875	847	766	807	851	477	671
5	839	525	702	---	---	860	788	738	763	815	306	668
6	726	545	630	890	800	842	846	731	779	551	337	423
7	838	736	773	860	800	833	856	785	821	913	430	625
8	840	819	830	840	740	790	829	747	796	845	709	791
9	831	774	795	860	750	811	827	744	796	878	762	818
10	849	808	822	880	750	830	839	736	795	869	777	825
11	857	769	819	830	620	723	819	759	796	895	758	822
12	965	777	838	850	740	794	793	720	762	890	782	835
13	935	785	830	870	780	818	836	722	781	860	551	745
14	833	772	803	860	780	818	817	734	792	781	350	581
15	779	405	603	840	780	813	860	746	805	852	701	773
16	835	728	758	870	780	824	936	769	830	842	772	803
17	842	755	802	810	440	654	956	803	876	802	742	778
18	868	762	809	900	750	819	907	804	847	883	722	784
19	868	763	810	900	800	835	827	744	791	893	191	545
20	794	479	608	845	766	812	810	715	770	603	251	415
21	817	672	725	847	788	811	948	748	812	643	382	540
22	819	750	787	801	742	777	980	823	881	784	593	677
23	879	752	806	843	706	779	887	804	840	814	734	773
24	841	290	509	876	746	814	870	425	736	805	735	773
25	747	272	589	849	749	805	830	479	665	825	735	776
26	614	301	413	832	752	802	791	725	755	836	756	796
27	840	459	722	845	754	793	868	748	795	846	786	811
28	734	420	587	818	767	796	859	740	815	827	777	796
29	---	---	---	801	729	764	883	806	851	827	383	550
30	---	---	---	844	732	780	901	808	855	465	404	427
31	---	---	---	824	745	787	---	---	---	626	424	522
MONTH	965	272	733	945	440	808	980	425	802	913	191	705

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	496	414	449	768	696	729	805	677	729	850	670	761
2	485	334	421	748	687	725	732	682	702	830	740	782
3	536	385	449	738	697	721	781	682	719	807	724	773
4	557	466	504	718	677	696	761	611	729	808	708	768
5	781	506	620	729	493	679	770	720	746	804	714	762
6	862	791	835	791	678	733	870	710	758	762	688	727
7	853	822	839	781	729	763	790	690	744	767	249	629
8	843	782	824	792	638	738	770	700	729	555	385	464
9	793	741	769	772	638	716	760	690	715	760	567	650
10	773	529	721	791	720	754	780	670	721	852	688	741
11	508	346	431	785	725	744	760	700	740	864	694	751
12	581	468	532	734	691	712	780	690	734	781	691	744
13	662	550	592	829	687	728	760	700	736	761	686	722
14	806	602	723	835	604	705	840	690	738	821	606	713
15	847	785	811	734	422	587	840	680	743	786	701	749
16	838	817	827	861	681	729	710	650	674	870	721	779
17	817	787	802	871	632	742	750	600	653	810	720	765
18	819	787	799	765	714	736	720	580	677	800	690	740
19	829	798	813	737	696	719	760	670	705	790	680	731
20	810	779	794	760	648	721	760	700	734	770	710	745
21	820	789	803	772	599	714	800	700	734	760	650	709
22	780	760	773	764	640	704	830	700	758	760	710	734
23	791	755	775	775	633	711	730	650	688	750	660	715
24	806	735	770	749	686	714	770	660	698	760	630	703
25	786	736	756	739	688	704	800	720	756	740	620	703
26	909	705	761	692	578	662	810	740	773	750	610	680
27	797	736	754	736	538	662	790	700	741	710	590	652
28	727	685	716	750	675	715	770	620	715	700	480	626
29	768	696	726	740	678	709	760	670	694	710	520	627
30	768	686	724	756	691	716	690	350	623	710	560	641
31	---	---	---	757	705	728	730	500	581	---	---	---
MONTH	909	334	704	871	422	713	870	350	716	870	249	710

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1							---	---	---	7.6	7.4	7.5
2							---	---	---	7.5	7.2	7.4
3							---	---	---	7.3	7.2	7.2
4							---	---	---	7.5	7.4	7.5
5							---	---	---	7.6	7.4	7.5
6							---	---	---	7.4	7.4	7.4
7							---	---	---	7.5	7.3	7.4
8							---	---	---	7.5	7.4	7.4
9							---	---	---	7.4	7.4	7.4
10							---	---	---	7.4	7.3	7.3
11							---	---	---	7.4	7.3	7.3
12							---	---	---	7.5	7.3	7.4
13							---	---	---	7.6	7.5	7.6
14							---	---	---	7.4	7.3	7.4
15							---	---	---	7.5	7.3	7.4
16							---	---	---	7.6	7.5	7.6
17							---	---	---	7.8	7.3	7.6
18							---	---	---	7.7	7.5	7.6
19							---	---	---	7.8	7.6	7.7
20							---	---	---	7.8	7.7	7.8
21							7.8	7.5	7.6	8.0	7.7	7.9
22							8.0	7.6	7.9	8.0	7.7	7.9
23							7.8	7.3	7.6	8.0	7.8	8.0
24							---	---	---	8.0	7.8	8.0
25							---	---	---	8.0	7.8	7.9
26							---	---	---	8.0	7.8	7.9
27							---	---	---	8.0	7.8	7.9
28							---	---	---	8.0	7.8	7.9
29							---	---	---	8.0	7.8	7.9
30							---	---	---	8.0	7.9	8.0
31							---	---	---	7.9	7.8	7.9
MONTH							8.0	7.3	7.7	8.0	7.2	7.6

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.9	7.8	7.9	7.8	7.7	7.8	7.9	7.8	7.9	7.7	7.5	7.6
2	7.9	7.8	7.9	7.8	7.8	7.8	8.0	7.8	7.9	7.8	7.7	7.7
3	7.9	7.8	7.9	7.9	7.8	7.8	7.8	7.7	7.8	7.8	7.7	7.7
4	7.9	7.8	7.8	7.9	7.8	7.9	7.9	7.8	7.9	7.8	7.6	7.7
5	7.9	7.8	7.9	7.9	7.8	7.9	8.0	7.9	8.0	8.1	7.6	7.7
6	7.8	7.7	7.7	7.9	7.8	7.9	8.0	7.9	7.9	8.0	7.6	7.7
7	7.9	7.7	7.8	8.0	7.8	7.9	8.0	7.8	7.9	7.8	7.7	7.8
8	7.9	7.7	7.8	8.0	7.8	7.9	7.9	7.7	7.9	7.9	7.8	7.8
9	8.1	7.7	7.9	8.0	7.8	7.9	7.9	7.7	7.8	7.9	7.8	7.9
10	7.8	7.7	7.8	8.0	7.8	7.9	7.8	7.7	7.8	7.9	7.8	7.9
11	7.9	7.7	7.9	8.0	7.7	7.8	7.8	7.7	7.7	7.9	7.7	7.8
12	8.0	7.9	7.9	7.9	7.8	7.8	7.8	7.6	7.7	7.9	7.7	7.8
13	7.9	7.9	7.9	8.0	7.9	7.9	7.8	7.5	7.7	8.0	7.7	7.8
14	7.9	7.8	7.8	8.0	7.8	7.9	7.6	7.5	7.6	7.7	7.4	7.5
15	7.8	7.7	7.8	7.9	7.9	7.9	7.6	7.4	7.5	7.6	7.5	7.5
16	7.8	7.7	7.8	7.9	7.9	7.9	7.5	7.3	7.4	7.6	7.5	7.6
17	7.9	7.7	7.8	8.0	7.6	7.8	7.6	7.4	7.5	7.6	7.5	7.6
18	7.8	7.7	7.8	7.7	7.6	7.7	7.6	7.5	7.5	7.7	7.6	7.7
19	7.9	7.7	7.8	7.7	7.6	7.6	7.5	7.5	7.5	7.8	7.3	7.5
20	8.0	7.7	7.8	7.8	7.6	7.7	7.6	7.5	7.5	7.6	7.2	7.4
21	7.9	7.8	7.8	7.9	7.7	7.8	7.6	7.5	7.5	7.5	7.3	7.4
22	8.0	7.9	7.9	7.9	7.7	7.8	7.6	7.5	7.5	7.6	7.4	7.5
23	7.9	7.9	7.9	8.0	7.6	7.8	7.6	7.5	7.5	7.6	7.5	7.6
24	8.0	7.6	7.8	7.9	7.7	7.8	7.7	7.3	7.5	7.6	7.6	7.6
25	8.0	7.7	7.8	7.9	7.8	7.8	7.5	7.3	7.4	7.6	7.6	7.6
26	7.8	7.7	7.7	7.9	7.7	7.8	7.5	7.4	7.5	7.6	7.6	7.6
27	8.0	7.7	7.8	7.9	7.7	7.8	7.6	7.5	7.6	7.7	7.5	7.6
28	7.9	7.7	7.8	8.0	7.8	7.9	7.7	7.6	7.6	7.7	7.6	7.6
29	---	---	---	7.9	7.8	7.9	7.6	7.6	7.6	7.6	7.3	7.5
30	---	---	---	8.0	7.8	7.9	7.6	7.5	7.6	7.5	7.3	7.4
31	---	---	---	8.0	7.8	7.9	---	---	---	7.5	7.3	7.4
MONTH	8.1	7.6	7.8	8.0	7.6	7.8	8.0	7.3	7.7	8.1	7.2	7.6

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.5	7.2	7.3	8.0	7.8	7.9	7.9	7.7	7.8	7.8	7.6	7.8
2	7.6	7.3	7.4	8.0	7.9	8.0	7.8	7.7	7.7	7.8	7.7	7.8
3	7.5	7.3	7.4	8.0	7.9	8.0	7.8	7.7	7.7	7.8	7.7	7.8
4	7.4	7.3	7.4	8.0	7.9	7.9	7.8	7.7	7.7	8.0	7.7	7.9
5	7.7	7.3	7.5	8.0	7.9	7.9	7.8	7.7	7.7	8.0	7.8	7.9
6	8.0	7.7	7.9	8.0	7.9	7.9	7.8	7.6	7.7	8.0	7.9	8.0
7	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.7	7.8	---	---	---
8	8.0	7.6	7.9	7.9	7.8	7.9	7.9	7.8	7.8	8.0	7.9	7.9
9	7.7	7.5	7.6	7.9	7.7	7.8	7.9	7.8	7.9	8.0	7.9	7.9
10	7.6	7.4	7.5	7.9	7.7	7.8	7.9	7.7	7.8	7.9	7.7	7.9
11	7.5	7.3	7.4	7.9	7.7	7.8	7.8	7.5	7.7	7.8	7.6	7.7
12	7.7	7.1	7.5	7.8	7.7	7.8	7.7	7.6	7.6	7.7	7.4	7.6
13	7.8	7.5	7.6	7.9	7.5	7.7	7.7	7.6	7.6	7.7	7.3	7.4
14	7.9	7.5	7.7	7.8	7.5	7.7	7.9	7.7	7.8	7.8	7.4	7.5
15	7.9	7.7	7.8	7.8	7.6	7.7	7.8	7.6	7.7	7.9	7.4	7.6
16	7.8	7.7	7.7	7.8	7.4	7.6	7.8	7.6	7.7	8.0	7.6	7.8
17	7.9	7.7	7.8	---	---	---	7.8	7.7	7.8	8.1	7.8	8.0
18	7.9	7.7	7.8	---	---	---	8.0	7.7	7.9	7.9	7.7	7.8
19	7.9	7.8	7.8	---	---	---	8.0	7.8	7.9	7.7	7.6	7.7
20	7.9	7.6	7.8	---	---	---	7.9	7.8	7.8	---	---	---
21	7.7	7.6	7.6	---	---	---	7.8	7.6	7.7	---	---	---
22	7.9	7.7	7.8	---	---	---	8.0	7.7	7.8	---	---	---
23	8.0	7.8	7.9	---	---	---	8.0	7.9	7.9	---	---	---
24	8.0	7.9	8.0	---	---	---	7.9	7.8	7.9	---	---	---
25	8.0	7.9	7.9	8.0	7.9	7.9	7.9	7.8	7.9	---	---	---
26	8.0	7.8	7.9	8.0	7.9	8.0	8.0	7.9	7.9	---	---	---
27	8.0	7.9	8.0	7.9	7.8	7.8	8.0	7.8	7.9	---	---	---
28	8.0	7.9	8.0	7.9	7.8	7.8	---	---	---	---	---	---
29	8.0	7.9	8.0	7.9	7.8	7.8	---	---	---	---	---	---
30	8.0	7.8	7.9	7.9	7.8	7.8	---	---	---	---	---	---
31	---	---	---	7.9	7.8	7.8	---	---	---	---	---	---
MONTH	8.0	7.1	7.7	8.0	7.4	7.8	8.0	7.5	7.8	8.1	7.3	7.8

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	21.5	20.0	21.0	20.5	17.0	19.0	22.5	19.5	21.0	25.5	24.5	25.0
2	21.5	19.5	20.5	21.0	18.0	20.0	22.0	19.5	20.5	26.0	24.5	25.0
3	21.5	19.5	21.0	21.0	19.0	20.5	21.5	17.5	20.0	26.5	25.0	25.5
4	22.0	20.5	21.5	21.5	19.0	20.5	21.0	19.0	20.0	25.5	22.0	24.5
5	22.0	17.5	19.5	22.0	19.0	21.0	20.0	18.5	19.0	26.0	23.5	24.5
6	18.5	17.5	18.0	22.0	19.5	21.0	21.0	17.5	19.5	24.5	23.0	23.5
7	20.0	16.0	18.0	22.0	19.5	21.0	22.0	19.5	21.0	26.0	22.5	24.5
8	21.0	18.0	19.5	22.0	19.5	21.0	22.5	20.0	21.5	27.0	24.5	25.5
9	20.5	18.5	20.0	22.5	20.0	21.5	23.0	20.0	22.0	27.0	24.0	26.0
10	21.0	19.0	20.5	22.0	20.0	21.0	24.0	21.0	23.0	28.0	26.0	26.5
11	22.5	20.0	21.5	20.0	17.0	18.5	24.5	22.0	23.5	27.0	26.0	26.5
12	23.0	20.5	22.0	20.0	18.0	19.0	24.5	23.0	24.0	27.5	25.5	26.5
13	22.5	21.5	22.0	21.5	18.5	20.0	25.0	23.0	24.0	26.5	25.5	26.5
14	22.0	20.5	21.5	21.0	19.0	20.5	23.0	21.5	22.5	27.0	24.5	26.0
15	21.0	17.0	19.0	21.5	20.5	21.0	24.0	21.0	22.5	27.5	26.0	27.0
16	20.0	18.0	19.0	22.5	20.5	21.5	25.0	22.0	23.5	27.0	25.5	26.5
17	20.5	18.5	19.5	22.0	19.0	21.0	25.5	23.0	24.5	27.0	24.5	26.0
18	20.0	18.0	19.5	22.5	19.5	21.5	26.0	23.5	25.0	27.0	26.0	26.5
19	19.5	17.5	18.5	22.0	20.5	21.5	25.5	24.5	25.0	26.5	20.0	24.5
20	17.0	13.5	15.5	23.0	21.0	22.0	25.5	24.0	25.0	25.5	20.5	23.0
21	17.5	15.5	16.5	23.5	22.0	23.0	25.0	23.0	24.0	26.0	22.0	25.0
22	19.5	16.5	18.0	24.0	22.0	23.0	24.0	22.0	23.5	27.0	24.5	26.0
23	20.0	18.0	19.0	23.0	21.5	22.5	25.0	22.5	24.0	27.5	26.0	26.5
24	19.5	14.0	16.0	22.5	20.0	21.5	26.0	22.5	24.5	27.5	26.0	26.5
25	18.0	14.5	16.5	22.5	20.5	21.0	24.5	22.5	23.5	27.5	26.0	26.5
26	17.0	14.0	15.5	21.0	19.5	20.5	26.0	22.5	24.5	27.5	25.5	26.5
27	20.0	17.0	18.5	23.0	19.5	21.5	26.5	24.0	25.0	27.0	26.0	26.5
28	19.0	15.5	17.5	23.0	20.5	22.0	26.5	24.5	25.5	26.5	25.5	26.0
29	---	---	---	22.0	17.0	19.0	26.5	24.5	25.5	26.0	20.0	22.5
30	---	---	---	19.0	15.0	17.5	26.0	24.5	25.5	22.5	21.0	21.5
31	---	---	---	21.5	17.5	19.5	---	---	---	24.5	21.5	23.0
MONTH	23.0	13.5	19.0	24.0	15.0	21.0	26.5	17.5	23.0	28.0	20.0	25.5

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1							---	---	---	8.5	7.9	8.2
2							---	---	---	8.8	8.1	8.4
3							---	---	---	8.9	8.0	8.4
4							---	---	---	9.3	8.3	8.6
5							---	---	---	9.5	8.2	8.6
6							---	---	---	9.5	7.8	8.4
7							---	---	---	9.0	7.6	8.0
8							---	---	---	8.7	7.5	7.9
9							---	---	---	8.9	7.4	7.9
10							---	---	---	8.9	7.5	8.1
11							---	---	---	9.2	7.9	8.5
12							---	---	---	9.0	7.9	8.5
13							---	---	---	8.4	7.6	7.9
14							---	---	---	8.4	7.5	7.9
15							---	---	---	8.6	7.3	7.8
16							---	---	---	8.2	7.5	7.7
17							---	---	---	9.6	7.5	8.5
18							---	---	---	9.0	8.2	8.7
19							---	---	---	8.8	7.7	8.3
20							---	---	---	8.3	7.5	7.9
21							---	---	---	8.6	7.8	8.1
22							10.6	5.7	9.8	---	---	---
23							10.1	9.6	9.9	---	---	---
24							9.7	8.0	8.9	9.6	7.9	8.7
25							8.5	7.7	8.3	9.6	7.6	8.5
26							8.5	7.7	8.1	9.7	7.9	8.6
27							8.4	7.8	8.1	9.9	7.9	8.6
28							8.4	7.9	8.2	10.1	7.9	8.5
29							8.7	7.7	8.2	9.8	7.9	8.4
30							8.4	7.4	8.0	9.9	7.9	8.6
31							8.3	7.5	8.0	9.3	8.1	8.5
MONTH							10.6	5.7	8.6	10.1	7.3	8.3

08178565 SAN ANTONIO RIVER AT LOOP 410 AT SAN ANTONIO, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.5	8.0	8.5	8.9	8.0	8.4	8.7	6.3	7.4	8.9	6.3	7.3
2	9.5	8.0	8.5	9.0	7.9	8.3	8.3	6.0	7.0	8.8	6.3	7.2
3	9.4	7.9	8.4	9.0	7.9	8.3	8.6	6.5	7.5	8.8	6.1	7.1
4	8.9	7.6	8.1	9.0	7.2	8.1	8.4	6.4	7.3	8.0	6.3	7.1
5	8.6	7.7	8.1	8.6	6.9	7.6	8.4	6.9	7.5	8.0	6.8	7.2
6	8.7	8.2	8.5	8.7	6.7	7.4	8.7	6.7	7.6	8.4	7.7	8.1
7	9.4	8.4	8.8	8.8	6.6	7.5	8.7	6.5	7.4	8.3	7.5	8.0
8	9.2	8.2	8.6	8.9	6.8	7.5	9.9	6.9	8.1	7.8	7.0	7.5
9	9.5	8.2	8.7	8.8	6.7	7.4	10.3	7.2	8.4	8.0	6.8	7.4
10	9.1	8.0	8.5	8.8	6.7	7.5	10.1	7.0	8.2	8.0	6.5	7.1
11	9.9	8.0	8.7	8.1	6.4	7.5	10.1	6.8	8.0	8.5	6.3	7.2
12	---	---	---	8.3	7.3	7.7	10.0	6.8	8.0	9.5	6.1	7.5
13	---	---	---	8.9	7.2	7.8	10.0	6.6	7.9	9.2	6.4	7.3
14	---	---	---	8.7	7.0	7.6	10.2	7.1	8.4	7.7	6.3	7.1
15	---	---	---	7.8	6.9	7.2	9.6	6.8	8.1	7.9	6.2	6.9
16	---	---	---	8.0	6.4	7.1	9.2	6.0	7.4	7.5	5.7	6.6
17	---	---	---	7.1	6.2	6.8	8.5	6.0	7.0	8.0	6.0	6.8
18	---	---	---	7.7	5.8	6.7	8.8	5.8	7.0	7.9	5.5	6.4
19	8.9	8.2	8.5	8.6	5.8	7.0	8.5	5.7	6.9	7.5	5.1	6.0
20	9.4	8.5	8.9	8.5	6.7	7.3	8.1	5.6	6.6	7.7	4.9	6.6
21	9.0	8.5	8.8	8.3	6.4	7.0	7.1	5.3	6.1	6.6	4.6	5.4
22	9.5	8.3	8.8	8.2	6.3	6.9	7.6	5.2	6.3	6.7	3.9	5.5
23	9.3	8.1	8.5	8.6	6.2	7.1	7.8	5.4	6.4	5.6	4.4	5.0
24	9.3	8.1	8.8	8.6	6.3	7.2	8.1	4.9	6.4	6.2	5.4	5.8
25	9.3	8.3	8.7	8.3	6.4	7.1	6.5	5.6	6.0	7.5	5.8	6.5
26	9.5	8.3	9.0	8.1	6.6	7.1	7.2	5.7	6.3	7.7	5.7	6.5
27	8.4	7.8	8.1	8.6	6.3	7.2	8.3	5.9	6.9	8.4	5.2	6.6
28	8.9	8.1	8.5	8.3	6.1	6.9	8.8	6.2	7.2	8.4	6.0	7.1
29	---	---	---	8.5	6.2	7.4	9.0	6.0	7.3	9.9	4.7	7.8
30	---	---	---	9.1	6.9	8.1	9.1	6.3	7.4	8.9	7.8	8.3
31	---	---	---	8.6	6.7	7.4	---	---	---	8.5	6.2	7.8
MONTH	9.9	7.6	8.6	9.1	5.8	7.4	10.3	4.9	7.3	9.9	3.9	6.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.9	7.6	8.3	7.0	5.5	6.2	5.3	3.3	4.2	---	---	---
2	8.5	7.4	7.8	7.3	5.8	6.4	6.1	3.2	4.7	---	---	---
3	8.9	7.0	8.0	7.5	5.7	6.4	7.9	5.5	6.5	7.9	5.6	6.6
4	8.8	7.8	8.4	7.6	5.5	6.4	8.2	5.7	7.0	7.8	4.4	6.1
5	8.7	5.5	7.5	7.6	5.9	6.6	6.7	5.0	5.8	7.8	4.5	6.1
6	8.4	5.7	7.3	7.5	5.9	6.6	7.1	4.1	5.5	7.9	5.8	6.6
7	8.4	6.9	7.4	7.4	5.8	6.4	6.3	4.1	5.2	---	---	---
8	7.5	6.3	6.9	7.5	5.8	6.5	7.3	5.0	6.0	---	---	---
9	7.1	3.8	5.9	6.9	5.4	6.0	7.6	5.5	6.3	---	---	---
10	6.8	4.1	5.2	7.2	5.5	6.2	7.4	5.5	6.3	---	---	---
11	5.7	3.5	4.9	7.2	5.5	6.2	7.0	5.0	5.8	---	---	---
12	8.1	3.9	6.5	7.5	5.4	6.2	7.0	4.8	5.5	---	---	---
13	8.7	7.3	8.1	7.8	5.4	6.2	6.7	4.3	5.3	---	---	---
14	8.6	7.0	8.0	7.0	5.2	5.9	6.9	4.0	5.1	---	---	---
15	8.8	5.8	7.4	7.3	5.3	6.7	6.7	3.9	5.2	---	---	---
16	8.1	5.7	6.9	7.3	6.1	6.8	7.5	5.1	6.1	---	---	---
17	---	---	---	7.5	5.9	6.6	8.1	5.5	6.5	---	---	---
18	---	---	---	7.6	6.1	6.7	8.1	5.0	6.0	---	---	---
19	---	---	---	7.8	6.2	6.8	7.3	2.9	5.3	7.6	6.6	7.0
20	---	---	---	8.1	6.1	6.9	7.0	3.4	5.1	7.8	6.5	7.0
21	---	---	---	7.9	6.1	6.9	7.1	4.7	5.7	8.1	6.4	7.0
22	---	---	---	7.7	5.9	6.6	7.3	4.9	5.9	7.9	6.4	6.9
23	8.1	5.1	7.0	8.0	5.7	6.6	7.8	5.4	6.3	8.0	6.5	7.1
24	7.7	6.4	7.0	7.6	5.6	6.5	8.4	5.4	6.4	8.0	6.3	6.9
25	7.7	6.2	6.9	8.0	5.7	6.6	7.1	5.4	6.2	7.6	6.1	6.7
26	7.7	6.3	6.8	7.6	5.5	6.3	7.4	5.5	6.2	7.9	6.0	6.7
27	7.6	6.4	6.9	7.4	5.4	6.2	7.5	5.2	6.0	7.4	6.0	6.4
28	7.7	6.5	6.9	7.1	5.3	6.0	8.3	5.6	6.5	6.7	5.3	6.1
29	7.6	6.4	6.8	7.7	5.3	6.3	7.5	5.8	6.4	7.1	5.9	6.4
30	7.6	5.6	6.6	7.8	5.3	6.3	---	---	---	8.2	6.0	7.0
31	---	---	---	6.8	4.2	5.4	---	---	---	---	---	---
MONTH	8.9	3.5	7.1	8.1	4.2	6.4	8.4	2.9	5.8	8.2	4.4	6.7

08178622 LORENCE CREEK AT SHADOW CLIFF DRIVE, SAN ANTONIO, TX

(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°34'58", long 98°27'36", Bexar County, Hydrologic Unit 123100301, at downstream side of culvert on Shadow Cliff Drive, 0.8 mi downstream from Thousand Oaks Boulevard, 1.6 mi downstream from San Pedro Avenue, and 3.4 mi upstream from mouth.

DRAINAGE AREA.--4.57 mi².

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1980 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
DEC											
22...	0940	121	140	7.20	8.5	96	64	--	--	2.1	K18000
22...	1715	121	131	7.00	--	110	46	--	--	2.0	74000
FEB											
05...	1530	4.4	110	7.90	14.5	48	14	8.6	86	5.0	14000
MAY											
29...	0825	289	78	8.20	19.0	110	90	8.1	89	6.8	40000
29...	0905	167	93	8.00	18.5	120	56	7.6	83	4.9	K35000
29...	1040	174	129	7.40	19.0	110	34	7.0	77	6.1	21000
JUN											
02...	0930	54	131	7.90	22.0	90	51	7.2	85	3.5	--
02...	1035	180	106	8.30	23.0	130	120	7.2	86	4.1	--

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
DEC											
22...	58000	67	5	23	2.3	2.0	0.1	3.0	62	10	2.8
22...	440000	--	--	--	--	--	--	--	57	--	--
FEB											
05...	13000	47	1	17	1.0	1.9	0.1	2.5	46	4.0	2.9
MAY											
29...	62000	30	4	11	0.60	1.3	0.1	3.1	26	9.9	2.1
29...	K11000	--	--	--	--	--	--	--	33	--	--
29...	52000	--	--	--	--	--	--	--	43	--	--
JUN											
02...	30000	57	13	21	1.1	1.9	0.1	4.0	44	16	3.4
02...	50000	--	--	--	--	--	--	--	43	--	--

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)
DEC											
22...	<0.10	7.2	88	90	13	0.370	0.030	0.400	0.070	1.0	1.1
22...	--	--	--	24	4	0.470	0.030	0.500	0.070	0.93	1.0
FEB											
05...	0.10	3.6	61	21	4	0.470	0.030	0.500	0.130	0.87	1.0
MAY											
29...	<0.10	3.5	47	213	48	0.370	0.030	0.400	0.150	1.7	1.9
29...	--	--	--	153	38	0.360	0.040	0.400	0.130	1.4	1.5
29...	--	--	--	43	19	0.460	0.040	0.500	0.090	1.0	1.1
JUN											
02...	<0.10	9.0	83	77	<1	0.280	0.020	0.300	0.100	0.50	0.60
02...	--	--	--	306	58	0.170	0.030	0.200	0.080	1.6	1.7

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	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)
DEC											
22...	0.050	--	1	15	6	<10	3	31	5	<1	<0.1
22...	0.180	--	--	--	--	--	--	--	--	--	--
FEB											
05...	0.130	7.8	<1	10	1	<10	2	16	<5	3	<0.1
MAY											
29...	0.220	15	<1	8	<1	<10	5	37	<5	7	<0.1
29...	0.270	14	--	--	--	--	--	--	--	--	--
29...	0.310	11	--	--	--	--	--	--	--	--	--
JUN											
02...	0.200	11	<1	13	1	30	4	97	<5	6	<0.1
02...	0.310	16	--	--	--	--	--	--	--	--	--

08178622 LORENCE CREEK AT SHADOW CLIFF DRIVE, SAN ANTONIO, TX

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
DEC											
22...	6	<1	20	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.17
22...	--	--	--	--	--	--	--	--	--	--	--
FEB											
05...	<1	<1	<3	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.19
MAY											
29...	<1	<1	4	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.36
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUN											
02...	<1	<1	18	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
DEC										
22...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
22...	--	--	--	--	--	--	--	--	--	--
FEB										
05...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.02	<0.01	<0.01
MAY										
29...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.02	<0.01	<0.01
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--

DATE	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
DEC										
22...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.01	<0.01	0.02
22...	--	--	--	--	--	--	--	--	--	--
FEB										
05...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.02	<0.01	<0.01
MAY										
29...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.04	<0.01	<0.01
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
JUN										
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--

08178640 WEST ELM CREEK AT SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°37'23", long 98°26'29", Bexar County, Hydrologic Unit 12100301, at mid-channel, 1.8 mi upstream from mouth of East Elm Creek, 2.1 mi upstream from Farm Road 1604, and 7.0 mi north of San Antonio International Airport.

DRAINAGE AREA.--2.45 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1976 to current year.

GAGE.--Digital recorders (stage and rainfall) and crest-stage gages. Gage is not referenced to National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,000 ft³/s Nov. 1, 1977 (gage height, 5.82 ft); maximum gage height, 6.88 ft May 6, 1982; no flow most of time.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 12	0355	459	6.23	June 2	1100	117	4.51
May 31	1530	*648	*6.87	June 3	1330	113	4.48

Minimum discharge, no flow most of time.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: May 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
DEC											
22...	1203	35	136	7.20	8.5	47	16	--	--	1.3	K8000
22...	1640	44	134	7.10	8.5	43	17	--	--	1.3	6000
FEB											
05...	1620	0.01	89	8.10	14.5	25	6.9	7.8	78	4.8	8800
MAY											
29...	0715	4.2	79	7.10	--	55	14	--	--	4.7	18000
29...	0745	55	90	6.20	--	65	88	--	--	5.3	5800
29...	0810	76	80	8.46	18.0	110	94	8.2	89	4.7	38000
29...	0843	42	85	8.06	18.0	85	57	8.0	87	4.3	40000
29...	0934	23	106	8.02	18.0	90	28	7.8	85	4.4	36000
29...	1300	25	130	7.20	19.0	100	38	7.1	79	5.3	10000
SEP											
08...	1815	12	109	7.75	--	120	150	--	--	4.7	--
08...	1845	12	105	7.74	--	98	120	--	--	6.0	--
08...	1915	3.1	107	7.90	--	96	170	--	--	4.7	--

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
DEC											
22...	K26000	69	10	26	1.0	1.2	0.1	2.3	59	10	1.6
22...	36000	--	--	--	--	--	--	--	59	--	--
FEB											
05...	8000	35	1	13	0.50	3.7	0.3	1.9	34	5.1	5.0
MAY											
29...	76000	30	7	11	0.52	1.4	0.1	3.7	23	8.9	2.5
29...	290000	--	--	--	--	--	--	--	71	--	--
29...	99000	32	0	12	0.60	1.5	0.1	3.5	--	8.7	2.4
29...	210000	--	--	--	--	--	--	--	103	--	--
29...	84000	--	--	--	--	--	--	--	41	--	--
29...	34000	--	--	--	--	--	--	--	51	--	--
SEP											
08...	--	--	--	--	--	--	--	--	28	--	--
08...	--	--	--	--	--	--	--	--	32	--	--
08...	--	--	--	--	--	--	--	--	30	--	--

08178640 WEST ELM CREEK AT SAN ANTONIO, TX--Continued
(Flood-hydrograph partial-record station)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)
DEC											
22...	<0.10	7.0	85	13	11	0.290	0.010	0.300	0.040	0.76	0.80
22...	--	--	--	16	2	0.190	0.010	0.200	0.020	0.58	0.60
FEB											
05...	<0.10	2.2	52	14	7	0.280	0.020	0.300	0.140	0.66	0.80
MAY											
29...	<0.10	3.2	45	24	23	0.280	0.020	0.300	0.190	1.5	1.7
29...	--	--	--	139	37	0.350	0.050	0.400	0.160	2.0	2.2
29...	<0.10	3.3	--	170	44	0.370	0.030	0.400	0.120	1.3	1.4
29...	--	--	--	82	26	0.360	0.040	0.400	0.130	1.4	1.5
29...	--	--	--	45	28	0.460	0.040	0.500	0.120	1.5	1.6
29...	--	--	--	59	26	0.460	0.040	0.500	0.110	1.3	1.4
SEP											
08...	--	--	--	164	28	0.960	0.040	1.00	0.050	1.2	1.3
08...	--	--	--	264	30	0.970	0.030	1.00	0.060	--	<0.20
08...	--	--	--	--	36	0.960	0.040	1.00	0.060	1.0	1.1

DATE	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)
DEC											
22...	0.060	--	<1	10	<1	<10	1	48	<5	<1	<0.1
22...	0.020	--	--	--	--	--	--	--	--	--	--
FEB											
05...	0.110	4.9	5	6	<1	<10	2	34	<5	<1	<0.1
MAY											
29...	0.240	6.3	2	6	<1	<10	3	33	<5	7	0.3
29...	0.360	11	--	--	--	--	--	--	--	--	--
29...	0.270	10	<1	6	<1	<10	1	44	<5	7	<0.1
29...	0.200	11	--	--	--	--	--	--	--	--	--
29...	0.050	9.2	--	--	--	--	--	--	--	--	--
29...	0.300	11	--	--	--	--	--	--	--	--	--
SEP											
08...	0.180	16	--	--	--	--	--	--	--	--	--
08...	0.190	21	--	--	--	--	--	--	--	--	--
08...	0.160	18	--	--	--	--	--	--	--	--	--

DATE	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, DISSOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)
DEC											
22...	<1	<1	14	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.02
22...	--	--	--	--	--	--	--	--	--	--	--
FEB											
05...	<1	<1	5	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01
MAY											
29...	<1	<1	8	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	<1	<1	12	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.39
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
SEP											
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--

DATE	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
DEC										
22...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
22...	--	--	--	--	--	--	--	--	--	--
FEB										
05...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY										
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.02	<0.01	<0.01
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--

08178640 WEST ELM CREEK AT SAN ANTONIO, TX--Continued
(Flood-hydrograph partial-record station)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX,. TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
DEC										
22...	<0.01	<0.01	<0.01	<0.1	--	<1	<0.01	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
FEB										
05...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.01	<0.01	<0.01
MAY										
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.02	<0.01	<0.01
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
SEP										
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--

08178645 EAST ELM CREEK AT SAN ANTONIO, TX
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°37'04", long 98°25'41", Bexar County, Hydrologic Unit 12100301, at mid-channel, 2.1 mi upstream from West Elm Creek, 2.4 mi upstream from Farm Road 1604, and 6.9 mi north of San Antonio International Airport.

DRAINAGE AREA.--2.33 mi².

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: May 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (NTU)	HARD-NESS (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)
JUN											
02...	0642	105	108	7.80	130	21	48	2	18	0.81	0.80
02...	0657	170	100	8.20	34	52	--	--	--	--	--
02...	0708	144	99	8.30	55	130	--	--	--	--	--
02...	1000	8.5	116	7.80	220	72	--	--	--	--	--
02...	1110	3.4	108	8.10	200	88	--	--	--	--	--

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)
JUN										
02...	0.0	4.6	46	11	1.6	<0.10	15	79	23	13
02...	--	--	41	--	--	--	--	--	75	12
02...	--	--	39	--	--	--	--	--	147	29
02...	--	--	39	--	--	--	--	--	71	26
02...	--	--	47	--	--	--	--	--	46	10

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)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
JUN										
02...	0.070	0.030	0.100	0.080	0.82	0.90	0.120	15	<1	9
02...	0.160	0.040	0.200	0.100	1.1	1.2	0.120	15	--	--
02...	0.130	0.070	0.200	0.130	1.1	1.2	0.120	18	--	--
02...	0.170	0.030	0.200	0.030	1.6	1.6	0.080	12	--	--
02...	0.160	0.040	0.200	0.060	1.2	1.3	0.240	15	--	--

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)
JUN										
02...	<1	<10	2	63	<5	5	0.1	<1	<1	11
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--

08178650 ELM CREEK RESERVOIR SITE 11 AT SAN ANTONIO, TX

LOCATION.--Lat 29°36'11", long 98°25'50", Bexar County, Hydrologic Unit 12100301, located on left bank on upstream side of dam, 2.4 mi east of U.S. Highway 281, 0.7 mi upstream from highway 1604, and 8.0 mi upstream from mouth.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: March 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN DEMAND, BIOCHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3	CALCIUM DISSOLVED (MG/L AS CA)
DEC												
22...	1300	110	7.00	8.5	58	26	2.2	11000	40000	51	2	19
22...	1555	105	7.00	8.5	90	39	2.0	K14000	K10000	48	7	18
MAY												
29...	1140	108	8.20	18.0	220	390	4.6	12000	56000	45	4	17

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY WH WAT TOTAL 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)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)
DEC												
22...	0.80	0.80	0.0	3.3	49	5.4	1.3	0.10	6.9	67	28	11
22...	0.80	0.80	0.0	2.5	41	9.8	1.1	0.10	9.9	68	68	11
MAY												
29...	0.60	1.0	0.1	3.5	41	10	1.7	<0.10	5.0	63	482	82

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)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)
DEC												
22...	0.190	0.010	0.200	0.100	0.60	0.70	0.070	--	<1	8	1	<10
22...	0.180	0.020	0.200	0.060	1.2	1.3	0.180	--	--	--	--	--
MAY												
29...	0.850	0.050	0.900	0.130	2.4	2.5	0.230	22	<1	8	1	<10

DATE	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)	PCB, TOTAL (UG/L)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TOTAL (UG/L)
DEC												
22...	1	34	<5	<1	<0.1	<1	<1	7	<0.1	<0.10	<0.010	<0.1
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
29...	4	41	<5	10	0.8	<1	<1	17	<0.1	<0.10	<0.010	<0.1

DATE	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	ENDOSULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)
DEC												
22...	<0.010	<0.010	<0.010	0.02	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
29...	<0.010	<0.010	<0.010	0.14	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01

DATE	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARATHION, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
DEC												
22...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
29...	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.01	<0.01	<0.01

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX

LOCATION.-Lat 29°30'57", long 98°25'51", Bexar County, Hydrologic Unit 12100301, on right bank at downstream side of eastbound bridge on Interstate Highway 410 in San Antonio, 1.0 mi west of Northeast School, 1.1 mi upstream from Perrin-Beitel Creek, and 2.7 mi east of San Antonio International Airport.

DRAINAGE AREA.--137 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1960 to current year.
Water-quality records.--Chemical, biochemical, and pesticide analyses: November 1968 to September 1985. Sediment analyses: November 1971 to September 1973. Water temperatures: November 1968 to September 1985. Bacteria analyses May 1976 to September 1985.

GAGE.--Water-stage recorder with concrete control. Datum of gage is 684.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 15 to Feb. 5. Records good. Some diversions upstream from gage for irrigation. Flow is affected at times by discharge from the flood-detention pools of eleven floodwater-retarding structures with a combined detention capacity of 26,770 acre-ft. These structures control runoff from 74.6 mi above this station. Recording rain gage at station with four additional recording rain gages located in the watershed.

AVERAGE DISCHARGE.--27 years, 10.0 ft³/s (7,240 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft³/s May 12, 1972 (gage height, 15.22 ft), from rating curve extended above 8,000 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 1853, 23 to 24 ft in October 1913. Flood in September 1921 reached a stage of 18 ft, and flood of Sept. 27, 1946, reached a stage of 18.2 ft, and are the second and third highest since 1899.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,400 ft³/s May 31 at 1830 hours (gage height, 9.35 ft); no flow some days.

DISCHARGE, IN 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	.77	2.8	1.7	.97	2.5	6.0	1.0	.08	310	18	5.7	3.0
2	1.1	2.9	5.2	.11	9.0	3.5	1.2	3.0	549	17	5.7	8.9
3	.51	2.7	2.1	.11	12	2.9	1.8	3.6	319	18	3.5	6.3
4	.51	7.5	1.8	.44	5.0	2.7	2.2	23	261	18	.00	1.0
5	.51	.07	1.9	.54	7.0	2.6	4.1	6.6	115	17	3.2	.82
6	23	.00	2.1	.63	9.0	2.4	4.7	5.2	87	16	14	.90
7	12	.00	3.5	.85	5.1	2.0	4.0	1.3	78	15	9.1	9.1
8	4.6	.15	2.6	3.1	2.1	2.0	3.6	1.1	67	18	3.5	19
9	2.9	.27	3.0	2.4	1.8	2.0	3.6	1.1	78	22	3.6	10
10	2.0	2.0	4.4	1.4	1.8	2.0	3.9	.70	525	21	3.6	8.6
11	50	.54	7.7	1.5	1.6	11	4.0	.51	635	20	3.2	2.3
12	551	3.9	59	1.7	1.3	3.2	4.0	.91	310	20	1.2	1.4
13	51	8.4	23	4.2	1.3	2.4	4.4	3.5	215	11	.18	1.1
14	16	9.5	14	20	1.4	.65	4.2	2.2	123	3.5	.73	.95
15	9.2	7.2	19	11	16	.63	4.3	.00	101	6.5	2.8	.99
16	8.4	1.1	19	4.5	2.5	.64	4.2	.00	97	13	2.6	2.1
17	8.0	1.2	18	4.0	1.9	25	4.5	.01	99	14	2.8	8.2
18	7.9	1.3	5.1	3.5	1.8	.24	4.5	.13	102	3.3	1.7	12
19	7.8	1.3	2.3	4.2	2.2	.34	4.9	117	92	2.5	4.5	8.0
20	7.5	1.3	2.2	5.0	10	.40	4.9	73	86	5.6	.02	1.3
21	9.0	1.4	.01	3.5	3.0	.40	4.9	43	76	18	.74	1.2
22	17	1.5	.04	3.0	2.0	.40	4.9	13	43	20	4.0	.48
23	14	3.3	.09	2.8	2.0	.57	4.9	7.6	28	19	4.0	.27
24	11	9.9	.40	2.7	33	.01	25	6.8	16	16	4.0	.26
25	4.9	18	13	2.6	36	.00	2.0	6.1	23	4.9	4.0	.39
26	9.4	1.1	8.9	2.5	100	.00	.13	5.6	23	.02	2.1	.31
27	5.3	2.3	1.5	2.5	20	.00	.08	4.4	16	2.2	.14	.54
28	3.2	1.2	5.5	2.4	32	.00	.06	.00	18	8.5	.25	2.5
29	3.4	.96	6.9	2.4	---	.22	.23	533	18	7.1	.52	6.2
30	2.8	.93	8.1	2.4	---	.82	2.0	37	17	7.1	1.1	5.5
31	2.6	---	6.2	2.4	---	.93	---	789	---	4.6	1.8	---
TOTAL	847.30	94.72	248.24	99.35	323.3	75.95	118.20	1688.44	4527	386.82	94.28	123.61
MEAN	27.3	3.16	8.01	3.20	11.5	2.45	3.94	54.5	151	12.5	3.04	4.12
MAX	551	18	59	20	100	25	25	789	635	22	14	19
MIN	.51	.00	.01	.11	1.3	.00	.06	.00	16	.02	.00	.26
AC-FT	1680	188	492	197	641	151	234	3350	8980	767	187	245

CAL YR 1986 TOTAL 5933.67 MEAN 16.3 MAX 1890 MIN .00 AC-FT 11770
WTR YR 1987 TOTAL 8627.15 MEAN 23.6 MAX 789 MIN .00 AC-FT 17110

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: October 1968 to September 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
FEB											
06...	1454	8.9	541	7.80	14.5	--	--	9.0	90	3.2	--
APR											
08...	1630	3.7	692	7.90	19.5	2	2.4	12.5	139	1.5	740
MAY											
19...	0955	6.6	665	7.30	25.0	14	18	11.7	146	2.1	3400
21...	1330	72	280	7.90	24.0	80	150	7.2	88	5.4	9600
29...	1330	1560	135	6.40	--	110	400	--	--	6.5	50000

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
FEB											
06...	--	220	43	77	6.0	23	0.7	12	174	66	29
APR											
08...	K36	280	39	95	9.9	30	0.8	17	239	70	35
MAY											
19...	3800	240	44	82	9.1	28	0.8	18	198	65	32
21...	62000	100	22	38	2.3	9.3	0.4	7.6	82	35	11
29...	37000	54	5	20	0.90	3.3	0.2	4.9	49	12	4.0

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)
FEB											
06...	0.40	10	330	--	--	--	--	--	--	--	--
APR											
08...	0.40	13	410	6	<1	1.59	0.010	1.60	0.030	0.27	0.30
MAY											
19...	0.30	14	370	27	27	0.570	0.030	0.600	0.130	1.3	1.4
21...	0.20	9.7	160	34	34	0.550	0.050	0.600	0.450	1.0	1.5
29...	0.10	6.0	81	681	80	0.360	0.040	0.400	0.160	1.7	1.9

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	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)
FEB											
06...	--	--	--	--	--	--	--	--	--	--	--
APR											
08...	0.020	3.2	<1	63	1	<10	<1	20	<5	8	<0.1
MAY											
19...	0.060	6.1	2	80	<1	<10	1	8	<5	6	0.2
21...	0.370	11	--	--	--	--	--	--	--	--	--
29...	0.270	25	1	16	1	<10	3	63	<5	8	<0.1

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
FEB											
06...	--	--	--	--	--	--	--	--	--	--	--
APR											
08...	<1	<1	14	<0.1	<0.10	--	<0.1	--	<0.010	--	0.01
MAY											
19...	<1	<1	5	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.03
21...	--	--	--	--	--	--	--	--	--	--	--
29...	<1	<1	18	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.39

08178700 SALADO CREEK (UPPER STATION) AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
FEB										
06...	--	--	--	--	--	--	--	--	--	--
APR										
08...	<0.010	--	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	--
MAY										
19...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
21...	--	--	--	--	--	--	--	--	--	--
29...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	0.02	<0.01	<0.01

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
FEB										
06...	--	--	--	--	--	--	--	--	--	--
APR										
08...	<0.01	<0.01	--	--	<0.01	<1	<0.01	0.03	<0.01	<0.01
MAY										
19...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.01	<0.01	<0.01
21...	--	--	--	--	--	--	--	--	--	--
29...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.07	<0.01	0.01

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX

LOCATION.--Lat 29°21'25", long 98°24'45", Bexar County, Hydrologic Unit 12100301, on right bank at upstream side of bridge on Loop 13 at San Antonio, 1.4 mi east of Brooks Air Force Base, and 3.3 mi upstream from Rosillo Creek.

DRAINAGE AREA.--189 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 526.95 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Small diversions above station. Recording rain gages located in watershed above station. Most of low flow comes from artesian wells and springs in the city of San Antonio. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08178700. Satellite telemeter at station.

AVERAGE DISCHARGE.--27 years, 43.8 ft³/s (3.15 in/yr), 31,730 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s Sept. 27, 1973 (gage height, 28.83 ft); no flow Aug. 13, 1967.
Maximum stage since at least 1941, that of Sept. 27, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of Sept. 27, 1946, and Aug. 15, 1960, were about equal magnitude. Flood of Aug. 15, 1960, reached a stage of 26.8 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,620 ft³/s Dec. 22 at about 2200 hours (gage height, 20.66 ft, from floodmark); minimum daily, 15 ft³/s Oct. 3-5.

DISCHARGE, IN 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	e16	e27	27	54	33	69	35	51	660	79	37	e36
2	e16	e27	26	53	33	53	35	53	1190	74	37	e34
3	e15	e28	28	51	33	49	33	55	1360	71	37	e33
4	e15	e28	31	50	33	47	33	102	e428	70	35	e32
5	e15	e29	30	49	89	45	35	103	e173	68	32	e31
6	177	e28	27	48	111	43	40	133	e138	67	32	e30
7	132	29	30	47	46	43	39	79	e152	65	36	e30
8	e47	29	37	47	39	43	36	61	171	64	36	e30
9	e25	29	33	49	36	42	35	e48	295	75	32	e29
10	e23	29	33	49	34	42	34	e47	647	81	33	e29
11	276	31	39	47	34	68	34	e46	e980	64	33	e29
12	e480	29	30	46	35	55	34	e45	e700	62	32	e28
13	e202	33	27	45	33	44	34	e45	e900	59	31	e28
14	72	33	66	44	33	43	32	e44	e450	62	29	e28
15	52	33	379	43	95	40	32	e44	249	121	29	e27
16	44	33	65	42	52	40	32	e42	222	54	30	e27
17	40	28	38	248	38	174	32	e40	205	56	31	e27
18	38	27	68	104	36	69	35	e39	189	57	28	e27
19	36	23	49	52	34	46	33	461	175	50	29	e27
20	34	23	35	46	91	43	32	e1210	160	47	31	e27
21	38	22	31	52	61	42	32	279	148	49	33	e27
22	236	21	1990	54	41	42	32	112	134	56	32	e26
23	e87	21	1510	44	37	41	32	87	115	49	36	e26
24	e39	38	149	42	238	40	37	181	92	46	35	e26
25	e37	186	69	38	e69	38	121	76	101	47	34	e26
26	e36	62	420	37	420	39	45	73	123	44	32	e26
27	e34	37	66	36	125	37	37	63	72	43	29	e26
28	e33	32	60	35	186	36	35	70	87	40	28	e26
29	e31	30	66	35	---	36	33	732	84	42	31	e25
30	e29	30	62	35	---	35	33	e331	81	40	38	e25
31	e28	---	57	34	---	35	---	e203	---	38	37	---
TOTAL	2383	1055	5578	1656	2145	1519	1122	4955	10481	1840	1015	848
MEAN	76.9	35.2	180	53.4	76.6	49.0	37.4	160	349	59.4	32.7	28.3
MAX	480	186	1990	248	420	174	121	1210	1360	121	38	36
MIN	15	21	26	34	33	35	32	39	72	38	28	25
AC-FT	4730	2090	11060	3280	4250	3010	2230	9830	20790	3650	2010	1680
CFSM	.41	.19	.95	.28	.41	.26	.20	.85	1.85	.31	.17	.15
IN.	.47	.21	1.10	.33	.42	.30	.22	.98	2.06	.36	.20	.17

CAL YR 1986 TOTAL 24471 MEAN 67.0 MAX 4980 MIN 9.6 AC-FT 48540 CFSM .35 IN. 4.82
WTR YR 1987 TOTAL 34597 MEAN 94.8 MAX 1990 MIN 15 AC-FT 68620 CFSM .50 IN. 6.81

e Estimated.

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: November 1968 to current year. Sediment analyses: October 1968 to September 1973.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January to September 1987.
pH: January to September 1987.
WATER TEMPERATURE: January to September 1987.
DISSOLVED OXYGEN: January to September 1987.

INSTRUMENTATION.--Beginning January 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. 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 CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 940 microsiemens July 2; minimum, 200 microsiemens May 29, June 1, 2.
pH: Maximum, 8.4 units Jan. 5, Mar. 11, 14-16; minimum, 7.4 units Feb. 18.
WATER TEMPERATURE: Maximum, 28.5°C on several days during August; minimum, 8.5°C Jan. 19.
DISSOLVED OXYGEN: Maximum, 11.2 mg/L Jan. 12; minimum, 4.8 mg/L Sept. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
MAR 03...	1430	39	800	7.90	15.5	14	5.2	9.6	97	2.0	--
MAY 21...	1130	270	420	7.50	22.5	90	130	7.6	91	8.3	K15000
AUG 04...	1400	36	840	7.90	27.0	1	7.1	6.6	84	0.9	--
SEP 03...	1100	34	780	8.00	24.0	4	17	5.9	71	1.6	3900

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
MAR 03...	--	300	58	97	15	49	1	5.7	246	88	55
MAY 21...	25000	160	35	53	6.8	19	0.7	6.0	125	40	23
AUG 04...	1200	320	55	100	17	52	1	4.2	265	79	67
SEP 03...	730	310	71	98	17	50	1	3.7	244	85	58

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)
MAR 03...	0.30	16	470	27	16	1.26	0.040	1.30	0.160	0.94	1.1
MAY 21...	0.20	11	230	30	30	0.860	0.040	0.900	0.230	0.77	1.0
AUG 04...	0.30	14	490	19	6	1.98	0.020	2.00	0.020	0.68	0.70
SEP 03...	0.30	16	470	28	4	1.78	0.020	1.80	0.080	0.52	0.60

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	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)
MAR 03...	0.060	3.7	1	89	1	<10	2	11	<5	40	<0.1
MAY 21...	0.350	11	--	--	--	--	--	--	--	--	--
AUG 04...	0.060	2.5	--	--	--	--	--	--	--	--	--
SEP 03...	0.120	3.8	1	87	<1	20	<1	7	<5	22	0.1

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
MAR 03...	<1	<1	10	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.04
MAY 21...	--	--	--	--	--	--	--	--	--	--	--
AUG 04...	--	--	--	--	--	--	--	--	--	--	--
SEP 03...	1	<1	62	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.02

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
MAR 03...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY 21...	--	--	--	--	--	--	--	--	--	--
AUG 04...	--	--	--	--	--	--	--	--	--	--
SEP 03...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
MAR 03...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.03	<0.01	<0.01
MAY 21...	--	--	--	--	--	--	--	--	--	--
AUG 04...	--	--	--	--	--	--	--	--	--	--
SEP 03...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.02	<0.01	<0.01

MONTHLY AND ANNUAL MEANS AND LOADS FOR FEBRUARY 1987 TO SEPTEMBER 1987

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)
FEB.	1987	2145	556	325	1880	39	227	51	295	220
MAR.	1987	1519	803	453	1860	71	290	67	276	300
APR.	1987	1122	777	442	1340	66	200	66	200	290
MAY	1987	4955	492	291	3890	31	415	47	624	200
JUNE	1987	10481	426	253	7160	26	730	41	1160	170
JULY	1987	1840	833	470	2330	74	369	69	345	310
AUG.	1987	1015	795	451	1240	68	186	68	185	300
SEPT	1987	848	715	410	939	57	130	63	143	270
TOTAL		23925	**	**	20600	**	2550	**	3230	**
WTD.AVG.		99	549	320	**	40	**	50	**	210

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1										---	---	---
2										---	---	---
3										872	843	857
4										872	861	868
5										871	822	862
6										879	850	858
7										918	821	858
8										878	830	859
9										877	848	859
10										877	838	859
11										857	828	841
12										867	817	848
13										895	749	842
14										---	---	853
15										---	---	840
16										851	839	840
17										839	317	556
18										396	340	359
19										555	408	492
20										599	555	574
21										678	610	627
22										700	610	645
23										711	655	673
24										745	711	730
25										744	722	736
26										777	733	747
27										811	777	790
28										821	798	807
29										843	821	832
30										843	810	825
31										820	797	810
MONTH										918	317	764

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	852	820	836	642	464	548	870	850	863	770	730	740
2	830	807	819	777	643	702	860	850	855	740	700	723
3	851	807	826	850	777	790	860	830	850	710	660	683
4	852	829	847	925	836	872	850	840	848	680	550	638
5	874	611	789	923	870	902	910	840	855	540	420	469
6	623	455	522	920	900	914	860	820	843	440	350	405
7	563	445	487	930	910	916	880	820	847	540	390	460
8	683	574	621	920	910	914	870	830	847	590	550	559
9	718	652	686	930	900	909	860	840	849	630	590	610
10	775	718	743	900	890	899	850	830	843	---	---	640
11	832	765	800	---	---	843	840	820	833	---	---	670
12	868	821	843	---	---	840	840	830	834	---	---	700
13	894	870	876	---	---	826	850	840	841	---	---	730
14	910	884	896	---	---	896	850	840	846	---	---	740
15	910	572	755	---	---	901	850	840	843	---	---	750
16	763	617	681	---	---	904	840	830	838	---	---	760
17	708	643	656	---	---	840	840	820	829	---	---	770
18	734	645	682	---	---	350	830	810	819	---	---	780
19	799	734	750	---	---	500	820	780	807	---	---	403
20	758	564	670	---	---	700	810	780	800	---	---	432
21	652	543	607	800	740	800	820	810	813	---	---	437
22	641	544	601	830	800	815	820	810	819	630	350	460
23	699	589	631	850	830	837	830	810	821	630	480	563
24	721	307	483	860	840	849	930	730	810	700	640	674
25	450	275	393	860	850	853	760	470	604	720	700	709
26	450	275	312	860	830	846	580	480	523	730	710	720
27	518	330	427	870	830	855	620	560	583	730	710	722
28	607	387	480	860	840	847	690	610	645	740	720	728
29	---	---	---	870	850	860	730	680	702	730	200	419
30	---	---	---	880	870	874	770	730	747	680	210	355
31	---	---	---	890	860	874	---	---	---	610	250	471
MONTH	910	275	669	930	464	815	930	470	795	770	160	610

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	610	200	346	930	900	912	840	820	829	810	576	750
2	560	200	336	940	900	913	840	820	829	810	770	788
3	---	---	300	910	890	903	849	820	834	789	770	780
4	---	---	350	910	900	904	848	836	840	786	762	774
5	---	---	450	900	890	897	845	826	835	776	758	767
6	---	---	500	910	890	898	844	824	837	780	763	768
7	---	---	550	910	890	900	833	813	820	780	284	718
8	---	---	550	920	890	899	813	793	805	690	339	527
9	---	---	500	930	730	866	821	792	804	674	535	590
10	---	---	400	870	780	832	830	810	819	673	588	617
11	---	---	300	880	840	864	820	801	813	615	603	607
12	---	---	325	880	840	872	819	800	809	665	602	628
13	---	---	300	860	820	860	809	789	800	718	664	684
14	---	---	400	870	820	855	809	779	797	726	715	718
15	---	---	500	840	350	652	808	788	799	724	713	718
16	---	---	550	740	550	606	808	778	791	731	719	725
17	---	---	600	740	710	721	797	778	787	773	726	734
18	---	---	650	780	740	767	796	767	782	734	410	666
19	---	---	700	820	780	808	797	767	784	724	622	677
20	---	---	725	860	800	831	806	776	789	699	636	669
21	---	---	750	860	830	854	805	775	787	734	689	717
22	---	---	775	820	770	797	815	795	803	739	725	731
23	---	---	800	830	790	816	804	775	794	764	729	747
24	---	---	843	860	810	841	794	765	784	761	745	751
25	900	790	858	850	760	818	794	755	770	762	743	752
26	850	800	826	820	760	783	774	744	758	764	747	757
27	850	820	833	850	810	835	783	754	767	768	757	763
28	840	810	823	870	850	860	783	763	775	779	759	772
29	890	840	869	870	820	834	792	772	785	788	749	766
30	910	890	903	830	820	825	802	293	708	786	764	776
31	---	---	---	840	820	827	820	430	716	---	---	---
MONTH	910	200	587	940	350	834	849	293	795	810	284	715

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										---	---	---
2										---	---	---
3										8.2	7.7	8.0
4										7.9	7.7	7.8
5										8.4	7.9	8.0
6										8.3	7.7	7.9
7										8.2	7.6	8.0
8										8.3	7.5	7.9
9										---	---	---
10										---	---	---
11										---	---	---
12										---	---	---
13										---	---	---
14										---	---	---
15										---	---	---
16										8.0	7.9	7.9
17										8.2	8.0	8.0
18										8.2	7.9	8.0
19										8.1	7.9	8.0
20										8.1	7.9	8.0
21										8.2	8.0	8.1
22										8.2	7.9	8.0
23										8.2	7.9	8.0
24										8.2	8.1	8.2
25										8.2	8.1	8.2
26										8.2	8.1	8.2
27										8.2	8.1	8.2
28										8.2	8.0	8.1
29										8.2	8.0	8.1
30										8.1	8.0	8.1
31										8.1	7.9	8.0
MONTH										8.4	7.5	8.0

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX -Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.1	7.9	8.0	7.9	7.8	7.9	8.1	8.0	8.1	8.0	7.9	8.0
2	8.1	7.9	8.0	8.0	7.8	7.9	8.1	8.0	8.1	8.0	8.0	8.0
3	8.1	7.9	8.0	8.0	7.8	7.9	8.1	8.0	8.0	8.0	8.0	8.0
4	8.1	7.9	8.0	8.0	7.7	7.8	8.1	8.0	8.0	8.0	7.8	8.0
5	8.1	7.9	8.0	8.0	7.8	7.9	8.0	7.9	8.0	7.8	7.6	7.7
6	8.0	7.9	7.9	8.1	7.9	8.0	8.0	7.9	8.0	7.7	7.6	7.7
7	7.9	7.8	7.8	8.1	8.0	8.1	8.1	7.9	8.0	7.7	7.7	7.7
8	7.9	7.8	7.9	8.2	8.0	8.1	8.1	7.9	8.0	7.7	7.7	7.7
9	8.0	7.8	7.9	8.2	8.0	8.1	8.1	8.0	8.0	7.8	7.7	7.8
10	8.0	7.9	7.9	8.3	8.1	8.2	8.0	7.9	8.0	---	---	---
11	8.1	7.8	8.0	8.4	8.1	8.2	8.0	7.9	7.9	---	---	---
12	8.1	7.9	8.1	8.3	8.2	8.2	8.0	7.9	7.9	---	---	---
13	8.1	7.9	8.0	8.3	8.2	8.3	8.0	7.9	7.9	---	---	---
14	8.0	8.0	8.0	8.4	8.2	8.3	8.0	7.9	8.0	---	---	---
15	8.0	7.7	7.8	8.4	8.1	8.3	8.0	7.9	7.9	---	---	---
16	7.8	7.6	7.7	8.4	8.2	8.3	8.0	7.9	7.9	---	---	---
17	7.6	7.5	7.6	8.3	8.0	8.1	8.0	7.9	7.9	---	---	---
18	7.7	7.4	7.6	8.2	8.0	8.1	8.0	7.9	8.0	---	---	---
19	7.8	7.6	7.7	8.2	8.1	8.2	8.0	7.9	8.0	---	---	---
20	8.0	7.7	7.8	8.2	8.0	8.1	8.0	7.9	8.0	---	---	---
21	8.0	7.7	7.8	8.2	8.1	8.1	8.0	7.9	8.0	7.7	7.6	7.7
22	7.9	7.7	7.8	8.2	8.1	8.1	8.0	8.0	8.0	7.7	7.6	7.6
23	8.1	7.6	7.9	8.2	8.1	8.1	8.0	7.9	8.0	7.8	7.7	7.8
24	7.9	7.6	7.8	8.2	8.1	8.2	8.0	7.9	8.0	8.0	7.9	7.9
25	7.9	7.6	7.8	8.1	8.0	8.1	7.9	7.5	7.7	8.0	8.0	8.0
26	8.1	7.6	7.8	8.1	8.0	8.1	7.6	7.5	7.6	8.1	8.1	8.1
27	8.0	7.7	7.9	8.1	8.0	8.1	7.6	7.6	7.6	8.1	8.1	8.1
28	8.0	7.6	7.9	8.1	8.0	8.1	7.7	7.6	7.7	8.1	8.0	8.1
29	---	---	---	8.1	8.1	8.1	7.8	7.7	7.8	8.2	7.9	8.1
30	---	---	---	8.2	8.1	8.1	7.9	7.8	7.8	8.0	7.7	7.8
31	---	---	---	8.2	8.1	8.1	---	---	---	7.9	7.7	7.8
MONTH	8.1	7.4	7.9	8.4	7.7	8.1	8.1	7.5	7.9	8.2	7.6	7.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.1	7.8	7.9	8.1	8.0	8.1	8.0	7.9	7.9	7.8	7.7	7.8
2	8.1	7.8	7.9	8.1	8.0	8.1	8.0	7.9	7.9	7.8	7.8	7.8
3	8.1	7.8	7.9	8.1	8.1	8.1	8.0	7.9	8.0	8.1	7.8	8.0
4	7.9	7.8	7.8	8.1	8.1	8.1	8.0	7.9	8.0	8.1	8.0	8.1
5	7.9	7.7	7.8	8.2	8.1	8.1	8.0	7.9	7.9	8.1	8.0	8.1
6	7.9	7.8	7.9	8.2	8.1	8.1	8.0	7.9	7.9	8.1	8.0	8.1
7	7.9	7.9	7.9	8.2	8.1	8.2	8.0	7.9	7.9	8.1	8.0	8.0
8	7.9	7.9	7.9	8.2	8.1	8.1	8.0	7.9	7.9	8.0	7.6	7.8
9	7.9	7.8	7.9	8.2	8.1	8.1	8.0	7.9	8.0	7.9	7.7	7.7
10	7.9	7.8	7.8	8.1	8.0	8.1	8.0	7.9	8.0	7.8	7.7	7.8
11	7.8	7.7	7.8	8.2	8.0	8.1	8.0	7.9	7.9	7.7	7.6	7.7
12	7.9	7.8	7.8	8.1	8.0	8.1	8.0	7.9	8.0	7.8	7.7	7.7
13	8.0	7.8	7.9	8.1	7.8	7.9	8.0	8.0	8.0	7.8	7.7	7.8
14	7.9	7.8	7.9	7.9	7.9	7.9	8.0	8.0	8.0	7.9	7.8	7.8
15	8.1	7.9	8.0	7.9	7.7	7.8	8.0	8.0	8.0	7.9	7.8	7.9
16	8.1	8.0	8.1	7.7	7.5	7.6	8.0	8.0	8.0	7.9	7.8	7.9
17	8.1	8.1	8.1	7.7	7.6	7.7	8.0	8.0	8.0	8.0	7.8	7.9
18	8.1	8.0	8.0	7.8	7.7	7.8	8.0	7.9	8.0	8.0	7.9	7.9
19	8.1	8.0	8.0	7.9	7.8	7.8	7.9	7.9	7.9	8.0	7.9	8.0
20	8.1	8.0	8.0	7.9	7.8	7.8	7.9	7.9	7.9	8.0	7.9	8.0
21	8.0	8.0	8.0	7.9	7.8	7.8	7.9	7.9	7.9	8.0	8.0	8.0
22	8.0	8.0	8.0	7.9	7.8	7.8	7.9	7.9	7.9	8.0	8.0	8.0
23	8.0	7.9	8.0	7.9	7.8	7.8	7.9	7.9	7.9	8.1	8.0	8.0
24	8.0	8.0	8.0	7.9	7.8	7.9	7.9	7.9	7.9	8.2	8.0	8.1
25	8.0	8.0	8.0	7.9	7.8	7.9	7.9	7.9	7.9	8.2	8.1	8.1
26	8.0	7.9	8.0	7.9	7.8	7.9	7.9	7.9	7.9	8.2	8.1	8.1
27	8.0	7.9	8.0	7.9	7.8	7.9	7.9	7.9	7.9	8.2	8.1	8.1
28	7.9	7.9	7.9	8.0	7.8	7.9	7.9	7.9	7.9	8.2	8.1	8.1
29	8.0	7.9	8.0	8.0	7.8	7.9	7.9	7.9	7.9	8.2	8.1	8.1
30	8.1	8.0	8.0	8.0	7.9	7.9	8.1	7.8	7.9	8.2	8.1	8.2
31	---	---	---	8.0	7.9	7.9	7.9	7.7	7.8	---	---	---
MONTH	8.1	7.7	7.9	8.2	7.5	7.9	8.1	7.7	7.9	8.2	7.6	8.0

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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										---	---	---
15										---	---	---
16										15.0	14.5	14.5
17										14.5	10.5	12.5
18										10.5	9.5	10.0
19										10.5	8.5	9.5
20										10.5	9.5	10.0
21										10.5	10.0	10.5
22										11.5	10.5	11.0
23										11.5	9.5	10.5
24										13.0	11.0	12.0
25										13.5	12.0	12.5
26										14.0	12.5	13.0
27										14.5	12.5	13.5
28										15.5	14.0	14.5
29										17.0	15.5	16.5
30										17.0	16.0	16.5
31										16.5	15.5	16.0
MONTH										17.0	8.5	12.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	17.5	16.5	17.5	16.5	14.5	15.5	16.5	14.5	15.5	23.0	22.0	22.5
2	17.0	16.0	16.5	17.0	14.0	15.5	16.5	15.5	16.0	23.5	22.5	22.5
3	17.0	16.0	16.5	17.0	15.0	16.0	16.0	14.5	15.0	24.0	23.0	23.5
4	18.0	17.0	17.0	17.5	15.0	16.5	15.5	14.5	15.0	24.0	22.5	23.5
5	17.5	16.0	17.0	18.0	15.5	16.5	15.5	14.5	15.0	23.0	21.5	22.0
6	17.0	14.5	16.0	18.0	15.5	17.0	16.0	14.5	15.0	22.5	21.5	22.0
7	15.5	13.5	14.0	18.0	16.0	17.0	17.0	15.5	16.0	23.0	22.0	22.5
8	15.5	13.0	14.5	18.5	16.0	17.5	17.0	15.5	16.5	23.0	21.5	22.5
9	15.5	14.0	15.0	19.0	16.5	18.0	18.0	16.5	17.0	23.5	22.0	22.5
10	16.0	14.5	15.5	19.0	17.0	18.0	20.0	17.5	18.5	---	---	---
11	17.5	16.0	16.5	17.5	16.0	16.5	21.0	19.0	20.0	---	---	---
12	18.5	17.0	17.5	16.0	15.0	16.0	22.0	20.5	21.0	---	---	---
13	18.5	18.0	18.5	16.5	14.5	15.5	22.5	21.5	22.0	---	---	---
14	18.5	18.0	18.5	16.5	15.0	15.5	21.5	20.0	20.5	---	---	---
15	19.0	16.5	18.0	17.5	17.0	17.0	20.5	19.0	20.0	---	---	---
16	17.5	16.0	17.0	19.5	17.5	18.5	21.5	19.5	20.5	---	---	---
17	16.5	15.0	15.5	19.5	18.0	19.0	22.0	20.5	21.0	---	---	---
18	15.5	14.0	14.5	19.0	16.5	17.5	22.5	21.0	22.0	---	---	---
19	15.0	13.5	14.5	18.5	17.0	17.5	23.0	22.0	22.5	---	---	---
20	14.0	12.0	13.5	19.5	17.5	18.5	23.5	22.5	23.0	22.0	19.5	21.0
21	13.5	13.0	13.0	20.5	19.5	20.0	23.0	21.5	22.5	24.0	22.0	22.5
22	13.5	12.0	12.5	21.0	20.0	20.5	21.5	20.0	21.0	24.5	23.0	23.5
23	14.0	12.5	13.0	21.0	20.0	20.5	22.0	20.5	21.0	25.5	24.0	24.5
24	15.0	13.0	14.0	20.0	18.0	19.0	22.0	21.0	21.5	26.0	24.5	25.0
25	14.0	13.5	13.5	19.5	18.0	18.5	21.5	21.0	21.0	26.0	24.5	25.0
26	14.0	13.5	14.0	18.0	17.5	18.0	22.0	20.5	21.0	26.0	24.5	25.0
27	16.0	14.0	15.0	19.0	17.0	18.0	22.0	20.5	21.0	25.5	24.5	25.0
28	17.0	15.0	16.0	19.0	17.5	18.5	22.5	20.5	21.5	25.5	24.5	25.0
29	---	---	---	18.5	14.5	16.5	22.5	21.0	21.5	25.0	20.0	22.0
30	---	---	---	15.0	13.5	14.0	23.0	21.0	22.0	22.0	20.5	21.0
31	---	---	---	15.5	13.5	14.5	---	---	---	22.5	21.5	22.0
MONTH	19.0	12.0	15.5	21.0	13.5	17.5	23.5	14.5	19.5	26.0	19.5	23.0

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										---	---	---
2										---	---	---
3										10.0	9.3	9.6
4										10.4	9.6	9.9
5										10.5	9.7	10.0
6										10.6	9.4	9.9
7										10.0	9.0	9.5
8										9.8	8.6	9.1
9										10.0	8.3	9.1
10										10.4	8.5	9.3
11										10.9	8.8	9.6
12										11.2	8.9	9.8
13										10.2	8.7	9.3
14										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										---	---	---
22										---	---	---
23										---	---	---
24										---	---	---
25										---	---	---
26										---	---	---
27										---	---	---
28										---	---	---
29										---	---	---
30										---	---	---
31										---	---	---
MONTH										11.2	8.3	9.6

08178800 SALADO CREEK (LOWER STATION) AT SAN ANTONIO, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	9.0	8.6	8.9	9.6	7.6	8.6	6.8	6.5	6.7
2	---	---	---	9.1	8.7	8.9	9.5	7.7	8.6	7.0	6.7	6.8
3	---	---	---	9.5	8.8	9.2	9.6	7.8	8.8	7.0	6.8	6.9
4	---	---	---	9.3	8.4	8.9	9.6	8.0	8.7	7.2	6.4	6.8
5	---	---	---	10.0	8.4	9.1	9.2	8.0	8.5	7.1	5.9	6.6
6	---	---	---	9.0	8.3	8.6	8.6	7.9	8.2	7.0	6.4	6.7
7	---	---	---	9.1	8.3	8.6	9.0	7.8	8.4	6.8	6.4	6.7
8	---	---	---	9.6	8.4	8.8	9.1	7.7	8.4	6.4	6.3	6.4
9	---	---	---	9.6	8.4	8.9	9.1	7.7	8.3	6.7	6.4	6.5
10	---	---	---	9.8	8.3	9.0	8.9	7.4	8.1	---	---	---
11	---	---	---	9.4	8.6	9.0	8.6	7.1	7.8	---	---	---
12	---	---	---	9.4	8.5	8.9	8.0	6.8	7.4	---	---	---
13	---	---	---	9.9	8.4	9.1	8.0	6.6	7.2	---	---	---
14	---	---	---	9.8	8.3	9.0	8.2	6.9	7.5	---	---	---
15	---	---	---	8.8	8.3	8.6	8.3	7.1	7.6	---	---	---
16	---	---	---	8.7	7.9	8.3	8.1	6.9	7.4	---	---	---
17	---	---	---	8.2	7.6	7.9	8.2	6.8	7.5	---	---	---
18	---	---	---	8.1	7.6	7.9	8.1	6.9	7.5	---	---	---
19	8.8	8.3	8.5	8.0	7.5	7.7	7.8	6.8	7.2	---	---	---
20	8.7	6.9	7.6	7.9	7.5	7.7	7.7	6.6	7.1	7.2	6.3	6.6
21	7.6	7.4	7.5	7.7	7.3	7.5	7.2	6.6	6.9	7.2	5.8	6.6
22	9.0	7.5	8.4	7.6	7.2	7.4	7.8	7.0	7.3	6.6	6.0	6.4
23	9.2	8.2	8.6	7.9	7.1	7.5	7.9	7.1	7.4	6.2	6.0	6.1
24	8.8	7.9	8.2	8.8	7.7	8.0	7.4	6.2	7.0	6.3	6.2	6.3
25	8.8	8.2	8.5	9.4	8.0	8.5	7.6	5.1	6.3	6.4	6.3	6.3
26	8.7	8.2	8.5	9.0	7.9	8.3	5.2	4.9	5.1	6.5	6.3	6.4
27	8.8	8.3	8.6	9.1	8.0	8.5	5.8	5.2	5.5	6.5	6.4	6.4
28	8.8	8.3	8.5	9.0	7.8	8.5	5.9	5.6	5.8	6.5	6.4	6.5
29	---	---	---	10.1	8.2	9.4	6.3	5.8	6.1	8.1	6.4	6.7
30	---	---	---	10.5	8.8	9.7	6.7	6.1	6.4	7.2	6.5	6.9
31	---	---	---	10.2	8.3	9.1	---	---	---	7.3	6.9	7.2
MONTH	9.2	6.9	8.3	10.5	7.1	8.6	9.6	4.9	7.4	8.1	5.8	6.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.2	6.9	7.1	7.0	6.5	6.7	6.8	6.1	6.4	6.3	5.7	6.0
2	7.4	6.6	6.9	6.9	6.4	6.6	6.7	5.9	6.2	6.4	6.0	6.1
3	7.8	6.5	7.0	7.0	6.4	6.7	6.8	5.9	6.2	6.6	5.9	6.2
4	7.2	6.9	7.0	7.1	6.6	6.8	6.8	5.9	6.3	6.8	6.2	6.4
5	6.9	6.8	6.8	7.2	6.6	6.8	7.0	5.9	6.3	6.9	6.3	6.5
6	7.2	6.9	7.0	7.3	6.5	6.8	6.9	6.0	6.4	6.8	6.4	6.6
7	7.1	6.9	7.0	7.3	6.5	6.8	6.9	6.0	6.4	7.3	6.3	6.7
8	7.1	6.7	7.0	7.1	6.1	6.7	6.7	6.0	6.3	7.0	5.7	6.3
9	7.0	6.7	6.8	7.3	6.0	6.6	6.6	5.8	6.1	6.0	5.5	5.7
10	6.9	6.5	6.7	6.8	6.2	6.6	6.7	5.8	6.2	5.8	5.3	5.5
11	6.6	6.3	6.4	6.9	6.2	6.5	6.5	5.7	6.1	5.8	5.3	5.5
12	6.6	6.3	6.5	7.0	6.0	6.4	6.6	5.6	6.1	5.8	5.3	5.5
13	6.6	6.4	6.5	7.2	5.9	6.4	6.6	5.8	6.2	5.7	5.3	5.5
14	6.9	6.6	6.8	7.0	6.2	6.5	6.7	5.8	6.2	6.0	5.1	5.5
15	7.1	6.9	7.0	7.3	6.2	6.7	6.6	5.8	6.2	6.0	5.5	5.7
16	7.4	7.0	7.2	6.1	5.4	5.7	6.6	5.8	6.1	6.2	5.5	5.8
17	7.2	7.0	7.1	6.4	5.8	6.0	6.6	5.8	6.1	6.2	5.5	5.9
18	7.2	7.0	7.1	6.7	6.0	6.3	6.5	5.8	6.1	6.1	5.0	5.6
19	7.2	6.9	7.1	6.7	6.0	6.3	6.6	5.9	6.2	5.8	4.8	5.4
20	7.2	7.1	7.1	6.9	6.0	6.3	6.6	5.9	6.2	6.0	5.1	5.5
21	7.1	6.9	7.0	6.8	6.1	6.3	6.5	5.9	6.2	6.3	5.6	5.9
22	7.0	6.7	6.9	6.8	5.9	6.4	6.5	5.8	6.2	6.5	5.8	6.1
23	6.8	6.6	6.7	6.6	6.1	6.3	6.7	5.9	6.3	6.8	6.0	6.4
24	6.8	6.6	6.7	6.9	6.1	6.4	6.7	6.1	6.4	6.9	6.2	6.5
25	6.8	6.2	6.6	7.0	6.2	6.5	6.4	6.0	6.2	7.0	6.3	6.6
26	6.9	5.6	6.4	6.8	6.1	6.3	6.5	5.9	6.2	7.0	6.3	6.6
27	6.6	6.1	6.4	6.9	6.0	6.4	6.5	5.9	6.2	6.8	6.1	6.4
28	6.5	6.1	6.3	7.0	6.1	6.4	6.3	6.0	6.2	6.6	6.0	6.2
29	6.7	6.3	6.4	7.0	6.0	6.4	6.5	5.9	6.2	6.5	5.9	6.1
30	7.0	6.4	6.6	7.0	6.1	6.5	7.3	6.1	6.4	6.5	6.0	6.2
31	---	---	---	6.9	6.1	6.4	6.5	5.7	6.0	---	---	---
MONTH	7.8	5.6	6.8	7.3	5.4	6.5	7.3	5.6	6.2	7.3	4.8	6.0

08178880 MEDINA RIVER AT BANDERA, TX

LOCATION.--Lat 29°43'25", long 99°04'11", Bandera County, Hydrologic Unit 12100302, on left bank, 40 ft downstream from centerline of State Highway 173 at Bandera, 1.9 mi upstream from Bandera Creek, and 5.6 mi downstream from Indian Creek.

DRAINAGE AREA.--427 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,189.46 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Several small diversions upstream from station.

AVERAGE DISCHARGE.--5 years, 186 ft³/s (5.91 in/yr), 134,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,800 ft³/s June 3, 1987 (gage height, 24.90 ft), from rating curve extended above 27,000 ft³/s; minimum daily, 2.2 ft³/s Aug. 7, 11, 13, 14, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1880, 46.62 ft Aug. 2, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 55,800 ft³/s June 3 at 1400 hours (gage height, 24.90 ft), from rating curve extended above 27,000 ft³/s; minimum daily, 75 ft³/s Oct. 4.

DISCHARGE, IN 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	82	399	253	598	233	366	257	160	1830	752	e205	e120
2	79	388	246	568	226	342	252	158	1510	674	e200	e119
3	77	369	245	549	220	330	245	160	15600	624	e195	e118
4	75	577	238	515	216	320	240	205	9700	e580	e190	e117
5	95	688	238	491	224	312	246	191	4590	e550	e185	e116
6	457	549	238	474	266	305	271	172	3190	e520	e183	e114
7	336	504	260	457	241	305	250	164	2610	e500	e180	e112
8	284	472	273	442	224	295	236	157	2450	e475	e177	e110
9	246	443	260	444	214	288	229	153	2270	e455	e173	e109
10	209	423	301	438	207	282	225	149	2870	e430	e170	e108
11	304	409	386	401	205	319	218	144	4230	e410	e168	e107
12	5620	395	364	385	201	310	219	143	4400	e385	e163	e106
13	1440	375	336	375	197	283	230	141	3850	e370	e160	e104
14	934	362	365	363	197	270	218	508	3140	e350	e157	e103
15	753	e350	447	347	200	266	209	187	2520	e335	e153	e102
16	658	e340	444	338	190	269	204	160	2170	e320	e150	e100
17	588	e330	442	369	186	498	200	153	1900	e500	e148	e100
18	536	e320	448	354	184	421	192	149	1690	e350	e146	e150
19	492	e312	445	327	181	358	185	552	1530	e310	e144	e130
20	456	306	422	311	189	336	180	344	1410	e290	e142	e118
21	447	296	413	309	185	330	178	282	1280	e280	e140	e108
22	532	293	707	302	180	323	188	250	1220	266	e138	e104
23	684	285	975	293	176	333	186	229	1130	e255	e137	e101
24	685	282	882	288	205	312	185	219	1070	e250	e136	98
25	597	335	813	280	202	296	252	210	1010	e240	e134	e94
26	564	305	810	268	391	291	216	196	1060	e235	e131	e92
27	524	277	758	260	406	292	191	183	890	e230	e130	e90
28	484	274	716	254	420	283	177	178	835	e225	e128	e88
29	454	268	681	250	---	277	171	11300	801	e220	e127	e86
30	435	259	648	241	---	278	164	2460	781	e215	e125	e84
31	416	---	618	233	---	267	---	1910	---	e210	e123	---
TOTAL	19543	11185	14672	11524	6366	9757	6414	21567	83537	11806	4838	3208
MEAN	630	373	473	372	227	315	214	696	2785	381	156	107
MAX	5620	688	975	598	420	498	271	11300	15600	752	205	150
MIN	75	259	238	233	176	266	164	141	781	210	123	84
AC-FT	38760	22190	29100	22860	12630	19350	12720	42780	165700	23420	9600	6360

CAL YR 1986 TOTAL 86542 MEAN 237 MAX 5620 MIN 30 AC-FT 171700
WTR YR 1987 TOTAL 204417 MEAN 560 MAX 15600 MIN 75 AC-FT 405500

e Estimated.

08178880 MEDINA RIVER AT BANDERA, TX--Continued

LOCATION.--Lat 29°43'25", long 99°04'11", Bandera County, Hydrologic Unit 12100302, on left bank 40 ft downstream from centerline of State Highway 173, 1.9 mi upstream from Bandera Creek, and 5.6 mi downstream from Indian Creek.

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: January 1983 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
JAN											
20...	1340	302	545	7.80	11.0	2	0.20	10.7	100	0.5	K34
MAY											
05...	1340	179	532	8.10	21.0	3	0.50	8.7	102	1.1	94
29...	1905	8180	270	7.90	20.0	50	240	--	--	3.8	--
AUG											
31...	1458	123	508	8.10	24.0	2	0.40	8.4	103	0.4	K130

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
JAN											
20...	62	300	76	89	18	6.6	0.2	1.1	220	61	18
MAY											
05...	100	270	72	80	18	7.0	0.2	1.0	202	68	13
29...	--	130	11	43	6.4	3.3	0.1	2.2	123	11	4.4
AUG											
31...	56	260	62	76	17	7.9	0.2	1.3	198	59	14

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)
JAN											
20...	0.20	11	340	2	<1	--	<0.010	1.00	0.020	0.48	0.50
MAY											
05...	0.20	11	320	<1	<1	--	<0.010	0.500	0.030	0.37	0.40
29...	0.10	9.2	150	422	39	0.290	0.010	0.300	0.020	1.8	1.8
AUG											
31...	0.20	13	310	2	<1	--	<0.010	0.700	0.010	--	<0.20

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	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)
JAN											
20...	<0.010	1.0	<1	30	<1	<10	<1	3	<5	2	<0.1
MAY											
05...	0.010	1.3	--	--	--	--	--	--	--	--	--
29...	0.120	13	--	--	--	--	--	--	--	--	--
AUG											
31...	0.010	1.3	<1	40	<1	<10	<1	4	<5	<1	0.1

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN											
20...	<1	<1	15	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01
MAY											
05...	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
AUG											
31...	2	<1	6	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JAN										
20...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY										
05...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
AUG										
31...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01

08178880 MEDINA RIVER AT BANDERA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JAN										
20...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01
MAY										
05...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
AUG										
31...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.01	<0.01	<0.01

08179500 MEDINA LAKE NEAR SAN ANTONIO, TX

LOCATION.--Lat 29°32'24", long 98°56'01", Medina County, Hydrologic Unit 12100302, at gate-operating platform, 576 ft from left end of Medina Dam on Medina River, 4.2 mi upstream from Medina diversion dam, 13 mi north of Castroville, 28 mi west of San Antonio, and 70.4 mi upstream from mouth. Water-quality sampling site at the center of low-water bridge 0.6 mi downstream.

DRAINAGE AREA.--634 mi².

PERIOD OF RECORD.--May 1913 to current year. Prior to October 1965, monthend contents only.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Nonrecording gage read once daily if stage changing materially, otherwise intermittently. Datum of gage is 7.80 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a gravity-type concrete dam, 1,580 ft long. The dam was completed and storage began May 7, 1913. The uncontrolled spillway is a cut through natural rock 880 ft long, with a 3-foot-wide cutoff wall, located near right end of dam. The dam and lake are owned and operated by Bexar-Medina-Atascosa Counties Water Improvement District No. 1, which has a permit (from the Texas Department of Water Resources) to irrigate 150,000 acres annually. An undetermined amount of water from the lake enters the Edwards and associated limestones in the Balcones Fault Zone, part of which is above and part below the dam. Water is released downstream to Medina Diversion Reservoir where it is diverted into Medina Canal by the Water District. 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	1,084.0	-
Crest of spillway	1,072.0	254,000
Water-supply outlet pipes (invert)	966.5	4,780
Lowest gated outlet (invert)	920.0	0

COOPERATION.--Capacity table, based on survey made prior to June 1912, and gage-height record were provided by the Bexar-Medina-Atascosa Counties Water Improvement District No. 1.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 289,900 acre-ft May 29, 1987 (gage height, 1,078.2 ft); minimum observed since lake first filled, 780 acre-ft about Apr. 11, 1948 (gage height, 944.0 ft).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 289,900 acre-ft May 29 (gage height, 1,078.2 ft); minimum, 180,600 acre-ft Oct. 3-5 (gage height, 1,057.3 ft).

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

1,057.0	179,400	1,070.0	242,400
1,060.0	192,000	1,075.0	271,400
1,065.0	217,200	1,079.0	294,500

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	181100	219200	234400	258600	256300	256900	255700	255200	264400	258100	255700	255700
2	181100	219700	234400	258600	256300	256900	255700	255200	262700	258100	255700	255200
3	180600	220200	234400	258100	256300	256900	255700	255200	262700	257500	255700	255200
4	180600	221200	234900	258100	255700	256900	255700	255700	283500	257500	255200	254600
5	180600	222300	234900	257500	256300	256900	255700	255700	273700	257500	255200	255200
6	182300	222800	235400	257500	256300	256900	255700	256300	267900	256900	255200	255200
7	182700	223800	235400	257500	256900	256900	255700	255700	265600	256900	255200	255200
8	183200	224800	235900	257500	256300	256900	255700	255700	264400	256900	255200	255200
9	183600	225300	236400	257500	256300	256300	255700	255700	263300	256900	255200	255200
10	183600	226300	237400	257500	255700	256300	255700	255700	263300	256900	255200	254600
11	184900	226300	237400	257500	255700	256300	255700	255200	267300	257500	255200	254600
12	193000	227300	238400	257500	255700	256300	255700	255200	269600	257500	255200	254600
13	198100	227300	238400	256900	255700	256300	255700	255200	267300	256900	255200	254600
14	200100	227800	239400	256900	255700	256300	255700	255700	267300	256300	255200	254600
15	201600	228300	239900	256900	255700	256300	255700	255700	265600	256300	255200	254600
16	203100	229300	240400	256900	256300	256300	255700	255700	263900	256300	255200	254600
17	204100	229300	241400	256900	255700	256900	255700	255700	262700	256300	255200	254000
18	205100	229800	242400	256900	255700	256900	255200	255200	262100	256300	255200	254000
19	206100	230300	243600	256900	255700	256900	255200	255700	261500	256300	255200	254600
20	206100	230800	244700	256300	256300	256300	255200	257500	261000	256300	254600	254600
21	206600	231300	246500	256900	255700	256900	255200	257500	261000	256300	254600	254600
22	208100	231300	247600	256900	255700	256900	255200	257500	259800	256300	254600	254600
23	209700	232300	251700	256900	255700	256900	255200	256900	259800	256300	254600	254000
24	211700	232300	254600	256900	256300	256900	255200	256300	259200	256300	254600	254000
25	212700	232300	256900	256900	255700	256900	255200	256300	259200	255700	254600	254000
26	214200	233400	258600	256900	256300	256300	255700	256300	259800	255700	254000	254000
27	215200	233400	259200	256300	256900	256300	255700	255700	259800	255700	254000	254000
28	215700	233400	259800	256300	256900	256300	255700	255700	259200	255700	254000	252900
29	216700	233900	259200	256300	---	256300	255200	289900	258100	255700	254600	253400
30	217200	234400	259200	256300	---	256300	255200	272000	258100	255200	255200	252900
31	218200	---	258600	256300	---	255700	---	265000	---	255200	255200	---
MAX	218200	234400	259800	258600	256900	256900	255700	289900	283500	258100	255700	255700
MIN	180600	219200	234400	256300	255700	255700	255200	255200	258100	255200	254000	252900
(†)	1065.2	1068.4	1072.8	1072.4	1072.5	1072.3	1072.2	1073.9	1072.7	1072.2	1072.2	1071.8
(ϕ)	+37100	+16200	+24200	-2300	+600	-1200	-500	+9800	-6900	-2900	0	-2300

CAL YR 1986 MAX 259800 MIN 140400 (ϕ) +111800
WTR YR 1987 MAX 289900 MIN 180600 (ϕ) +71800

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

08180000 MEDINA CANAL NEAR RIOMEDINA, TX

LOCATION.--Lat 29°30'19", long 98°54'11", Medina County, Hydrologic Unit 12100302, in center of canal, 350 ft downstream from county highway bridge, 1,900 ft downstream from head of canal and diversion dam, 4.6 mi downstream from Medina Dam, 4.7 mi north of Riomedina, and 25 mi northwest of San Antonio.

PERIOD OF RECORD.--March 1922 to May 1934, July 1957 to current year.

REVISED RECORDS.--WSP 568: 1922. WSP 1712: 1922(M), 1924, 1926..

GAGE.--Water-stage recorder. Elevation of gage is 910 ft above National Geodetic Vertical Datum of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Station is above all diversions from canal. Canal diverts water from right end of Medina Diversion Dam 1,900 ft upstream from gage. Water is used for irrigation downstream near Lacoste and Natalia. Prior to November 1984, double-barrel flume in canal 54 ft downstream from gage.

AVERAGE DISCHARGE.--41 years (water years 1923-33, 1958-87), 42.5 ft³/s (30,790 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 216 ft³/s May 6, 1971; no flow at times.

DISCHARGE, IN 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	69	.00	12	.00	21	.00	29	55	6.8	106	68	50
2	67	.00	28	.00	23	.00	35	55	7.1	109	68	43
3	63	.00	28	.00	28	.00	40	55	8.2	102	68	59
4	70	.00	28	.00	28	.00	40	43	12	100	72	55
5	69	.00	28	.00	12	.00	40	28	9.4	91	84	41
6	15	.00	28	.00	.00	.00	41	15	8.6	92	85	41
7	.00	.00	28	.00	.00	.00	42	.00	8.7	102	97	41
8	.00	.00	9.9	.00	.00	.00	42	.00	8.9	103	100	41
9	.00	.00	.00	7.4	.00	7.5	42	.00	9.2	103	96	41
10	.00	6.4	.00	21	.00	10	42	.00	9.6	100	95	41
11	.11	14	.00	21	.00	.00	42	.00	11	90	99	36
12	.01	14	8.3	20	.00	.00	42	1.2	11	91	102	25
13	.00	9.2	27	20	3.9	.00	49	22	11	91	102	25
14	.00	20	27	20	17	.00	65	22	11	93	101	39
15	.00	34	9.6	20	17	2.6	60	22	10	101	102	45
16	.00	34	.00	20	17	19	60	22	10	95	102	46
17	.00	34	.00	11	17	19	60	22	9.8	78	101	45
18	.00	34	.00	.00	17	19	60	22	9.7	77	108	45
19	.00	34	.00	.00	17	19	60	22	9.5	78	111	45
20	.00	34	.00	.00	17	19	60	21	9.5	92	109	45
21	.00	34	.00	.00	17	19	60	22	9.5	99	107	45
22	.00	34	.21	9.0	17	19	61	22	36	100	105	45
23	.00	34	.0	26	13	19	60	23	56	97	103	57
24	.00	34	.00	20	.01	24	60	23	63	94	104	65
25	.00	13	.00	20	.00	32	60	23	72	87	107	66
26	.00	.00	.00	20	.00	32	34	23	51	87	106	66
27	.00	.00	.00	20	.00	32	47	23	53	81	106	66
28	.00	.00	.00	20	.00	32	55	23	51	68	101	62
29	.00	.00	.00	21	---	31	55	26	66	68	94	50
30	.00	.00	.00	21	---	29	55	10	84	68	85	58
31	.00	---	.00	21	---	29	---	7.1	---	67	59	---
TOTAL	353.12	416.60	262.01	358.40	281.91	413.10	1498	652.30	732.5	2810	2947	1429
MEAN	11.4	13.9	8.45	11.6	10.1	13.3	49.9	21.0	24.4	90.6	95.1	47.6
MAX	70	34	28	26	28	32	65	55	84	109	111	66
MIN	.00	.00	.00	.00	.00	.00	29	.00	6.8	67	59	25
AC-FT	700	826	520	711	559	819	2970	1290	1450	5570	5850	2830

CAL YR 1986 TOTAL 17306.37 MEAN 47.4 MAX 157 MIN .00 AC-FT 34330
WTR YR 1987 TOTAL 12153.93 MEAN 33.3 MAX 111 MIN .00 AC-FT 24110

08180640 MEDINA RIVER AT LA COSTE, TX

LOCATION.--Lat 29°19'26", long 98°48'46", Medina County, Hydrologic Unit 12100302, at downstream side of bridge on Farm Road 471, 1.0 mi north of La Coste, 5.0 mi upstream from Sherer Creek, and 27.4 mi upstream from mouth.

DRAINAGE AREA.--805 mi², of which 634 mi² is above dam forming Medina Lake.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1986 to September 1987.

GAGE.--Water-stage recorder. Datum of gage is 667.15 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow is regulated by Medina Lake (station 08179500) and by Medina Diversion Lake (capacity, 4,500 acre-ft) 35 mi upstream. For diversion of canal records, see Medina Canal near Riomedina (station 08180000). A large part of the streamflow is lost into the Edwards and associated limestones where the Balcones Fault crosses the basin between the upstream end of Medina Lake and about 5 mi downstream from Medina Dam, or 0.9 mi downstream from the diversion dam. There are several small diversions below Medina Diversion Dam. Satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,600 ft³/s May 30, 1987 (gage height, 24.05 ft); minimum daily, 97 ft³/s Sept. 26, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period December to September, 24,600 ft³/s May 30 at 0300 hours (gage height, 24.05 ft); minimum daily, 97 ft³/s Sept. 26.

DISCHARGE, IN 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	---	---	---	1100	e350	551	302	156	e5800	e1200	e400	e132
2	---	---	---	1010	e342	537	303	145	e5100	e1100	e395	e127
3	---	---	---	955	e337	515	299	143	e4700	e1050	e375	e121
4	---	---	---	889	e330	502	284	146	e8200	e990	e355	e119
5	---	---	---	834	e328	491	283	217	e17000	e940	e340	e119
6	---	---	---	790	e350	461	290	265	e9000	e910	320	e147
7	---	---	---	768	e400	449	300	293	e6200	e860	309	e144
8	---	---	---	737	e360	439	303	272	e5000	e800	276	e148
9	---	---	---	714	e340	441	294	245	e4650	e770	256	e151
10	---	---	---	682	e325	421	286	222	e4750	e760	253	e145
11	---	---	---	633	e315	454	282	201	e6000	e770	248	e143
12	---	---	---	600	e305	460	277	184	e7800	e720	235	e148
13	---	---	---	563	e300	e450	275	181	e9900	e690	210	e140
14	---	---	---	553	e298	e445	265	182	e7000	e680	192	e140
15	---	---	---	556	e302	e440	230	231	e5300	e670	178	e134
16	---	---	---	545	e300	e440	214	275	e4400	e670	166	e129
17	---	---	---	524	e287	e430	208	258	e3800	e660	156	e124
18	---	---	---	558	e272	e460	205	230	e3300	e630	152	e121
19	---	---	117	522	e258	480	199	209	e2900	e610	151	e123
20	---	---	117	499	e252	468	191	395	e2650	e610	145	e120
21	---	---	126	486	e260	451	172	581	e2450	e600	141	e121
22	---	---	420	479	e257	455	181	586	e2250	e590	138	e118
23	---	---	337	446	e250	452	174	509	e2050	e580	136	e111
24	---	---	208	423	e245	444	167	446	e1900	e550	134	e105
25	---	---	247	421	e280	407	187	404	e1750	e530	129	e100
26	---	---	621	406	e440	395	224	365	e1700	e510	127	e97
27	---	---	1050	387	467	378	240	325	e1750	e490	124	103
28	---	---	1190	383	550	362	214	306	e1550	e480	130	114
29	---	---	1210	380	---	358	191	1310	e1400	e470	146	105
30	---	---	1210	371	---	352	173	18900	e1300	e450	e137	e100
31	---	---	1160	352	---	315	---	e7800	---	e420	e145	---
TOTAL	---	---	---	18566	9100	13703	7213	35982	141550	21760	6599	3749
MEAN	---	---	---	599	325	442	240	1161	4718	702	213	125
MAX	---	---	---	1100	550	551	303	18900	17000	1200	400	151
MIN	---	---	---	352	245	315	167	143	1300	420	124	97
AC-FT	---	---	---	36830	18050	27180	14310	71370	280800	43160	13090	7440

CAL YR 1986 TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1987 TOTAL - MEAN - MAX - MIN - AC-FT -

e Estimated.

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: February to September 1987.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January to September 1987.
pH: January to September 1987.
WATER TEMPERATURE: January to September 1987.
DISSOLVED OXYGEN: January to September 1987.

INSTRUMENTATION.--Beginning January 1987, a four-parameter water-quality monitor continuously records specific conductance, pH, water temperature, and dissolved oxygen at this station.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
FEB										
25...	1320	897	484	9.20	14.0	11.2	111	0.6	230	56
MAR										
24...	1430	429	486	8.30	17.0	9.9	105	1.3	230	54
MAY										
28...	1205	309	474	8.20	24.5	7.2	--	--	170	1
29...	1555	1260	382	7.50	--	--	--	4.1	110	6
JUL										
29...	1530	491	529	8.00	26.5	7.1	91	1	250	56
SEP										
04...	1215	122	724	7.80	24.5	7.6	93	0.2	310	83

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 WH WAT TOTAL 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										
25...	67	16	11	0.3	2.2	177	53	14	0.20	9.5
MAR										
24...	66	17	10	0.3	1.8	181	51	15	0.20	9.5
MAY										
28...	50	12	8.5	0.3	2.9	173	39	15	0.20	9.4
29...	34	5.2	3.5	0.2	2.5	100	16	10	<0.10	6.6
JUL										
29...	73	17	16	0.5	1.9	196	60	18	0.20	13
SEP										
04...	89	21	33	0.8	2.4	226	70	34	0.30	14

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)
FEB										
25...	280	1.79	0.010	1.80	0.060	1.0	1.1	0.010	--	--
MAR										
24...	280	--	<0.010	1.10	0.010	1.9	1.9	0.030	--	--
MAY										
28...	240	1.09	0.010	1.10	0.060	1.3	1.4	0.740	--	--
29...	140	--	--	--	--	--	--	--	1	15
JUL										
29...	320	--	<0.010	3.80	0.030	0.67	0.70	0.020	--	--
SEP										
04...	400	8.79	0.010	8.80	0.020	--	<0.20	0.020	--	--

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)
FEB										
25...	--	--	--	--	--	--	--	--	--	--
MAR										
24...	--	--	--	--	--	--	--	--	--	--
MAY										
28...	--	--	--	--	--	--	--	--	--	--
29...	<1	<10	<1	71	<5	2	<0.1	<1	<1	<3
JUL										
29...	--	--	--	--	--	--	--	--	--	--
SEP										
04...	--	--	--	--	--	--	--	--	--	--

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										---	---	---
22										---	---	---
23										---	---	---
24										---	---	---
25										---	---	---
26										---	---	---
27										---	---	---
28										---	---	---
29										---	---	---
30										480	470	474
31										480	470	478
MONTH										480	470	476

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	490	470	479	460	450	459	500	490	496	520	510	515
2	490	470	480	460	450	456	500	490	493	530	510	521
3	480	460	472	460	450	459	500	480	491	530	520	528
4	480	460	472	470	450	460	500	490	492	530	520	529
5	480	450	465	470	460	464	500	490	496	530	500	515
6	500	450	476	470	460	465	500	490	497	510	450	480
7	470	460	467	470	460	466	500	480	491	510	460	478
8	470	450	465	470	460	467	500	480	491	480	460	467
9	480	450	462	470	460	465	500	490	491	480	470	474
10	490	460	471	470	460	466	490	470	483	490	480	482
11	490	480	485	470	460	463	490	400	440	490	480	487
12	490	480	485	470	460	464	450	420	434	520	480	490
13	490	480	485	470	460	467	450	420	442	530	490	498
14	490	480	485	470	460	469	460	430	445	520	460	488
15	500	470	485	480	470	473	480	450	462	510	470	484
16	490	480	486	480	470	476	500	470	481	500	470	480
17	490	480	488	480	460	472	510	490	500	490	470	473
18	500	480	493	470	460	463	520	500	510	510	470	484
19	500	490	496	470	460	463	530	510	519	490	480	484
20	510	490	500	470	460	464	530	520	523	490	450	475
21	500	490	498	480	460	470	530	510	525	460	430	441
22	500	490	494	480	470	471	530	510	524	460	440	451
23	510	490	496	490	460	471	530	520	525	460	450	451
24	500	480	491	490	470	476	530	520	526	460	450	453
25	490	460	478	490	470	481	530	520	523	460	450	459
26	510	460	475	490	480	487	520	510	517	470	460	461
27	510	450	479	500	480	489	500	490	496	480	470	473
28	480	450	463	500	480	491	500	480	493	490	470	482
29	---	---	---	490	470	485	500	490	496	480	340	426
30	---	---	---	490	480	482	510	500	506	---	---	---
31	---	---	---	500	490	493	---	---	---	---	---	---
MONTH	510	450	481	500	450	471	530	400	494	530	340	480

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1							---	---	---	710	690	698
2							---	---	---	700	690	698
3							---	---	---	720	700	705
4							---	---	---	720	690	707
5							---	---	---	710	690	698
6							---	---	---	700	680	689
7							---	---	---	690	660	675
8							---	---	---	660	610	633
9							---	---	---	610	590	602
10							---	---	---	610	590	599
11							---	---	---	600	580	589
12							---	---	---	590	580	589
13							712	683	696	600	540	588
14							693	672	682	600	580	588
15							696	672	684	590	540	587
16							702	683	689	600	590	592
17							702	689	697	610	600	600
18							709	697	703	620	600	610
19							716	705	708	620	610	616
20							715	704	710	620	610	617
21							714	702	707	620	610	618
22							712	702	706	630	610	619
23							712	701	705	620	610	616
24							711	700	704	630	610	618
25							710	700	704	630	610	622
26							710	700	702	630	620	628
27							710	700	703	640	630	633
28							710	690	700	650	630	639
29							700	690	695	660	650	651
30							710	680	697	650	630	646
31							700	670	684	---	---	---
MONTH							716	670	699	720	540	632

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										---	---	---
22										---	---	---
23										---	---	---
24										---	---	---
25										---	---	---
26										---	---	---
27										---	---	---
28										---	---	---
29										---	---	---
30										8.3	8.2	8.3
31										8.3	8.3	8.3
MONTH										8.3	8.2	8.3

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.3	8.2	8.2	8.2	8.1	8.2	8.1	8.0	8.0	8.2	8.1	8.2
2	8.2	8.2	8.2	8.2	8.1	8.2	8.0	7.9	8.0	8.2	8.2	8.2
3	8.2	8.2	8.2	8.2	8.0	8.1	8.1	8.0	8.0	8.2	8.2	8.2
4	8.2	8.2	8.2	8.1	8.0	8.1	8.0	7.9	8.0	8.2	8.2	8.2
5	8.2	8.2	8.2	8.1	8.0	8.1	8.0	7.9	8.0	8.2	8.0	8.1
6	8.2	8.2	8.2	8.1	8.0	8.1	8.0	7.9	8.0	8.0	7.9	8.0
7	8.3	8.2	8.2	8.1	8.0	8.1	8.1	7.9	8.0	8.0	7.9	8.0
8	8.2	8.1	8.2	8.1	7.9	8.1	8.1	8.0	8.1	8.1	8.0	8.0
9	8.2	8.1	8.2	8.0	7.9	8.0	8.1	8.0	8.1	8.1	8.1	8.1
10	8.2	8.1	8.1	8.0	7.9	8.0	8.2	8.0	8.1	8.1	8.1	8.1
11	8.2	8.1	8.1	8.2	7.9	8.1	8.2	8.1	8.2	8.1	8.0	8.1
12	8.2	8.1	8.1	8.2	8.1	8.2	8.2	8.1	8.2	8.1	8.0	8.1
13	8.2	8.1	8.1	8.2	8.1	8.2	8.2	8.1	8.2	8.1	8.0	8.1
14	8.1	8.1	8.1	8.2	8.1	8.2	8.2	8.1	8.2	8.0	8.0	8.0
15	8.2	8.1	8.1	8.2	8.1	8.1	8.2	8.1	8.1	8.2	8.0	8.1
16	8.2	8.1	8.2	8.2	8.1	8.1	8.1	8.0	8.1	8.2	8.2	8.2
17	8.2	8.1	8.2	8.2	8.1	8.2	8.2	8.0	8.2	8.2	8.2	8.2
18	8.2	8.1	8.2	8.2	8.2	8.2	8.2	8.1	8.2	8.2	8.1	8.2
19	8.1	8.1	8.1	8.2	8.2	8.2	8.2	8.1	8.2	8.1	8.1	8.1
20	8.1	8.1	8.1	8.2	8.2	8.2	8.2	8.1	8.1	8.1	8.1	8.1
21	8.2	8.1	8.1	8.2	8.1	8.2	8.1	8.0	8.0	8.2	8.1	8.1
22	8.2	8.1	8.2	8.1	8.1	8.1	8.0	8.0	8.0	8.1	8.1	8.1
23	8.2	8.1	8.1	8.1	8.0	8.1	8.0	8.0	8.0	8.2	8.1	8.1
24	8.2	8.1	8.2	8.1	8.0	8.1	8.1	8.0	8.1	8.1	8.1	8.1
25	8.2	8.1	8.1	8.1	8.0	8.0	8.1	8.1	8.1	8.1	8.1	8.1
26	8.2	8.0	8.1	8.0	8.0	8.0	8.2	8.1	8.1	8.2	8.1	8.1
27	8.1	8.1	8.1	8.1	8.0	8.0	8.2	8.1	8.2	8.1	8.1	8.1
28	8.2	8.1	8.1	8.0	8.0	8.0	8.2	8.1	8.1	8.1	8.1	8.1
29	---	---	---	8.0	8.0	8.0	8.2	8.1	8.1	8.1	7.7	8.0
30	---	---	---	8.1	8.0	8.0	8.2	8.1	8.1	---	---	---
31	---	---	---	8.0	8.0	8.0	---	---	---	---	---	---
MONTH	8.3	8.0	8.2	8.2	7.9	8.1	8.2	7.9	8.1	8.2	7.7	8.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1							---	---	---	7.7	7.7	7.7
2							---	---	---	7.7	7.6	7.7
3							---	---	---	7.7	7.7	7.7
4							---	---	---	7.7	7.7	7.7
5							---	---	---	7.7	7.7	7.7
6							---	---	---	7.8	7.7	7.8
7							---	---	---	7.8	7.7	7.8
8							---	---	---	7.8	7.8	7.8
9							---	---	---	7.8	7.8	7.8
10							---	---	---	7.8	7.8	7.8
11							---	---	---	7.8	7.5	7.7
12							---	---	---	7.8	7.4	7.5
13							7.9	7.7	7.8	7.8	7.5	7.6
14							8.1	7.9	8.0	7.8	7.6	7.7
15							8.1	8.0	8.0	7.8	7.5	7.6
16							8.1	7.9	8.0	7.6	7.5	7.6
17							8.0	7.9	8.0	7.8	7.5	7.6
18							8.0	7.9	8.0	7.9	7.6	7.7
19							8.0	7.9	7.9	7.8	7.6	7.7
20							8.0	7.9	7.9	7.8	7.6	7.7
21							7.9	7.8	7.8	7.9	7.8	7.8
22							7.8	7.7	7.7	7.9	7.8	7.8
23							7.8	7.6	7.7	7.9	7.8	7.9
24							7.7	7.6	7.6	7.9	7.8	7.9
25							7.7	7.5	7.6	7.8	7.8	7.8
26							7.7	7.6	7.7	7.8	7.8	7.8
27							7.7	7.6	7.7	7.8	7.8	7.8
28							7.7	7.6	7.6	7.9	7.8	7.8
29							7.7	7.6	7.6	7.9	7.8	7.8
30							7.7	7.6	7.6	7.9	7.8	7.9
31							7.7	7.6	7.7	---	---	---
MONTH							8.1	7.5	7.8	7.9	7.4	7.7

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										---	---	---
22										---	---	---
23										---	---	---
24										---	---	---
25										---	---	---
26										---	---	---
27										---	---	---
28										---	---	---
29										---	---	---
30										14.5	14.0	14.5
31										14.5	14.0	14.5
MONTH										14.5	14.0	14.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	15.0	14.5	15.0	13.5	12.0	13.0	15.5	14.0	15.0	21.5	21.0	21.5
2	15.0	14.5	15.0	14.0	12.5	13.0	16.0	15.0	15.5	22.0	21.0	21.5
3	15.0	14.5	14.5	14.0	12.5	13.5	16.0	14.5	15.5	22.5	22.0	22.0
4	15.5	14.5	15.0	14.0	12.0	13.0	15.0	14.5	14.5	22.5	22.0	22.0
5	15.5	13.5	15.5	14.0	12.5	13.5	15.0	14.5	14.5	22.5	21.5	22.0
6	13.5	12.0	12.5	14.5	13.0	13.5	15.0	14.0	14.5	22.0	21.5	22.0
7	14.5	11.0	13.0	14.5	13.0	14.0	15.0	14.5	15.0	22.5	21.5	22.0
8	14.5	10.5	12.5	14.5	13.0	14.0	16.0	15.0	15.5	22.0	21.5	22.0
9	15.0	10.5	13.0	15.0	13.5	14.5	17.0	15.5	16.0	22.5	21.0	22.0
10	15.0	11.5	14.0	15.0	14.0	14.5	18.0	16.0	17.0	23.0	21.5	22.5
11	15.5	14.5	15.0	15.5	13.5	14.5	19.0	17.0	18.0	23.0	22.0	22.5
12	16.5	15.5	16.0	15.0	14.5	14.5	20.0	18.0	19.0	23.0	22.0	22.5
13	16.5	16.0	16.5	15.0	14.0	14.5	21.0	19.0	20.0	23.5	22.5	23.0
14	17.0	16.0	16.0	16.0	14.5	15.0	20.0	18.5	19.5	23.5	22.5	23.0
15	16.5	15.0	16.0	16.5	15.5	16.0	19.5	18.0	18.5	24.5	23.0	24.0
16	16.0	15.0	16.0	17.0	16.0	16.5	19.5	18.0	19.0	24.0	23.5	24.0
17	16.0	14.0	15.5	17.0	15.5	16.5	20.5	18.5	19.5	24.5	23.5	24.0
18	15.5	14.0	15.0	17.0	15.5	16.0	21.5	19.5	20.5	24.0	24.0	24.0
19	15.0	14.0	14.5	17.0	15.5	16.0	22.0	20.5	21.0	24.5	23.5	24.0
20	14.5	13.0	14.0	17.0	15.5	16.5	22.0	21.0	21.5	24.0	22.5	23.5
21	14.0	12.5	13.5	17.5	16.5	17.0	21.5	20.5	21.0	24.5	23.0	23.5
22	14.5	12.0	13.5	18.0	17.0	17.5	20.5	20.0	20.0	25.5	23.0	24.0
23	14.0	11.0	13.5	18.0	17.0	17.5	20.0	19.5	20.0	25.5	24.0	24.5
24	13.0	10.5	11.0	17.5	16.0	16.5	20.0	19.5	19.5	25.0	23.5	24.5
25	13.0	11.0	12.0	17.0	16.0	16.5	19.5	19.5	19.5	24.5	23.5	24.0
26	13.5	12.5	13.0	17.0	16.0	16.0	21.0	19.5	20.0	24.5	23.5	24.0
27	14.0	13.0	13.5	17.0	15.5	16.0	21.0	19.5	20.5	24.5	23.5	24.0
28	14.0	13.0	13.5	17.0	16.5	16.5	21.5	20.0	20.5	24.0	23.5	24.0
29	---	---	---	17.0	14.5	16.0	21.5	20.5	21.0	23.5	19.5	22.5
30	---	---	---	14.5	13.0	14.0	22.0	20.5	21.0	---	---	---
31	---	---	---	14.0	13.0	13.5	---	---	---	---	---	---
MONTH	17.0	10.5	14.0	18.0	12.0	15.0	22.0	14.0	18.5	25.5	19.5	23.0

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1							---	---	---	25.5	24.5	25.0
2							---	---	---	25.5	24.5	25.0
3							---	---	---	25.5	24.5	25.0
4							---	---	---	25.5	24.5	25.0
5							---	---	---	25.5	24.5	25.0
6							---	---	---	25.5	25.0	25.0
7							---	---	---	25.5	25.0	25.5
8							---	---	---	26.0	25.0	25.5
9							---	---	---	26.0	25.5	25.5
10							---	---	---	26.0	25.5	26.0
11							---	---	---	26.0	25.5	26.0
12							---	---	---	26.5	25.5	26.0
13							27.5	26.5	27.0	26.5	26.0	26.0
14							27.5	26.5	27.0	26.5	26.0	26.0
15							27.5	26.5	27.0	26.5	26.0	26.5
16							28.0	26.5	27.5	27.0	26.0	26.5
17							28.0	27.0	27.5	27.0	26.0	26.5
18							28.0	26.5	27.5	27.0	26.0	26.5
19							27.5	26.5	27.0	26.5	26.0	26.0
20							27.5	26.5	27.0	26.0	25.5	26.0
21							27.0	26.5	27.0	26.0	25.0	25.5
22							27.0	26.0	26.5	25.5	23.5	24.5
23							27.0	26.0	26.5	24.0	23.0	23.5
24							27.0	26.0	26.5	24.0	23.0	23.5
25							27.0	26.0	26.5	24.0	22.0	23.5
26							27.0	26.0	26.5	24.0	22.0	23.5
27							27.0	26.5	27.0	24.0	23.0	23.5
28							27.0	26.0	26.0	24.0	23.0	23.5
29							26.0	25.5	25.5	24.0	23.0	23.5
30							25.5	25.0	25.5	24.0	23.0	23.5
31							25.5	24.5	25.0	---	---	---
MONTH							28.0	24.5	26.5	27.0	22.0	25.0

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										---	---	---
22										---	---	---
23										---	---	---
24										---	---	---
25										---	---	---
26										---	---	---
27										---	---	---
28										---	---	---
29										---	---	---
30										9.6	9.1	9.3
31										9.4	9.1	9.2
MONTH										9.6	9.1	9.3

08180640 MEDINA RIVER AT LA COSTE, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	9.3	8.9	9.1	10.0	9.6	9.8	---	---	---	---	---	---
2	9.5	8.9	9.2	10.1	9.6	9.8	---	---	---	---	---	---
3	9.5	9.1	9.3	10.2	9.7	9.9	---	---	---	---	---	---
4	9.4	9.0	9.2	10.2	9.7	9.9	---	---	---	---	---	---
5	9.1	8.9	9.0	10.1	9.5	9.8	---	---	---	---	---	---
6	9.5	9.1	9.3	10.0	9.3	9.7	---	---	---	---	---	---
7	10.0	9.5	9.7	9.8	9.1	9.5	---	---	---	---	---	---
8	9.9	9.3	9.6	9.9	9.1	9.5	9.5	8.8	9.1	---	---	---
9	9.9	9.2	9.5	9.9	9.2	9.4	9.4	8.6	9.0	---	---	---
10	9.7	9.1	9.4	9.8	9.1	9.4	9.3	8.5	8.8	---	---	---
11	9.9	9.1	9.4	9.6	9.2	9.4	8.9	8.1	8.4	---	---	---
12	10.0	9.3	9.5	10.0	9.4	9.7	8.5	7.8	8.1	---	---	---
13	9.9	9.4	9.6	10.5	9.7	10.0	8.3	7.7	7.9	---	---	---
14	9.7	9.3	9.5	10.1	9.5	9.8	8.5	7.6	8.0	---	---	---
15	9.7	9.1	9.4	9.9	9.4	9.6	8.5	7.8	8.1	---	---	---
16	10.0	9.3	9.6	9.8	9.2	9.5	8.7	7.9	8.2	---	---	---
17	10.2	9.5	9.8	9.9	9.2	9.5	8.6	7.8	8.1	---	---	---
18	10.2	9.6	9.8	10.1	9.1	9.5	8.6	7.8	8.1	7.4	7.0	7.2
19	9.7	9.5	9.6	9.9	9.3	9.6	8.4	7.7	8.0	7.1	7.0	7.0
20	10.0	9.6	9.8	9.9	9.3	9.6	8.0	7.7	7.8	7.4	7.1	7.3
21	10.0	9.6	9.8	10.0	9.0	9.5	8.4	7.6	7.8	7.5	7.3	7.4
22	10.1	9.5	9.8	9.5	9.0	9.2	9.0	8.4	8.7	7.5	7.3	7.4
23	9.7	9.1	9.5	---	---	---	9.4	8.8	9.1	7.4	7.2	7.3
24	9.2	9.0	9.1	---	---	---	---	---	---	7.4	7.1	7.3
25	9.2	9.0	9.1	---	---	---	---	---	---	7.4	7.1	7.2
26	9.4	9.1	9.3	---	---	---	---	---	---	7.3	7.0	7.1
27	9.5	9.3	9.4	---	---	---	---	---	---	7.2	7.0	7.1
28	9.6	9.2	9.4	---	---	---	---	---	---	7.3	7.1	7.2
29	---	---	---	---	---	---	---	---	---	7.9	7.2	7.5
30	---	---	---	8.3	7.6	7.9	---	---	---	---	---	---
31	---	---	---	8.4	7.7	8.0	---	---	---	---	---	---
MONTH	10.2	8.9	9.5	10.5	7.6	9.5	9.5	7.6	8.3	7.9	7.0	7.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1							---	---	---	7.6	6.7	7.1
2							---	---	---	7.6	6.8	7.2
3							---	---	---	7.6	6.8	7.2
4							---	---	---	7.6	6.7	7.2
5							---	---	---	7.6	6.8	7.2
6							---	---	---	7.5	6.8	7.2
7							---	---	---	7.6	6.9	7.2
8							---	---	---	7.5	6.8	7.1
9							---	---	---	7.5	6.8	7.1
10							---	---	---	7.4	6.8	7.1
11							---	---	---	7.2	6.4	6.9
12							---	---	---	7.2	6.3	6.8
13							7.4	6.5	6.9	7.2	6.4	6.8
14							7.4	6.4	6.9	7.3	6.3	6.8
15							7.4	6.4	6.9	7.3	6.2	6.8
16							7.4	6.4	6.9	7.3	6.2	6.8
17							7.4	6.3	6.9	7.3	6.3	6.8
18							7.5	6.3	6.9	6.5	6.0	6.0
19							7.6	6.4	7.0	6.0	4.8	5.0
20							7.5	6.4	7.0	6.1	5.6	5.8
21							7.6	6.5	7.0	6.0	5.6	5.9
22							7.6	6.5	7.0	6.2	5.9	6.0
23							7.7	6.5	7.1	7.1	5.8	6.4
24							7.7	6.5	7.0	7.0	5.9	6.3
25							7.4	6.4	6.9	6.5	6.0	6.3
26							7.4	6.3	6.9	7.4	6.1	6.8
27							7.5	6.3	6.9	7.9	6.2	7.1
28							7.1	6.3	6.7	7.7	6.3	6.9
29							7.2	6.2	6.7	7.6	6.4	6.9
30							7.1	6.4	6.7	7.7	6.4	7.1
31							7.2	6.5	6.8	---	---	---
MONTH							7.7	6.2	6.9	7.9	4.8	6.7

08180700 MEDINA RIVER NEAR MACDONA, TX

LOCATION.--Lat 29°20'05", long 98°41'22", Bexar County, Hydrologic Unit 12100302, at downstream side of Loop 1604 bridge, 0.1 mi downstream from Polecat Creek, 0.7 mi north of Macdona, 2.2 mi downstream from Potranca Creek, and 21.2 mi upstream from mouth.

DRAINAGE AREA.--885 mi², of which 634 mi² is above dam forming Medina Lake.

PERIOD OF RECORD.--January 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 589.86 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is regulated by Medina Lake (station 08179500) and by Medina Diversion Lake (capacity, 4,500 acre-ft) 41 mi upstream. For diversion of canal records, see Medina Canal near Riomedina (station 08180000). A large part of the streamflow is lost into the Edwards and associated limestones where the Balcones Fault crosses the basin between the upstream end of Medina Lake and about 5 mi downstream from Medina Dam, or 0.9 mi downstream from the diversion dam. There are several small diversions below Medina Diversion Dam. Two observations of water temperature were made during the year.

AVERAGE DISCHARGE.--6 years, 199 ft³/s (144,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,800 ft³/s May 30, 1987 (gage height, 20.58 ft); minimum daily, 14 ft³/s Jan. 11, 12, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36,800 ft³/s May 30 at 0900 hours (gage height, 20.58 ft); minimum daily, 45 ft³/s Oct. 1.

DISCHARGE, IN 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	45	131	118	1120	364	615	323	169	6110	1300	411	148
2	46	131	118	1070	359	586	317	158	5250	1240	408	139
3	46	131	107	1000	350	565	315	156	4840	1170	390	136
4	46	133	98	968	339	549	298	155	17700	1100	370	134
5	46	135	98	903	340	531	289	185	22300	1030	354	131
6	488	133	98	863	419	518	293	272	11100	989	331	170
7	226	129	100	838	433	504	303	312	7240	944	319	166
8	91	131	103	814	397	490	301	277	5570	893	295	168
9	67	131	103	787	373	485	297	247	4850	849	270	173
10	55	131	110	762	357	473	286	230	5000	842	250	162
11	304	138	118	710	338	471	282	211	6800	843	247	160
12	890	132	117	674	331	506	278	198	9500	815	238	161
13	460	122	116	646	326	496	266	193	12300	766	219	154
14	158	123	116	623	320	488	260	227	7910	742	206	155
15	121	121	150	601	324	472	228	225	6360	732	191	150
16	136	113	142	603	329	464	211	269	5120	730	181	137
17	132	105	134	585	310	460	200	263	4350	720	175	132
18	128	105	138	597	293	495	196	242	3780	702	172	132
19	124	103	140	588	277	518	188	224	3280	699	167	134
20	121	102	137	542	268	521	188	301	2880	680	164	127
21	119	99	136	525	275	511	176	645	2620	658	161	130
22	169	100	1170	514	273	495	181	699	2420	627	157	127
23	186	100	814	493	262	486	181	596	2250	603	151	124
24	161	102	285	452	262	492	172	512	2050	570	147	121
25	149	114	226	442	331	459	177	450	1880	544	145	105
26	155	105	433	431	515	425	214	401	1810	529	142	102
27	188	109	880	414	519	410	231	356	1910	517	137	114
28	153	117	1130	399	620	392	221	330	1680	494	149	124
29	141	118	1180	391	---	383	200	354	1520	480	151	118
30	134	118	1200	383	---	386	186	20400	1390	464	145	e110
31	134	---	1170	376	---	349	---	10500	---	443	161	---
TOTAL	5419	3562	10985	20114	9904	14995	7258	39757	171770	23715	7004	4144
MEAN	175	119	354	649	354	484	242	1282	5726	765	226	138
MAX	890	138	1200	1120	620	615	323	20400	22300	1300	411	173
MIN	45	99	98	376	262	349	172	155	1390	443	137	102
AC-FT	10750	7070	21790	39900	19640	29740	14400	78860	340700	47040	13890	8220

CAL YR 1986 TOTAL 42496 MEAN 116 MAX 2820 MIN 26 AC-FT 84290
WTR YR 1987 TOTAL 318627 MEAN 873 MAX 22300 MIN 45 AC-FT 632000

e Estimated.

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX

LOCATION.--Lat 29°19'40", long 98°38'19", Bexar County, Hydrologic Unit 12100302, on right bank 37 ft downstream from centerline of Pearsall Road and 31 ft shoreward from right abutment of culvert, 1.2 mi southwest of Loop 410, and 5.0 mile upstream from mouth.

DRAINAGE AREA.--47.9 mi².

PERIOD OF RECORD.--December 1986 to September 1987.

GAGE.--Water-stage recorder. Datum of gage is 596.52 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,140 ft³/s June 13, 1987 (gage height, 10.09 ft); minimum daily, 3.2 ft³/s Aug. 5, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period December to September, 2,140 ft³/s June 13 at 1700 hours (gage height, 10.09 ft); minimum daily, 3.2 ft³/s Aug. 5.

DISCHARGE, IN 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	---	---	---	12	10	18	6.0	5.0	105	5.9	3.8	6.0
2	---	---	---	11	11	13	5.8	6.0	233	5.3	3.8	4.7
3	---	---	---	9.7	9.5	11	5.7	5.5	378	5.1	4.1	4.3
4	---	---	---	9.5	11	11	5.3	12	205	5.1	4.0	3.9
5	---	---	---	10	29	9.8	7.0	12	130	5.2	3.2	4.8
6	---	---	---	9.4	22	8.8	7.9	79	27	5.1	3.6	5.4
7	---	---	---	9.2	11	9.0	6.7	22	23	4.9	3.4	5.2
8	---	---	---	9.7	8.9	9.9	6.1	7.8	19	4.7	3.6	7.6
9	---	---	---	9.3	8.6	11	6.7	7.8	31	10	3.8	5.0
10	---	---	---	9.1	7.1	10	6.7	6.1	298	6.8	4.1	4.5
11	---	---	---	9.3	7.6	15	6.1	6.3	587	5.7	3.7	4.7
12	---	---	---	10	6.9	11	6.7	5.1	161	5.1	3.9	4.7
13	---	---	---	9.7	6.9	10	6.9	30	832	4.3	3.6	4.9
14	---	---	---	9.4	6.5	9.9	5.8	57	90	7.3	3.4	4.7
15	---	---	---	9.2	29	11	5.4	8.5	28	7.4	4.1	3.9
16	---	---	---	8.7	9.6	11	4.8	5.7	18	6.0	3.8	3.8
17	---	---	---	20	7.6	21	5.1	5.1	15	4.7	4.6	4.0
18	---	---	---	15	6.4	11	5.3	5.0	12	4.2	4.5	4.1
19	---	---	10	11	6.1	8.5	5.6	53	11	4.1	3.9	4.5
20	---	---	9.2	9.6	17	8.1	5.3	36	9.9	4.0	3.7	4.3
21	---	---	9.2	12	9.0	7.7	4.7	70	9.3	3.8	3.6	4.3
22	---	---	700	12	7.7	8.2	5.0	19	8.6	4.2	3.4	4.3
23	---	---	144	9.8	7.7	8.2	5.5	8.1	8.0	4.0	3.6	4.5
24	---	---	36	9.5	38	7.4	5.8	6.3	7.4	4.6	3.8	4.3
25	---	---	21	9.4	45	6.4	15	6.0	6.9	6.2	3.8	4.2
26	---	---	17	9.7	124	6.0	7.7	5.6	6.1	5.0	3.5	4.3
27	---	---	14	9.2	33	5.9	5.7	4.9	5.6	9.0	3.3	4.8
28	---	---	13	10	60	5.9	4.6	4.7	5.8	8.9	4.0	14
29	---	---	17	9.6	---	6.4	4.5	658	5.9	5.3	6.1	5.7
30	---	---	15	9.4	---	6.6	4.2	145	5.9	4.4	5.4	4.7
31	---	---	13	9.2	---	6.1	---	157	---	4.0	5.7	---
TOTAL	---	---	---	320.6	556.1	302.8	183.6	1459.5	3282.4	170.3	122.8	150.1
MEAN	---	---	---	10.3	19.9	9.77	6.12	47.1	109	5.49	3.96	5.00
MAX	---	---	---	20	124	21	15	658	832	10	6.1	14
MIN	---	---	---	8.7	6.1	5.9	4.2	4.7	5.6	3.8	3.2	3.8
AC-FT	---	---	---	636	1100	601	364	2890	6510	338	244	298

CAL YR 1986 TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1987 TOTAL - MEAN - MAX - MIN - AC-FT -

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: February to September 1987.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January to September 1987.
pH: January to September 1987.
WATER TEMPERATURE: January to September 1987.
DISSOLVED OXYGEN: January to September 1987.

INSTRUMENTATION.--Beginning January 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 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 CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,160 microsiemens Mar. 5-8; minimum, 206 microsiemens June 13.
pH: Maximum, 8.6 units July 5; minimum, 7.0 units on several days during May and June.
WATER TEMPERATURE: Maximum, 30.5°C Aug. 9, 11, 13, 14, 16.
DISSOLVED OXYGEN: Maximum, 15.4 mg/L Mar. 10; minimum, 3.2 mg/L Apr. 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
FEB										
25...	1215	3.7	657	7.70	13.0	10.0	97	3.8	230	68
MAR										
24...	1318	8.1	1080	8.30	18.5	11.6	127	1.6	350	110
JUL										
29...	1425	5.0	761	8.00	28.0	7.6	100	1.3	250	75
SEP										
04...	1130	4.4	875	8.10	26.0	8.2	103	0.8	270	79

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 WH WAT TOTAL 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)
FEB									
25...	76	9.6	46	1	4.8	161	90	57	0.30
MAR									
24...	110	18	91	2	6.8	239	120	120	0.40
JUL									
29...	80	13	60	2	6.2	178	100	71	0.30
SEP									
04...	82	16	68	2	7.6	192	91	88	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)
FEB									
25...	10	390	1.98	0.120	2.10	0.210	1.7	1.9	0.260
MAR									
24...	17	630	7.66	0.140	7.80	0.040	3.1	3.1	4.50
JUL									
29...	16	450	5.66	0.040	5.70	0.060	1.3	1.4	3.70
SEP									
04...	16	480	7.97	0.030	8.00	0.030	1.4	1.4	5.40

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR FEBRUARY 1987 TO SEPTEMBER 1987

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)
FEB.	1987	556.1	758	439	658	73	110	92	139	250
MAR.	1987	302.8	1060	610	498	120	96	110	93	340
APR.	1987	183.6	998	575	285	110	53	110	55	320
MAY	1987	1459.5	563	327	1290	47	185	76	299	190
JUNE	1987	3282.4	492	286	2540	40	352	68	599	170
JULY	1987	170.3	937	540	248	97	45	110	49	300
AUG.	1987	122.8	879	508	168	88	29	100	34	290
SEPT	1987	150.1	842	487	197	82	33	100	41	280
TOTAL		7566.6	**	**	5900	**	909	**	1320	**
WTD.AVG.		27	499	289	**	44	**	64	**	170

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1										---	---	---
2										---	---	---
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25										---	---	---
26										---	---	---
27										---	---	---
28										---	---	---
29										---	---	---
30										1010	990	996
31										1010	980	1000
MONTH										1010	980	998

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1010	980	994	950	700	810	1080	1050	1070	970	950	958
2	1010	990	997	1020	950	994	1080	1050	1060	960	940	955
3	1010	990	1000	1120	1020	1080	1070	1050	1060	960	910	933
4	1120	990	1010	1140	1100	1120	1070	1050	1060	910	850	875
5	---	---	1000	1160	1120	1140	1070	1050	1060	860	630	828
6	---	---	1000	1160	1130	1150	1050	1030	1040	760	260	524
7	---	---	1000	1160	1140	1150	1030	1010	1020	630	430	584
8	---	---	1000	1160	1130	1140	1010	1000	1010	690	620	653
9	---	---	1000	1150	1120	1130	1010	990	1000	770	690	731
10	1050	657	1010	1150	1120	1130	1020	990	1000	880	760	841
11	1070	1040	1050	1120	1100	1110	1020	970	994	920	880	897
12	1070	1050	1050	1110	1070	1090	1020	1000	1010	950	900	928
13	1060	1050	1050	1100	1000	1050	1030	1010	1020	910	540	799
14	1070	1050	1060	1070	1020	1040	1040	1010	1020	510	360	433
15	1030	787	880	1090	1070	1080	1040	1010	1020	630	510	568
16	897	817	847	1100	1040	1090	1030	1010	1020	770	640	708
17	917	807	840	1090	900	1040	1030	1020	1020	880	770	825
18	---	---	950	1020	910	984	1040	1010	1030	930	870	904
19	---	---	990	980	910	933	1040	1010	1020	940	400	673
20	---	---	950	1030	970	996	1030	1010	1020	620	430	525
21	---	---	971	1070	1030	1050	1030	1010	1020	600	410	479
22	---	---	950	1080	1070	1080	1030	990	1010	660	480	574
23	---	---	800	1090	1070	1080	1000	940	973	771	680	736
24	---	---	680	1090	1070	1080	980	950	969	861	761	802
25	700	450	629	1090	1080	1080	980	950	960	942	851	900
26	590	430	483	1090	1080	1090	960	800	899	992	942	972
27	810	600	711	1090	1060	1080	---	---	850	1000	982	990
28	730	500	599	1100	1070	1080	900	780	843	993	973	977
29	---	---	---	1100	1080	1090	930	900	915	994	221	568
30	---	---	---	1090	1070	1080	950	920	940	472	251	345
31	---	---	---	1080	1070	1070	---	---	---	633	362	539
MONTH	1120	430	911	1160	700	1070	1080	780	998	1000	221	743

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	644	392	487	1090	1070	1080	880	810	849	840	790	814
2	674	312	431	1080	1060	1070	910	870	891	870	840	853
3	595	312	457	1080	1060	1070	930	900	916	860	850	858
4	525	404	466	1070	1040	1060	930	920	927	860	830	845
5	607	394	497	1060	1040	1050	940	920	930	860	810	837
6	830	627	736	1060	1040	1050	940	910	924	890	840	857
7	984	840	907	1050	1040	1040	930	910	921	890	800	863
8	963	762	850	1050	1020	1030	930	910	923	830	790	805
9	956	815	908	1030	1000	1020	930	910	922	790	750	766
10	806	255	607	1030	860	967	930	920	929	810	760	780
11	491	307	380	850	760	789	930	910	924	810	760	779
12	617	359	469	940	800	888	930	910	922	830	790	814
13	670	206	420	970	930	952	920	910	919	870	830	855
14	667	352	520	990	950	969	920	900	907	880	860	873
15	862	677	780	980	960	973	900	890	894	880	870	871
16	1010	873	921	980	770	869	900	880	892	890	870	878
17	1080	1010	1050	830	770	797	910	890	903	890	880	884
18	1120	1080	1100	880	840	863	900	850	880	880	870	880
19	1130	1090	1110	900	870	884	870	850	863	880	870	877
20	1130	1110	1120	950	900	923	870	830	858	880	860	870
21	1130	1110	1120	960	950	952	840	810	825	880	860	870
22	1150	1130	1140	970	950	959	840	820	825	880	860	867
23	1140	1120	1130	960	940	952	850	770	838	880	870	871
24	1130	1110	1120	960	940	952	870	850	860	880	850	863
25	1130	1110	1120	950	930	939	860	840	853	860	850	858
26	1130	1100	1120	950	690	912	870	850	859	870	850	860
27	1150	1100	1120	850	790	818	860	830	853	870	840	862
28	1100	1090	1090	900	730	842	870	720	848	860	750	810
29	1090	1080	1090	790	700	747	860	850	855	890	790	853
30	1100	1080	1090	840	780	817	850	790	820	880	660	799
31	---	---	---	810	770	787	830	620	795	---	---	---
MONTH	1150	206	845	1090	690	936	940	620	881	890	660	846

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										---	---	---
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26										---	---	---
27										---	---	---
28										---	---	---
29										---	---	---
30										8.3	7.8	8.1
31										8.3	7.9	8.1
MONTH										8.3	7.8	8.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.4	7.9	8.1	7.7	7.6	7.7	8.0	7.5	7.7	8.3	7.9	8.0
2	8.4	7.9	8.1	8.0	7.6	7.8	7.9	7.5	7.7	8.3	7.9	8.0
3	8.4	7.9	8.1	7.8	7.6	7.7	8.0	7.5	7.7	8.2	7.9	8.0
4	8.3	7.9	8.0	7.9	7.6	7.7	7.9	7.5	7.7	8.1	8.0	8.0
5	8.0	7.8	7.9	7.9	7.6	7.8	7.7	7.4	7.5	8.1	7.9	8.0
6	7.9	7.7	7.8	7.9	7.6	7.7	7.8	7.4	7.6	7.9	7.4	7.6
7	8.0	7.7	7.8	8.1	7.6	7.8	7.9	7.4	7.6	7.9	7.6	7.7
8	8.0	7.7	7.9	8.1	7.7	7.9	7.9	7.4	7.7	7.9	7.5	7.8
9	8.1	7.8	7.9	8.2	7.7	7.9	8.1	7.5	7.8	8.0	7.8	7.9
10	8.2	7.8	8.0	8.2	7.6	7.9	8.1	7.5	7.8	8.1	7.9	8.0
11	8.2	7.9	8.0	8.0	7.6	7.8	8.2	7.5	7.8	8.0	7.9	8.0
12	8.3	7.9	8.0	8.1	7.7	7.8	8.1	7.6	7.8	8.1	7.9	8.0
13	8.2	7.9	8.0	8.2	7.6	7.8	8.2	7.6	7.9	8.1	7.8	8.0
14	8.3	7.9	8.1	8.3	7.6	7.9	8.2	7.6	7.9	7.8	7.7	7.8
15	8.1	7.9	8.0	8.0	7.7	7.8	8.1	7.6	7.9	7.8	7.8	7.8
16	8.0	7.8	7.9	8.1	7.7	7.8	8.2	7.7	7.9	7.9	7.8	7.8
17	8.1	7.8	8.0	8.1	7.7	7.8	8.3	7.8	8.0	8.1	7.8	7.9
18	8.2	7.9	8.0	8.3	7.6	7.9	8.3	7.8	8.0	7.9	7.8	7.9
19	8.1	7.9	8.0	8.2	7.7	7.9	8.3	7.8	8.0	7.9	7.6	7.8
20	8.2	7.9	8.1	8.3	7.7	7.9	8.3	7.8	8.0	7.8	7.6	7.7
21	8.0	7.9	8.0	8.2	7.7	7.9	8.1	7.8	8.0	7.7	7.6	7.7
22	8.2	7.8	8.0	8.4	7.7	8.0	8.2	7.9	8.0	7.6	7.5	7.5
23	8.3	8.0	8.1	8.4	7.8	8.1	8.1	7.9	8.0	7.6	7.5	7.5
24	8.1	7.8	7.9	8.2	7.7	8.0	8.1	7.7	7.9	7.7	7.5	7.6
25	7.9	7.7	7.8	8.1	7.6	7.8	7.8	7.7	7.8	7.7	7.6	7.6
26	7.9	7.8	7.9	8.1	7.6	7.8	7.9	7.6	7.7	7.7	7.5	7.6
27	7.8	7.7	7.7	8.2	7.6	7.8	8.1	7.6	7.8	7.6	7.3	7.5
28	7.8	7.6	7.7	8.0	7.6	7.7	8.3	7.7	7.9	7.4	7.3	7.3
29	---	---	---	7.9	7.6	7.7	8.3	7.8	8.0	7.5	7.0	7.2
30	---	---	---	8.1	7.6	7.8	8.4	7.9	8.1	7.2	7.0	7.0
31	---	---	---	8.0	7.6	7.7	---	---	---	7.1	7.0	7.0
MONTH	8.4	7.6	8.0	8.4	7.6	7.8	8.4	7.4	7.8	8.3	7.0	7.7

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.1	7.0	7.0	8.5	8.3	8.4	8.2	7.9	8.0	7.9	7.8	7.8
2	7.2	7.0	7.1	8.5	8.4	8.4	8.2	7.9	8.0	7.9	7.7	7.8
3	7.4	7.0	7.1	8.5	8.3	8.4	8.1	7.9	8.0	8.0	7.8	7.8
4	7.5	7.0	7.0	8.5	8.4	8.4	8.1	7.9	8.0	8.0	7.8	7.9
5	7.1	7.0	7.0	8.6	8.3	8.4	8.1	7.9	8.0	8.1	7.8	7.9
6	7.3	7.0	7.1	8.5	8.3	8.4	8.1	7.9	8.0	8.1	7.9	8.0
7	7.3	7.1	7.2	8.5	8.3	8.4	8.1	7.9	8.0	8.1	7.8	8.0
8	7.6	7.1	7.2	8.4	8.2	8.3	8.1	7.9	8.0	8.0	7.8	7.9
9	7.6	7.1	7.2	8.4	8.2	8.3	8.1	7.9	8.0	8.1	7.8	7.9
10	7.3	7.1	7.2	8.3	8.0	8.2	8.0	7.9	7.9	8.1	7.8	7.9
11	7.5	7.1	7.2	8.2	8.0	8.1	8.0	7.9	7.9	8.1	7.8	7.9
12	7.4	7.3	7.4	8.3	8.0	8.1	8.0	7.8	7.9	8.1	7.8	7.9
13	7.4	7.2	7.3	8.3	8.0	8.1	8.0	7.8	7.9	8.2	7.9	8.1
14	7.8	7.2	7.3	8.3	8.0	8.2	8.1	7.8	8.0	8.2	8.0	8.1
15	7.4	7.2	7.3	8.1	8.0	8.1	8.1	7.9	8.0	8.3	8.0	8.1
16	7.6	7.3	7.5	8.1	7.9	8.0	8.1	7.9	8.0	8.3	8.0	8.1
17	7.9	7.6	7.6	8.2	7.9	8.0	8.1	7.9	8.0	8.3	8.0	8.1
18	7.9	7.6	7.8	8.3	8.0	8.1	8.1	7.9	8.0	8.1	8.0	8.1
19	8.0	7.8	7.9	8.3	8.0	8.1	8.1	7.9	8.0	8.3	8.0	8.1
20	8.0	7.8	7.9	8.3	8.0	8.2	8.1	7.9	8.0	8.4	8.0	8.2
21	8.0	7.8	7.9	8.2	8.0	8.1	8.1	7.9	8.0	8.4	8.0	8.2
22	8.1	7.9	8.0	8.2	7.9	8.1	8.1	7.9	8.0	8.4	8.2	8.3
23	8.3	8.0	8.1	8.2	8.0	8.1	8.1	7.9	8.0	8.5	8.2	8.3
24	8.5	8.2	8.4	8.2	8.0	8.1	8.1	8.0	8.0	8.4	8.2	8.3
25	8.5	8.3	8.4	8.1	8.0	8.1	8.1	8.0	8.0	8.4	8.1	8.2
26	8.5	8.4	8.5	8.2	8.0	8.1	8.1	7.9	8.0	8.4	8.1	8.3
27	8.5	8.3	8.4	8.1	8.0	8.1	8.1	7.9	8.0	8.4	8.1	8.2
28	8.5	8.3	8.4	8.0	7.8	7.9	8.0	7.9	8.0	8.1	7.9	8.0
29	8.5	8.4	8.4	8.1	7.8	7.9	8.0	7.9	7.9	8.2	7.9	8.0
30	8.5	8.3	8.4	8.1	7.8	8.0	7.9	7.8	7.8	8.2	7.9	8.0
31	---	---	---	8.2	7.9	8.0	7.9	7.7	7.8	---	---	---
MONTH	8.5	7.0	7.6	8.6	7.8	8.2	8.2	7.7	8.0	8.5	7.7	8.1

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
MONTH												

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1				---	---	---	15.0	12.0	13.5	23.0	22.0	22.5
2				---	---	---	15.0	13.5	14.5	23.5	22.0	22.5
3				16.5	14.0	15.5	14.5	12.0	13.5	24.0	22.5	23.5
4				17.0	14.5	15.5	14.0	12.5	13.5	24.0	22.5	23.5
5				17.5	14.5	16.0	13.5	12.5	13.0	24.0	22.0	23.0
6				17.5	14.5	16.0	14.0	12.5	13.0	23.0	21.5	22.0
7				18.0	14.5	16.5	15.5	13.5	14.5	23.0	21.0	22.0
8				18.0	15.0	16.5	16.0	13.5	15.0	23.0	21.5	22.0
9				18.0	15.0	16.5	17.5	14.5	16.0	23.5	21.0	22.5
10				17.5	15.5	16.5	19.0	16.0	17.5	24.5	22.5	23.5
11				16.0	14.5	15.0	20.5	17.5	19.5	24.0	23.0	23.5
12				15.0	13.5	14.5	22.0	20.0	21.0	24.5	22.5	23.5
13				15.5	13.0	14.5	23.0	21.0	22.0	24.5	23.0	24.0
14				16.0	13.5	15.0	20.5	19.0	20.0	25.0	23.5	24.0
15				17.0	15.5	16.5	20.0	17.5	19.0	25.5	24.0	25.0
16				19.0	17.0	18.0	21.0	18.0	19.5	25.5	24.0	25.0
17				19.5	17.5	18.5	22.0	19.5	21.0	25.5	23.5	24.5
18				19.0	16.5	18.0	23.0	20.5	22.0	26.0	24.5	25.5
19				18.0	16.5	17.5	23.5	22.0	22.5	25.5	23.0	24.0
20				19.0	16.5	17.5	23.5	22.0	23.0	25.0	23.0	24.0
21				19.5	18.0	19.0	23.0	20.5	22.0	25.0	22.5	24.0
22				21.0	19.0	20.0	20.5	19.5	20.0	27.0	24.5	25.5
23				20.0	18.5	19.5	21.0	19.0	20.5	27.0	25.0	26.0
24				19.0	17.0	18.0	21.5	20.0	20.5	27.0	25.5	26.0
25				18.0	16.0	17.0	20.5	20.0	20.5	27.0	25.5	26.0
26				16.5	15.5	16.0	22.0	19.5	21.0	27.0	25.5	26.0
27				17.5	15.0	16.5	22.5	20.0	21.5	26.5	25.0	26.0
28				18.0	15.5	17.0	23.0	20.0	21.5	26.0	25.0	25.5
29				16.5	12.0	14.0	23.0	20.5	22.0	25.5	20.0	22.5
30				13.0	11.0	12.0	23.5	21.0	22.0	22.0	20.0	21.0
31				13.5	10.5	12.5	---	---	---	23.0	21.5	22.5
MONTH				21.0	10.5	16.5	23.5	12.0	19.0	27.0	20.0	24.0

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

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										---	---	---
22										---	---	---
23										---	---	---
24										---	---	---
25										---	---	---
26										---	---	---
27										---	---	---
28										---	---	---
29										---	---	---
30										14.2	6.6	9.8
31										13.4	7.2	9.6
MONTH										14.2	6.6	9.7

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	14.1	7.2	9.8	10.3	8.5	9.3	14.2	6.6	9.5	9.1	4.4	6.1
2	14.6	7.3	10.1	10.2	7.6	8.7	11.6	5.7	8.1	9.4	4.6	6.2
3	14.7	7.5	10.2	9.8	7.1	8.2	14.4	6.3	9.6	8.9	4.7	6.0
4	12.7	7.1	9.2	10.6	7.0	8.4	13.7	6.4	9.7	7.0	4.5	5.4
5	8.4	7.2	7.8	11.6	7.1	8.9	10.4	7.2	8.2	7.6	4.4	5.7
6	9.8	7.9	8.6	12.5	7.2	9.3	12.1	7.3	9.1	6.0	4.6	5.3
7	11.7	8.4	9.6	13.7	7.1	9.8	13.1	6.6	9.3	6.2	4.9	5.7
8	12.2	8.2	9.6	14.6	7.4	10.2	14.2	5.9	9.3	6.0	4.6	5.3
9	11.3	7.5	9.3	14.9	7.2	10.1	14.0	5.3	8.9	6.4	4.5	5.4
10	11.6	6.7	8.5	15.4	6.8	10.1	13.3	5.1	8.4	6.9	4.8	5.6
11	11.9	6.6	8.6	12.3	6.9	9.0	12.8	4.3	7.7	7.2	5.0	5.8
12	11.7	6.1	8.2	13.7	7.7	10.0	10.8	3.9	6.4	8.0	5.3	6.3
13	10.8	6.1	7.9	15.1	7.0	10.3	11.0	3.2	6.3	7.4	5.4	5.8
14	11.2	6.1	8.1	14.8	7.4	10.3	11.6	3.5	6.9	6.0	5.5	5.8
15	8.5	6.7	7.6	10.2	6.7	8.1	12.2	4.1	7.4	6.3	5.1	5.6
16	9.2	5.9	7.3	11.9	6.1	8.0	12.5	4.1	7.4	6.5	5.0	5.5
17	10.5	6.8	8.3	10.6	5.7	7.6	11.9	3.7	6.9	7.3	5.2	6.0
18	11.2	7.2	8.8	12.3	5.4	8.2	11.7	3.6	6.7	7.3	5.2	6.0
19	9.1	7.2	7.9	11.8	5.4	7.8	10.7	3.5	6.2	6.2	5.4	5.9
20	10.5	7.8	9.0	12.2	5.7	8.3	10.5	3.3	6.3	6.4	5.8	6.1
21	10.3	8.2	9.0	11.7	5.4	7.8	7.5	3.5	5.2	6.5	5.7	6.1
22	12.2	7.8	9.7	11.4	5.2	7.5	10.3	4.1	6.5	5.9	5.2	5.6
23	12.5	8.5	10.0	12.9	5.0	8.3	11.3	4.6	7.2	6.2	5.1	5.5
24	9.0	8.2	8.6	11.8	5.5	8.0	10.3	4.4	6.2	6.7	5.2	5.7
25	10.9	8.7	9.8	11.4	4.8	7.6	6.3	5.0	5.5	7.1	5.4	6.0
26	11.1	9.8	10.7	10.3	5.2	7.2	8.7	4.8	6.2	7.6	5.6	6.4
27	9.7	8.6	9.2	12.6	5.3	8.2	9.3	4.2	6.2	7.7	5.8	6.6
28	10.1	8.9	9.6	12.3	5.3	8.0	10.4	4.1	6.6	8.8	6.5	7.3
29	---	---	---	10.1	5.6	7.3	10.8	4.2	6.8	---	---	---
30	---	---	---	13.1	6.7	9.5	11.1	4.4	7.0	---	---	---
31	---	---	---	13.7	7.2	9.8	---	---	---	---	---	---
MONTH	14.7	5.9	9.0	15.4	4.8	8.7	14.4	3.2	7.4	9.4	4.4	5.9

08180750 MEDIO CREEK AT PEARSALL ROAD AT SAN ANTONIO, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	8.0	5.2	6.3	9.1	5.7	7.0	7.3	5.7	6.3
2	---	---	---	8.8	5.1	6.4	9.2	5.7	7.1	7.9	5.6	6.5
3	---	---	---	9.2	5.2	6.6	8.8	5.7	6.9	8.4	5.7	6.8
4	---	---	---	9.5	5.4	6.8	8.6	5.6	6.7	8.5	5.6	6.6
5	---	---	---	9.7	5.6	7.0	8.6	5.4	6.6	8.7	5.7	6.8
6	---	---	---	9.3	5.6	6.9	8.1	5.2	6.3	8.4	5.7	6.7
7	---	---	---	9.7	5.5	7.0	8.3	5.2	6.3	8.3	5.1	6.5
8	---	---	---	9.3	5.6	6.9	8.0	5.2	6.2	7.3	5.0	5.9
9	---	---	---	7.4	5.7	6.5	7.9	5.2	6.2	8.2	5.2	6.2
10	---	---	---	8.2	5.8	6.7	7.7	5.3	6.2	8.4	5.0	6.0
11	---	---	---	8.3	5.8	6.7	7.8	5.3	6.1	8.3	4.9	6.0
12	---	---	---	9.1	5.7	6.9	7.6	5.1	6.1	7.7	4.9	5.9
13	---	---	---	10.3	5.6	7.2	7.9	5.2	6.3	8.7	4.8	6.1
14	---	---	---	9.5	5.5	7.1	8.1	5.2	6.2	8.6	4.9	6.1
15	---	---	---	8.0	5.5	6.5	7.7	5.2	6.1	8.4	4.7	5.9
16	---	---	---	8.4	5.7	6.7	7.7	5.0	6.0	8.1	4.7	6.0
17	---	---	---	9.1	5.5	7.1	7.1	5.1	5.9	8.1	4.8	5.9
18	---	---	---	10.1	5.7	7.3	7.2	4.8	5.7	6.6	4.8	5.5
19	7.1	5.4	6.1	9.8	5.9	7.3	7.5	4.9	5.8	8.9	5.3	6.6
20	7.3	5.5	6.1	9.7	5.9	7.4	7.5	5.0	5.9	9.6	5.5	7.1
21	7.4	5.4	6.2	9.2	5.9	7.1	7.5	5.1	6.0	9.7	5.9	7.4
22	7.6	5.4	6.2	9.4	5.8	7.3	7.8	5.1	6.0	9.6	6.0	7.3
23	7.3	5.2	6.0	9.3	5.9	7.1	7.5	5.1	6.0	10.3	6.5	7.8
24	7.0	5.1	5.8	8.5	5.9	6.9	7.9	5.3	6.2	9.7	6.6	7.7
25	6.9	5.1	5.8	8.3	6.3	7.1	7.7	5.2	6.1	11.6	6.7	8.4
26	7.3	5.2	5.9	8.4	6.2	6.9	7.7	5.0	6.0	10.8	5.7	7.5
27	7.5	5.2	6.1	7.7	6.2	6.8	7.8	5.0	6.0	9.9	6.7	7.7
28	7.9	5.6	6.5	7.5	5.8	6.6	7.6	4.9	5.9	8.3	5.9	7.0
29	8.2	5.7	6.6	8.0	5.6	6.5	7.4	5.5	6.2	9.4	5.5	6.8
30	8.3	5.6	6.6	8.4	5.6	6.8	7.3	5.5	6.0	---	---	---
31	---	---	---	9.1	5.6	7.0	7.1	5.4	6.2	---	---	---
MONTH	8.3	5.1	6.2	10.3	5.1	6.9	9.2	4.8	6.2	11.6	4.7	6.7

08180800 MEDINA RIVER NEAR SOMERSET, TX

LOCATION.--Lat 29°15'45", long 98°34'56", Bexar County, Hydrologic Unit 12100302, on left bank 300 ft upstream from bridge on State Highway 16, 2.1 mi upstream from Elm Creek, 4.9 mi downstream from Medio Creek, 5.2 mi northeast of Somerset, and 14.1 mi upstream from mouth.

DRAINAGE AREA.--967 mi², of which 634 mi² is above dam forming Medina Lake.

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 493.56 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Medina Lake (station 08179500) 56 mi upstream and by Medina Diversion Lake (capacity, 4,500 acre-ft). For diversion of canal records, see Medina Canal near Riomedina (station 08180000). A large part of the streamflow is lost into the Edwards and associated limestones in the Balcones Fault Zone that crosses the basin between the upstream end of Medina Lake and about 5 mi downstream from Medina Dam, or 0.9 mi downstream from the diversion dam. There are several small diversions below Medina Diversion Dam. One observation of water temperature was made during the year. Satellite telemeter (gage height) at station.

AVERAGE DISCHARGE.--17 years, 261 ft³/s (189,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,500 ft³/s July 17, 1973 (gage height, 29.39 ft); minimum daily, 16 ft³/s Sept. 19, 20, 1984.
Maximum stage since about 1890, that of July 17, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 26,000 ft³/s June 4 (gage height, unknown); minimum daily, 60 ft³/s Oct. 2-5.

DISCHARGE, IN 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	61	149	131	e1210	438	720	406	244	e9000	e1300	e485	199
2	60	148	130	e1120	430	677	399	232	e7000	e1200	e470	180
3	60	145	128	e1040	426	653	396	225	e6400	e1150	e450	172
4	60	148	117	e990	411	634	381	225	e22000	e1060	e430	169
5	60	152	116	e930	420	621	371	246	e16000	e1000	e415	168
6	241	151	115	e880	494	603	372	374	e10000	e960	e395	176
7	434	147	115	817	513	589	383	509	e7400	e920	e375	195
8	165	147	118	798	480	585	379	402	e6100	e880	e380	205
9	125	146	119	781	455	574	372	352	e6000	e850	e340	215
10	104	145	120	761	438	562	362	327	e10100	e840	e325	208
11	184	144	128	727	420	553	354	304	e14000	e820	e310	204
12	767	152	132	696	412	582	351	289	e11000	e790	e295	203
13	784	142	130	673	407	582	341	283	e14000	e770	e280	203
14	262	138	132	656	402	571	332	356	e8000	e750	237	209
15	166	138	201	636	417	558	310	338	e6200	e740	228	212
16	159	136	195	636	422	557	285	366	e5300	e720	219	195
17	155	127	160	646	401	549	269	370	e4600	e710	211	186
18	147	124	157	638	379	573	262	347	e4000	e700	207	184
19	142	121	155	640	362	591	255	369	e3350	e680	203	187
20	140	120	153	600	359	591	250	426	e2950	e670	199	185
21	140	119	152	584	367	577	242	640	e2600	e650	196	182
22	249	119	1330	573	359	569	241	798	e2400	e640	193	177
23	266	116	2220	560	347	561	248	674	e2200	e620	190	175
24	223	116	532	522	374	562	236	591	e2000	e610	187	173
25	186	136	343	508	420	539	238	536	e1900	e600	183	165
26	171	139	393	498	713	504	275	490	e1800	e600	180	159
27	229	125	712	480	685	488	295	446	e1950	e590	177	157
28	202	130	e990	468	731	474	297	413	e1750	e580	180	172
29	170	131	e1150	460	---	456	283	849	e1550	e550	198	163
30	165	131	e1200	452	---	463	261	e14200	e1420	e530	185	156
31	154	---	e1240	447	---	437	---	e15200	---	e500	190	---
TOTAL	6431	4082	13014	21427	12482	17555	9446	41421	192970	23980	8513	5534
MEAN	207	136	420	691	446	566	315	1336	6432	774	275	184
MAX	784	152	2220	1210	731	720	406	15200	22000	1300	485	215
MIN	60	116	115	447	347	437	236	225	1420	500	177	156
AC-FT	12760	8100	25810	42500	24760	34820	18740	82160	382800	47560	16890	10980

CAL YR 1986 TOTAL 54640 MEAN 150 MAX 4340 MIN 37 AC-FT 108400
WTR YR 1987 TOTAL 356855 MEAN 978 MAX 22000 MIN 60 AC-FT 707800

e Estimated.

08181400 HELOTES CREEK AT HELOTES, TX

LOCATION.--Lat 29°34'42", long 98°41'29", Bexar County, Hydrologic Unit 12100302, 42 ft to left and 44 ft downstream from centerline of bridge on State Highway 16, 0.1 mi northwest of Helotes, and 8.6 mi upstream from mouth.

DRAINAGE AREA.--15.0 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WDR TX-73-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 1,014.82 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. An undetermined amount of flow is diverted for domestic use above station, and some streamflow enters the Edwards and associated limestones through the Balcones Fault Zone in the vicinity of the gage. Recording rain gage at station.

AVERAGE DISCHARGE.--19 years, 4.57 ft³/s (4.14 in/yr), 3,310 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,680 ft³/s July 16, 1973 (gage height, 10.8 ft, from floodmarks), from rating curve extended above 5,000 ft³/s; no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1923, 13.7 ft in 1927, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 140 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 29	0930	826	4.03	June 4	0600	719	3.82
May 31	1715	408	3.38	June 11	1100	*7,140	*10.33

Minimum daily discharge, no flow most of year.

DISCHARGE, IN 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	.27	.00	10	.00	.00	.00	.00	99	3.5	.00	.00
2	.00	.00	.00	8.8	.00	.00	.00	.00	77	2.9	.00	.00
3	.00	.00	.00	7.8	.00	.00	.00	.00	134	2.4	.00	.00
4	.00	.00	.00	6.9	.00	.00	.00	.00	491	1.8	.00	.00
5	.05	.00	.00	6.3	.01	.00	.00	.00	314	1.5	.00	.00
6	.18	.00	.00	5.2	.00	.00	.00	.00	249	1.2	.00	.00
7	.01	.00	.00	4.5	.00	.00	.00	.00	170	1.1	.00	.42
8	.00	.00	.00	3.8	.00	.00	.00	.00	123	1.0	.00	.00
9	.00	.00	.00	3.4	.00	.00	.00	.00	98	4.1	.00	.00
10	.00	.00	.00	3.1	.00	.00	.00	.00	217	2.9	.00	.00
11	.14	.00	.00	2.4	.00	.00	.00	.00	932	1.6	.00	.00
12	11	.00	.00	1.9	.00	.00	.00	.00	359	1.2	.00	.00
13	18	.00	.00	1.5	.00	.00	.00	.00	290	.86	.00	.00
14	10	.00	.00	1.1	.00	.00	.00	.00	200	.44	.00	.00
15	5.8	.00	.11	.95	.00	.00	.00	.00	134	1.7	.00	.00
16	3.1	.00	.58	.64	.00	.00	.00	.00	90	.88	.00	.00
17	1.4	.00	.00	.77	.00	.00	.00	.00	69	.42	.00	.00
18	.18	.00	.69	.68	.00	.00	.00	.00	55	.02	.00	.00
19	.00	.00	1.4	.13	.00	.00	.00	.00	39	.00	.00	.00
20	.00	.00	1.5	.00	.00	.00	.00	.00	24	.00	.00	.00
21	.04	.00	1.3	.22	.00	.00	.00	.00	19	.00	.00	.00
22	5.5	.00	41	.08	.00	.00	.00	.00	20	.00	.00	.00
23	7.4	.00	80	.00	.00	.00	.00	.00	13	.00	.00	.00
24	6.9	.04	58	.00	.00	.00	.00	.00	11	.00	.00	.00
25	5.7	.00	39	.00	.00	.00	.00	.00	8.7	.00	.00	.00
26	6.6	.00	32	.00	.01	.00	.00	.00	6.5	.00	.00	.00
27	5.0	.00	25	.00	.01	.00	.00	.00	6.5	.00	.00	.00
28	3.5	.00	21	.00	.01	.00	.00	.00	5.7	.00	.00	.00
29	2.7	.00	17	.00	---	.00	.00	174	5.1	.00	.00	.00
30	1.8	.00	14	.00	---	.00	.00	73	4.2	.00	.00	.00
31	1.1	---	12	.00	---	.00	---	90	---	.00	.00	---
TOTAL	96.10	.31	344.58	70.17	.04	.00	.00	337.00	4263.7	29.52	.00	.42
MEAN	3.10	.01	11.1	2.26	.0	.00	.00	10.9	142	.95	.00	.01
MAX	18	.27	80	10	.01	.00	.00	174	932	4.1	.00	.42
MIN	.00	.00	.00	.00	.00	.00	.00	.00	4.2	.00	.00	.00
AC-FT	191	.6	683	139	.1	.0	.0	668	8460	59	.0	.8
CFSM	.21	.0	.74	.15	.0	.00	.00	.72	9.47	.06	.00	.0
IN.	.24	.0	.85	.17	.0	.00	.00	.84	10.6	.07	.00	.0

CAL YR 1986	TOTAL	1684.76	MEAN	4.62	MAX	243	MIN	.00	AC-FT	3340	CFSM	.31	IN.	4.18
WTR YR 1987	TOTAL	5141.83	MEAN	14.1	MAX	932	MIN	.00	AC-FT	10200	CFSM	.94	IN.	12.8

08181400 HELOTES CREEK AT HELOTES, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: May 1969 to current year. Pesticide analyses: May 1969 to June 1981, October 1984 to current year. Sediment analyses: October 1968 to September 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
DEC											
22...	1220	39	410	7.40	11.0	7	20	8.0	--	1.3	K1600
MAY											
29...	1042	393	233	6.30	18.5	85	200	4.2	46	5.0	20000
29...	1715	64	290	1.80	20.0	50	32	8.3	95	3.6	4200
JUN											
02...	1606	76	500	7.80	23.0	8	7.4	8.3	101	0.8	--
JUL											
16...	1110	3.2	460	8.10	27.5	<1	1.2	7.4	96	1.0	--

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
DEC											
22...	8800	220	19	67	12	7.1	0.2	1.3	198	18	12
MAY											
29...	28000	110	6	34	5.2	3.5	0.2	2.5	100	7.6	5.1
29...	3400	150	14	48	7.1	4.2	0.2	2.2	135	12	11
JUN											
02...	--	270	0	88	13	7.4	0.2	1.1	--	16	10
JUL											
16...	--	220	35	65	14	11	0.3	0.80	185	19	33

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)
DEC											
22...	0.20	8.1	240	7	<1	--	<0.010	0.600	0.030	0.47	0.50
MAY											
29...	<0.10	6.6	120	328	60	0.380	0.020	0.400	0.180	2.7	2.9
29...	<0.10	8.8	170	48	22	0.380	0.020	0.400	0.050	0.95	1.0
JUN											
02...	0.10	11	--	31	31	--	<0.010	0.800	0.020	1.5	1.5
JUL											
16...	0.10	10	260	295	23	--	<0.010	0.300	0.060	0.34	0.40

DATE	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	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)
DEC											
22...	0.020	3.0	<1	23	<1	<10	<1	8	<5	<1	<0.1
MAY											
29...	0.340	13	1	15	<1	<10	<1	71	<5	2	<0.1
29...	0.020	--	--	--	--	--	--	--	--	--	--
JUN											
02...	0.030	3.1	--	--	--	--	--	--	--	--	--
JUL											
16...	<0.010	2.7	<1	39	<1	<10	<1	6	19	<1	0.1

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
DEC											
22...	<1	<1	10	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01
MAY											
29...	<1	<1	<3	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--
JUN											
02...	--	--	--	--	--	--	--	--	--	--	--
JUL											
16...	<1	<1	3	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01

08181400 HELOTES CREEK AT HELOTES, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
DEC 22...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY 29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
JUN 02...	--	--	--	--	--	--	--	--	--	--
JUL 16...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
DEC 22...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01
MAY 29...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
JUN 02...	--	--	--	--	--	--	--	--	--	--
JUL 16...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX

LOCATION.--Lat 29°19'47", long 98°35'02", Bexar County, Hydrologic Unit 12100302, on left bank between bridges on Interstate Highway 35 in San Antonio, 1.7 mi northeast of the intersection of Interstate Highway 35 and Loop 410, and 11.8 mi upstream from mouth.

DRAINAGE AREA.--219 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 573.49 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Dec. 10 to Jan. 6. Records good except those for estimated daily discharges, which are fair. Satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,100 ft³/s June 11, 1987 (gage height, 22.30 ft), from rating curve extended above 11,000 ft³/s; minimum daily, 2.6 ft³/s Feb. 18, 1985.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,100 ft³/s June 11 at 2200 hours (gage height, 22.30 ft), from rating curve extended above 11,000 ft³/s; minimum daily, 7.6 ft³/s Dec. 6.

DISCHARGE, IN 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	8.6	12	8.4	38	13	57	18	16	758	37	15	15
2	9.0	11	8.5	35	14	35	18	15	842	35	14	13
3	8.1	10	8.4	30	15	31	18	13	712	32	14	11
4	7.8	17	8.3	27	15	26	17	55	1460	30	15	11
5	18	13	8.2	26	85	24	25	94	2010	27	15	11
6	276	10	7.6	24	40	23	21	373	767	27	15	9.2
7	76	11	12	23	18	21	19	134	508	27	15	39
8	30	11	9.9	22	14	19	18	47	375	31	14	35
9	24	10	8.8	19	14	19	17	35	378	65	13	10
10	18	9.7	8.1	18	14	20	17	28	706	30	13	9.3
11	185	11	8.7	17	14	35	16	27	5580	22	14	13
12	426	11	8.9	18	14	22	16	29	4390	21	13	9.7
13	349	13	8.1	19	14	20	16	84	2740	20	14	8.5
14	71	9.9	30	21	13	20	16	290	1170	20	14	8.3
15	29	10	70	22	58	20	17	65	562	43	14	9.0
16	19	10	20	21	15	21	19	39	365	28	12	8.9
17	16	10	14	60	12	45	18	33	270	23	13	9.0
18	13	9.9	10	21	12	26	18	32	213	21	13	9.0
19	11	9.8	9.5	14	12	21	17	341	174	18	13	9.2
20	9.8	10	9.0	13	43	21	18	480	146	17	13	8.3
21	15	10	8.8	20	17	20	19	285	120	17	13	8.3
22	159	9.8	45	17	13	19	19	127	99	18	12	9.3
23	114	11	250	15	12	20	21	32	80	18	11	8.2
24	69	24	70	14	108	19	29	23	65	17	13	8.3
25	32	56	30	14	119	19	36	19	52	16	13	8.4
26	55	14	25	14	310	19	18	18	44	17	13	7.9
27	42	9.6	23	14	138	19	16	18	40	32	13	8.2
28	21	8.5	27	14	120	17	16	18	35	22	18	18
29	18	8.4	35	14	---	16	16	1080	33	18	19	15
30	15	8.3	100	14	---	17	15	1150	35	17	14	8.9
31	13	---	50	13	---	19	---	596	---	17	14	---
TOTAL	2157.3	378.9	940.2	651	1286	730	564	5596	24729	783	429	356.9
MEAN	69.6	12.6	30.3	21.0	45.9	23.5	18.8	181	824	25.3	13.8	11.9
MAX	426	56	250	60	310	57	36	1150	5580	65	19	39
MIN	7.8	8.3	7.6	13	12	16	15	13	33	16	11	7.9
AC-FT	4280	752	1860	1290	2550	1450	1120	11100	49050	1550	851	708

CAL YR 1986	TOTAL	17754.5	MEAN	48.6	MAX	4540	MIN	4.6	AC-FT	35220
WTR YR 1987	TOTAL	38601.2	MEAN	106	MAX	5580	MIN	7.6	AC-FT	76570

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: July 1984 to current year.

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

INSTRUMENTATION.--Since September 1984, 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 RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,090 microsiemens, Nov. 1, 1986; minimum, 94 microsiemens, Oct. 11, 1985.
WATER TEMPERATURE: Maximum, 31.0°C on several days during August and September 1985; minimum, 5.5°C Jan. 12, 13, 1985.
EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,030 microsiemens Aug. 6, 29; minimum, 150 microsiemens Oct. 6.
WATER TEMPERATURE: Maximum, 29.0°C June 16, 17, Aug. 15-17; minimum, 8.5°C Dec. 22, 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
FEB 18...	1434	12	822	7.85	17.0	3	1.0	9.3	99	0.9	340	58
MAY 27...	1200	18	780	7.80	25.0	10	7.7	6.5	--	4.2	300	60
AUG 05...	1100	14	908	7.60	26.5	2	2.8	5.6	72	0.8	340	86
SEP 01...	1110	14	840	7.80	24.0	4	2.1	5.3	64	1.4	310	71

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 WH WAT TOTAL 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)
FEB 18...	110	15	51	1	3.4	279	82	57	0.30	15	500
MAY 27...	97	13	49	1	3.8	236	71	59	0.30	15	450
AUG 05...	110	16	66	2	3.8	255	110	75	0.30	14	550
SEP 01...	100	14	54	1	4.1	236	87	64	0.40	15	480

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	ARSENIC DIS-SOLVED (UG/L AS AS)
FEB 18...	4	1	2.28	0.020	2.30	0.050	0.85	0.90	0.030	3.6	<1
MAY 27...	20	20	2.62	0.180	2.80	0.070	1.1	1.2	0.090	3.3	--
AUG 05...	8	3	3.58	0.020	3.60	0.040	0.96	1.0	0.060	3.3	--
SEP 01...	5	4	3.09	0.010	3.10	0.070	0.43	0.50	0.030	3.4	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)
FEB 18...	82	3	50	1	16	<5	36	<0.1	<1	1	20
MAY 27...	--	--	--	--	--	--	--	--	--	--	--
AUG 05...	--	--	--	--	--	--	--	--	--	--	--
SEP 01...	76	<1	<10	2	7	<5	15	<0.1	<1	<1	<3

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	2157.3	372	225	1310	18	107	41	240	150
NOV.	1986	378.9	746	468	478	52	53	94	96	300
DEC.	1986	940.2	528	327	829	33	83	63	161	210
JAN.	1987	651	826	522	918	62	108	110	188	330
FEB.	1987	1286	573	354	1230	35	121	68	237	230
MAR.	1987	730	825	521	1030	61	121	110	210	330
APR.	1987	564	853	541	823	65	98	110	169	350
MAY	1987	5596	420	255	3860	22	327	47	714	170
JUNE	1987	24729	371	224	15000	18	1200	41	2730	150
JULY	1987	783	832	526	1110	62	131	110	228	340
AUG.	1987	429	867	550	637	66	77	110	131	350
SEPT	1987	356.9	785	494	476	56	54	100	96	320
TOTAL		38601.3	**	**	27700	**	2490	**	5200	**
WTD.AVG.		106	435	266	**	24	**	50	**	170

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCTOBER MAX	OCTOBER MIN	OCTOBER MEAN	NOVEMBER MAX	NOVEMBER MIN	NOVEMBER MEAN	DECEMBER MAX	DECEMBER MIN	DECEMBER MEAN	JANUARY MAX	JANUARY MIN	JANUARY MEAN
1	770	760	767	760	730	748	810	790	802	850	830	841
2	800	750	769	750	730	745	800	770	787	880	850	864
3	850	760	795	760	740	751	790	770	785	870	860	862
4	840	810	815	770	610	735	810	780	796	870	850	861
5	810	480	677	800	500	728	810	780	799	860	840	854
6	540	150	292	800	760	778	850	800	826	850	820	833
7	440	270	342	800	770	786	830	720	791	870	830	846
8	540	450	499	830	790	805	830	720	796	880	850	866
9	620	540	582	840	810	826	830	780	802	880	860	875
10	690	610	643	840	800	824	800	770	787	880	840	865
11	710	220	459	820	770	798	800	750	770	890	870	878
12	300	190	236	840	770	823	810	770	782	900	880	889
13	300	190	233	820	670	745	820	770	795	931	870	897
14	430	310	367	820	750	805	810	460	709	921	899	907
15	550	430	498	810	790	804	580	330	419	910	879	898
16	640	550	607	820	800	812	660	540	618	910	889	901
17	710	650	671	820	800	810	630	590	615	889	289	678
18	730	700	715	840	790	808	640	560	609	692	496	605
19	750	730	736	860	830	845	710	570	647	---	---	645
20	770	740	765	850	790	830	730	700	706	---	---	695
21	770	690	754	830	790	806	740	710	729	---	---	730
22	600	250	415	850	820	836	710	160	334	---	---	780
23	430	290	359	840	770	828	290	210	244	---	---	815
24	500	390	452	810	650	762	440	290	358	866	845	854
25	600	500	553	720	230	574	550	450	500	865	844	852
26	620	290	558	600	520	549	640	550	598	865	823	848
27	540	380	443	740	580	654	710	640	675	865	823	840
28	690	560	647	810	750	784	760	710	733	884	843	862
29	680	640	655	830	800	818	760	640	719	925	843	873
30	720	650	680	830	810	819	810	750	773	935	884	909
31	760	720	745	---	---	---	830	800	817	935	883	908
MONTH	850	150	572	860	230	775	850	160	681	935	289	833

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	904	852	875	598	548	572	891	871	876	859	839	847
2	873	851	858	700	598	649	891	870	880	858	848	853
3	872	841	857	771	700	740	890	860	878	887	858	871
4	872	841	856	821	770	796	880	850	863	858	522	724
5	851	205	696	851	811	835	890	859	879	778	433	710
6	615	502	546	891	851	865	869	809	837	532	345	417
7	798	615	711	880	840	857	868	829	843	492	355	416
8	870	798	828	880	850	863	878	848	861	610	492	561
9	870	819	846	870	849	860	887	868	877	689	610	652
10	839	818	825	869	849	863	897	867	882	717	688	705
11	828	808	818	869	708	799	896	867	881	727	708	714
12	838	787	810	868	839	856	916	886	900	775	708	728
13	838	807	825	898	828	860	886	856	872	785	569	718
14	858	705	832	888	858	876	856	826	841	658	393	466
15	817	378	686	887	847	870	846	825	833	519	412	470
16	734	673	713	887	807	873	855	835	845	617	519	571
17	775	694	721	857	685	803	874	835	855	676	617	644
18	846	786	817	876	846	860	863	853	855	705	675	689
19	866	836	851	886	846	865	873	853	862	705	186	533
20	825	499	707	925	875	886	883	853	865	479	157	340
21	744	733	740	915	875	890	872	823	850	547	293	408
22	753	712	732	915	864	889	902	872	888	587	401	534
23	804	733	765	874	854	868	882	871	878	644	557	607
24	742	376	574	894	854	866	891	851	875	722	635	684
25	569	407	511	903	873	890	881	723	804	771	713	746
26	417	325	373	953	903	924	841	821	833	790	751	764
27	630	396	506	953	943	948	821	801	811	854	760	801
28	579	467	539	933	892	910	791	761	777	883	824	849
29	---	---	---	932	902	919	790	770	774	852	176	419
30	---	---	---	892	871	882	849	800	831	332	225	268
31	---	---	---	871	861	866	---	---	---	450	225	358
MONTH	904	205	729	953	548	848	916	723	854	887	157	615
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	341	264	305	921	865	894	988	847	899	830	470	792
2	351	195	284	940	874	910	950	884	913	910	730	812
3	400	292	342	892	873	887	893	866	879	900	820	844
4	340	301	319	900	862	879	940	846	882	870	830	852
5	389	282	318	891	871	883	920	865	882	910	840	875
6	505	389	452	908	881	896	1030	880	923	920	830	874
7	582	505	543	946	861	903	980	890	935	870	820	858
8	620	562	595	908	860	890	900	850	873	890	210	664
9	658	455	592	860	519	657	920	850	863	700	600	631
10	532	271	416	868	538	740	940	870	911	670	620	649
11	309	232	284	858	792	832	870	860	864	730	610	687
12	395	232	300	858	830	845	930	830	857	730	640	689
13	453	232	357	885	848	862	930	870	895	800	650	730
14	530	328	437	866	847	854	900	840	876	830	780	813
15	625	539	582	932	508	789	910	790	860	840	810	824
16	682	616	655	856	808	842	880	790	855	870	800	823
17	711	673	690	874	817	849	910	860	889	880	810	840
18	710	691	701	864	799	836	860	830	846	890	830	855
19	710	690	702	845	826	839	860	820	832	880	740	831
20	719	699	712	863	834	846	880	850	864	880	810	843
21	737	709	722	928	834	871	880	820	855	870	780	820
22	765	728	745	937	853	889	880	830	856	800	790	795
23	784	755	770	889	833	859	860	830	846	880	800	815
24	821	774	803	926	730	846	880	800	851	900	860	879
25	849	811	830	936	889	913	830	790	815	900	830	852
26	868	820	851	897	645	851	860	810	824	860	790	821
27	886	838	871	860	560	738	920	820	858	850	790	813
28	885	838	857	840	457	708	950	790	892	810	640	728
29	885	856	872	821	747	794	1030	770	912	780	560	713
30	912	856	885	867	830	848	780	620	709	830	710	777
31	---	---	---	895	839	870	830	790	810	---	---	---
MONTH	912	195	593	946	457	843	1030	620	865	920	210	793

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08181480 LEON CREEK AT INTERSTATE HIGHWAY 35 AT SAN ANTONIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08181500 MEDINA RIVER AT SAN ANTONIO, TX

LOCATION.--Lat 29°15'14", long 98°28'20", Bexar County, Hydrologic Unit 12100302, near left bank at downstream side of pier of upstream bridge of two bridges on U.S. Highway 281 in San Antonio and 6.8 mi upstream from mouth.

DRAINAGE AREA.--1,317 mi², of which 634 mi² is above dam forming Medina Lake.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to December 1930, and July 1939 to current year. October 1929 to December 1930, records below about 50 ft³/s in connection with seepage investigation (published as "at Losoya"). Published as "near San Antonio" July 1939 to September 1970.

REVISED RECORDS.--WSP 1562: 1957. WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.0 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). October 1929 to December 1930, nonrecording gage at Losoya 1.5 mi downstream at different datum.

REMARKS.--Records good. Flow is slightly regulated by Medina Lake (station 08179500) 60 mi upstream, and by diversion dam reservoir, capacity 4,500 acre-ft. For diversion of canal records, see Medina Canal near Riomedina (station 08180000). For statement concerning losses into the Edwards and associated limestones formation, see Medina River near Somerset (station 08180800). Several small diversions below diversion dam reservoir. Records furnished by the city of San Antonio show that during the current year 35,040 acre-ft of sewage effluent was discharged from the Leon Creek plant and 1,490 acre-ft of sewage effluent was discharged from the Mitchell Lake plant into the Medina River above this station. Satellite telemeter at station.

AVERAGE DISCHARGE.--48 years (water years 1940-87), 190 ft³/s (137,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft³/s July 17, 1973 (gage height, 43.59 ft); minimum daily, 3.3 ft³/s Apr. 18, Nov. 1, 1956, and Jan. 24, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 55 ft sometime prior to construction of Medina Dam in 1913, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,600 ft³/s June 5 at 1300 hours (gage height, 37.37 ft); minimum daily, 103 ft³/s Oct. 4.

DISCHARGE, IN 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	106	190	169	1160	501	902	445	263	9120	1460	553	291
2	107	188	169	1120	487	794	433	244	7640	1370	540	261
3	105	185	166	1080	482	739	425	234	6820	1280	518	246
4	103	192	156	1020	467	709	418	252	7860	1190	495	238
5	108	195	153	978	499	683	402	260	24400	1130	475	233
6	447	190	153	927	637	687	408	521	16000	1080	451	238
7	647	187	164	898	613	656	416	685	9500	1040	435	266
8	265	186	166	876	571	644	415	473	7210	993	424	336
9	197	185	163	856	533	636	405	387	6170	981	399	302
10	165	184	161	831	504	624	398	349	6160	953	383	290
11	327	184	168	802	480	616	385	325	9630	938	369	284
12	1090	187	171	767	463	632	376	310	15500	915	357	281
13	1350	184	167	739	453	636	367	307	12000	879	344	273
14	402	178	178	715	446	632	349	470	14900	852	328	278
15	243	176	339	695	496	634	336	403	8170	856	316	292
16	211	176	275	690	484	614	310	376	6730	826	304	273
17	203	171	214	777	453	622	296	385	5740	815	294	259
18	194	166	209	763	418	628	284	365	5020	790	286	271
19	188	164	204	730	397	640	273	491	4400	777	277	259
20	184	164	199	686	416	642	272	1020	3900	779	272	257
21	180	163	192	670	406	632	269	690	3450	753	269	254
22	353	161	2170	654	407	620	262	873	3060	729	265	247
23	371	158	5410	635	389	614	266	723	2740	713	257	240
24	313	160	1330	604	519	608	258	640	2470	699	253	238
25	247	217	625	582	538	594	263	583	2230	669	251	229
26	225	196	544	572	1400	547	279	532	2020	651	246	220
27	293	173	774	553	1060	532	305	485	2000	658	239	218
28	252	174	1040	538	1020	520	311	450	2030	648	242	260
29	215	174	1180	530	---	496	299	1480	1750	613	279	250
30	208	170	1210	526	---	499	274	8780	1570	596	267	232
31	196	---	1210	516	---	480	---	17300	---	573	264	---
TOTAL	9495	5378	19429	23490	15539	19512	10199	40656	210190	27206	10652	7816
MEAN	306	179	627	758	555	629	340	1311	7006	878	344	261
MAX	1350	217	5410	1160	1400	902	445	17300	24400	1460	553	336
MIN	103	158	153	516	389	480	258	234	1570	573	239	218
AC-FT	18830	10670	38540	46590	30820	38700	20230	80640	416900	53960	21130	15500

CAL YR 1986 TOTAL 95843 MEAN 263 MAX 9100 MIN 70 AC-FT 190100
WTR YR 1987 TOTAL 399562 MEAN 1095 MAX 24400 MIN 103 AC-FT 792500

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1965 to current year. Pesticide analyses: April 1971 to September 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January to September 1987.
pH: January to September 1987.
WATER TEMPERATURE: January to September 1987.
DISSOLVED OXYGEN: January to September 1987.

INSTRUMENTATION.--Beginning January 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. 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 CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,000 microsiemens Sept. 8; minimum, 310 microsiemens May 29, June 12.
pH: Maximum, 8.2 units on many days during year; minimum, 7.6 units on several days during April, May, August, and September.
WATER TEMPERATURE: Maximum, 28.5°C on several days during August; minimum, 10.5°C Jan. 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
FEB 04...	1220	488	718	8.00	16.0	8.4	86	18	290	67
MAY 14...	1245	583	711	7.90	24.0	6.5	78	14	270	65
AUG 03...	1600	498	877	7.90	27.5	5.8	75	3.6	300	64
SEP 03...	1300	250	880	7.70	25.0	5.2	64	5.2	330	95

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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 04...	84	19	36	1	3.0	221	77	49	0.30	11
MAY 14...	82	17	42	1	4.1	210	76	51	0.30	13
AUG 03...	87	20	69	2	3.3	236	130	49	0.30	14
SEP 03...	95	23	53	1	4.2	237	93	65	0.30	15

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)
FEB 04...	410	2.08	0.220	2.30	0.680	1.5	2.2	0.410	1	49
MAY 14...	410	2.22	0.280	2.50	0.940	0.56	1.5	0.850	--	--
AUG 03...	510	4.36	0.240	4.60	0.610	1.2	1.8	0.370	--	--
SEP 03...	490	6.47	0.530	7.00	0.800	0.60	1.4	0.710	1	78

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)
FEB 04...	1	<10	<1	9	<5	7	<0.1	1	<1	15
MAY 14...	--	--	--	--	--	--	--	--	--	--
AUG 03...	--	--	--	--	--	--	--	--	--	--
SEP 03...	<1	<10	1	4	<5	9	0.1	1	<1	27

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR FEBRUARY 1987 TO SEPTEMBER 1987

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)
FEB.	1987	15539	709	408	17100	51	2150	76	3170	270
MAR.	1987	19512	677	389	20500	47	2490	72	3790	260
APR.	1987	10199	783	449	12400	61	1680	84	2320	290
MAY	1987	40656	505	291	31900	30	3270	53	5780	210
JUNE	1987	210190	444	256	145000	24	13400	46	26100	190
JULY	1987	27206	695	399	29300	50	3650	74	5430	270
AUG.	1987	10652	919	526	15100	81	2320	100	2880	320
SEPT	1987	7816	856	491	10400	71	1500	93	1960	310
TOTAL		341770	**	**	282000	**	30500	**	51400	**
WTD.AVG.		1412	531	306	**	33	**	56	**	220

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										591	551	572
8										592	561	574
9										603	563	581
10										615	564	587
11										616	565	589
12										617	556	589
13										618	587	605
14										620	599	610
15										652	600	622
16										653	601	618
17										716	613	656
18										696	625	659
19										657	615	624
20										669	617	638
21										671	619	642
22										672	620	646
23										675	622	645
24										708	624	654
25										720	636	675
26										712	637	676
27										725	671	688
28										727	632	682
29										729	634	678
30										---	---	680
31										---	---	690
MONTH										729	551	635

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	700	656	616	637	764	694	725	832	728	776
2	---	---	700	646	616	633	783	703	744	772	725	751
3	---	---	705	647	617	638	783	713	750	845	741	786
4	---	---	710	647	627	640	783	702	739	889	739	803
5	783	677	721	688	637	660	792	702	752	820	745	788
6	812	693	754	699	638	670	802	722	766	809	545	665
7	730	677	704	709	648	674	791	721	763	637	561	611
8	710	660	689	710	648	674	---	---	755	644	551	597
9	721	661	697	710	649	681	---	---	750	687	604	642
10	731	661	701	710	660	682	791	711	750	703	629	666
11	732	671	705	712	660	686	802	721	757	718	636	679
12	742	681	712	702	651	676	802	722	766	743	661	703
13	752	681	718	692	641	669	813	713	768	749	658	709
14	752	691	720	713	651	677	824	734	773	---	---	690
15	762	702	730	713	652	685	815	725	771	---	---	720
16	752	692	724	724	662	696	857	756	800	---	---	740
17	753	693	722	745	674	710	878	787	828	---	---	750
18	763	703	732	725	674	702	889	778	826	---	---	760
19	773	703	740	703	652	682	860	789	817	---	---	770
20	815	724	766	702	642	670	891	800	843	---	---	500
21	784	734	757	712	651	677	903	821	858	650	530	616
22	795	724	757	710	650	680	894	812	855	600	530	559
23	785	735	758	710	649	683	895	803	851	600	550	574
24	806	745	774	709	659	681	906	804	852	630	570	595
25	826	726	777	708	638	672	908	826	865	650	580	615
26	706	625	653	728	657	689	879	807	845	660	590	628
27	666	615	644	727	667	698	839	767	810	680	610	647
28	687	635	655	756	687	715	830	748	785	710	640	677
29	---	---	---	746	686	720	799	731	769	730	310	549
30	---	---	---	725	665	704	815	711	757	460	320	390
31	---	---	---	745	665	704	---	---	---	450	440	448
MONTH	826	615	719	756	616	680	908	694	790	889	310	658

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	450	430	433	630	600	613	864	827	845	928	885	901
2	430	400	415	640	610	623	881	844	857	893	863	880
3	440	410	420	650	620	633	887	863	874	980	870	900
4	420	390	403	660	630	642	906	873	890	930	900	913
5	400	380	385	670	640	651	904	879	891	940	900	920
6	410	380	399	680	650	664	908	874	894	930	900	914
7	440	420	426	690	650	669	906	870	897	900	860	889
8	450	430	440	690	660	677	933	898	913	1000	800	870
9	490	440	454	720	680	695	927	894	915	830	800	817
10	480	420	455	700	670	682	937	913	928	850	820	835
11	430	350	389	680	660	671	951	928	939	850	820	833
12	430	310	369	680	650	667	957	923	936	830	800	819
13	440	380	422	720	660	682	952	929	940	880	800	820
14	460	330	386	715	681	697	959	927	945	830	790	813
15	530	450	482	738	686	705	964	941	951	850	790	807
16	520	490	506	712	691	698	972	939	956	830	790	805
17	540	510	520	726	685	705	977	944	956	910	810	830
18	560	520	534	711	688	698	975	951	965	830	750	808
19	560	540	545	715	693	701	979	945	964	860	790	823
20	570	550	557	709	677	695	986	942	960	860	830	847
21	580	560	570	715	681	700	970	939	956	870	840	850
22	620	570	588	739	706	720	968	943	956	870	840	854
23	610	580	588	746	721	734	972	941	953	880	850	863
24	620	590	597	770	740	753	959	935	948	890	840	863
25	600	590	597	767	743	758	964	933	948	900	850	874
26	610	590	599	781	758	768	970	927	946	900	850	876
27	600	570	588	811	773	788	947	924	935	920	850	881
28	590	560	573	823	781	801	941	920	930	900	870	889
29	600	580	588	822	784	802	939	885	914	960	840	886
30	610	590	600	840	803	820	916	883	900	890	840	863
31	---	---	---	846	821	833	920	890	901	---	---	---
MONTH	620	310	494	846	600	708	986	827	926	1000	750	858

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										8.1	8.0	8.1
8										8.1	8.0	8.1
9										8.1	8.0	8.1
10										8.2	8.1	8.1
11										8.2	8.1	8.2
12										8.1	8.1	8.1
13										8.1	8.0	8.1
14										8.1	8.0	8.0
15										8.0	8.0	8.0
16										8.0	8.0	8.0
17										8.0	7.9	8.0
18										8.2	8.0	8.1
19										8.2	8.1	8.1
20										8.1	8.0	8.1
21										8.1	8.0	8.1
22										8.2	8.1	8.1
23										8.1	8.1	8.1
24										8.1	7.9	8.1
25										8.2	7.9	8.1
26										8.2	7.9	8.1
27										8.2	7.9	8.0
28										8.2	7.9	8.0
29										8.2	8.0	8.1
30										---	---	---
31										---	---	---
MONTH										8.2	7.9	8.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	8.2	8.2	8.2	8.0	7.9	8.0	8.0	7.9	8.0
2	---	---	---	8.2	8.1	8.2	8.0	7.9	7.9	8.0	7.9	7.9
3	---	---	---	8.2	8.1	8.2	7.9	7.9	7.9	8.0	7.9	8.0
4	---	---	---	8.2	8.1	8.1	8.0	7.9	7.9	8.0	7.9	8.0
5	8.1	8.0	8.0	8.1	8.1	8.1	7.9	7.9	7.9	7.9	7.9	7.9
6	8.2	8.0	8.1	8.1	8.1	8.1	7.9	7.9	7.9	7.9	7.7	7.8
7	8.2	8.1	8.2	8.1	8.0	8.1	7.9	7.9	7.9	7.9	7.7	7.7
8	8.1	8.0	8.1	8.2	8.1	8.1	---	---	---	7.9	7.6	7.7
9	8.2	8.0	8.1	8.1	8.0	8.1	---	---	---	7.9	7.8	7.8
10	8.1	8.1	8.1	8.1	8.0	8.0	7.9	7.8	7.8	7.9	7.7	7.8
11	8.1	8.1	8.1	8.0	7.9	8.0	7.8	7.8	7.8	8.0	7.9	8.0
12	8.1	8.0	8.1	8.0	7.9	7.9	7.9	7.8	7.8	8.0	7.9	7.9
13	8.1	8.0	8.0	8.0	7.9	7.9	7.9	7.8	7.9	7.9	7.9	7.9
14	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.7	7.8	---	---	---
15	8.1	7.9	8.0	8.0	7.9	7.9	7.8	7.7	7.7	---	---	---
16	8.0	7.9	8.0	8.0	7.9	7.9	7.7	7.6	7.7	---	---	---
17	8.0	7.8	7.9	7.9	7.8	7.9	7.7	7.6	7.7	---	---	---
18	7.9	7.8	7.8	8.1	7.8	8.0	7.7	7.7	7.7	---	---	---
19	8.0	7.7	7.8	8.1	8.0	8.1	7.8	7.7	7.7	---	---	---
20	7.9	7.8	7.8	8.1	8.0	8.0	7.8	7.7	7.8	---	---	---
21	7.9	7.8	7.8	8.0	8.0	8.0	7.8	7.8	7.8	8.1	8.0	8.0
22	8.1	7.7	7.9	8.0	8.0	8.0	7.9	7.8	7.9	8.1	8.0	8.1
23	8.0	7.9	7.9	8.0	7.9	8.0	8.0	7.9	7.9	8.1	8.0	8.1
24	8.0	7.9	7.9	8.0	7.9	8.0	7.9	7.9	7.9	8.1	8.0	8.1
25	8.1	8.0	8.1	8.0	7.9	7.9	7.9	7.9	7.9	8.1	7.9	8.0
26	8.2	8.1	8.1	7.9	7.9	7.9	8.0	7.9	8.0	8.0	7.9	7.9
27	8.2	8.1	8.1	7.9	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.9
28	8.2	8.1	8.2	7.9	7.9	7.9	8.0	7.9	8.0	7.9	7.9	7.9
29	---	---	---	8.0	7.9	8.0	8.0	7.9	7.9	8.0	7.8	7.9
30	---	---	---	8.0	8.0	8.0	8.0	7.9	8.0	7.9	7.7	7.8
31	---	---	---	8.0	8.0	8.0	---	---	---	8.0	8.0	8.0
MONTH	8.2	7.7	8.0	8.2	7.8	8.0	8.0	7.6	7.9	8.1	7.6	7.9

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.8
2	7.9	7.9	7.9	7.9	7.9	7.9	8.0	7.9	7.9	7.8	7.6	7.7
3	7.9	7.7	7.8	8.0	7.9	8.0	7.9	7.9	7.9	7.8	7.6	7.7
4	7.8	7.7	7.7	8.0	8.0	8.0	7.9	7.9	7.9	7.8	7.8	7.8
5	7.9	7.8	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.8	7.8	7.8
6	7.9	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8	7.8
7	7.9	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8	7.9
8	8.0	7.9	7.9	8.0	8.0	8.0	7.9	7.8	7.9	7.9	7.7	7.8
9	7.9	7.9	7.9	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.8	7.8
10	7.9	7.9	7.9	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.8	7.8
11	7.9	7.7	7.8	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.8	7.8
12	7.9	7.7	7.8	8.0	8.0	8.0	7.8	7.8	7.8	7.9	7.8	7.9
13	8.0	7.9	8.0	8.0	8.0	8.0	7.8	7.8	7.8	7.9	7.8	7.9
14	8.0	7.8	7.9	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.9	7.9
15	8.0	7.9	8.0	8.0	7.9	8.0	7.9	7.8	7.8	7.9	7.8	7.9
16	8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.8	7.9	7.9	7.9	7.9
17	8.1	8.0	8.0	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.9	7.9
18	8.1	8.0	8.0	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.8	7.9
19	8.1	8.0	8.0	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.8	7.9
20	8.1	8.0	8.1	8.0	8.0	8.0	7.8	7.8	7.8	7.9	7.9	7.9
21	8.1	8.1	8.1	8.0	8.0	8.0	7.8	7.8	7.8	7.9	7.9	7.9
22	8.1	8.0	8.0	8.0	7.9	8.0	7.8	7.8	7.8	7.9	7.8	7.9
23	8.0	8.0	8.0	8.0	8.0	8.0	7.8	7.8	7.8	7.9	7.8	7.8
24	8.0	7.9	8.0	8.0	7.8	7.9	7.8	7.8	7.8	7.8	7.8	7.8
25	8.0	7.9	7.9	7.9	7.8	7.9	7.8	7.7	7.8	7.8	7.8	7.8
26	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.8	7.8	7.8	7.8
27	8.0	7.9	8.0	7.9	7.8	7.9	7.8	7.7	7.8	7.8	7.8	7.8
28	8.0	7.9	8.0	7.9	7.8	7.9	7.8	7.7	7.7	7.8	7.7	7.8
29	8.0	7.9	7.9	7.9	7.8	7.9	7.8	7.7	7.8	7.8	7.7	7.8
30	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.6	7.7	7.8	7.7	7.8
31	---	---	---	7.9	7.9	7.9	7.7	7.6	7.7	---	---	---
MONTH	8.1	7.7	7.9	8.0	7.8	8.0	8.0	7.6	7.8	7.9	7.6	7.8

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										15.0	13.5	14.0
8										15.5	14.5	15.0
9										15.5	15.0	15.5
10										15.5	14.5	14.5
11										14.0	13.0	13.5
12										13.5	12.5	13.0
13										13.5	13.0	13.5
14										14.5	13.5	14.0
15										14.5	13.5	14.5
16										14.5	14.5	14.5
17										14.5	13.5	14.0
18										13.5	12.0	12.5
19										12.0	11.0	11.5
20										11.5	11.0	11.5
21										11.5	11.0	11.5
22										11.5	11.0	11.5
23										11.5	10.5	11.5
24										13.0	11.5	12.0
25										13.5	12.0	13.0
26										14.0	12.0	13.0
27										14.0	12.5	13.5
28										15.0	13.0	14.0
29										15.0	14.0	14.5
30										---	---	---
31										---	---	---
MONTH										15.5	10.5	13.5

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	15.5	14.5	15.5	16.0	14.5	15.5	22.5	21.5	22.0
2	---	---	---	15.5	14.5	15.0	16.0	15.5	16.0	23.0	22.0	22.5
3	---	---	---	15.5	14.5	15.5	16.0	15.0	15.5	23.5	22.5	23.0
4	---	---	---	16.0	15.0	15.5	16.0	15.0	15.5	23.5	22.5	23.0
5	17.0	16.5	16.5	16.0	15.0	15.5	15.5	15.5	15.5	23.5	22.0	23.0
6	16.5	15.0	16.0	16.5	15.0	16.0	15.5	14.5	15.5	23.0	22.0	22.5
7	15.0	14.0	14.5	17.0	15.5	16.0	16.5	15.0	15.5	22.5	22.0	22.0
8	15.0	14.0	14.5	17.0	16.0	16.5	---	---	16.0	23.0	22.0	22.5
9	15.0	14.0	15.0	17.0	16.0	16.5	---	---	17.0	23.0	22.0	22.5
10	15.5	14.5	15.0	17.0	16.5	17.0	19.0	17.0	18.0	23.5	22.5	23.0
11	17.0	15.5	16.0	16.5	16.0	16.0	20.0	18.5	19.0	23.5	22.5	23.0
12	17.5	16.5	17.0	16.0	15.0	15.5	21.0	19.5	20.5	23.5	22.5	23.0
13	18.0	17.0	17.5	16.0	14.5	15.5	22.0	20.5	21.0	24.0	23.0	23.5
14	18.0	17.0	17.5	16.5	15.0	16.0	21.0	19.5	20.5	---	---	---
15	17.5	17.0	17.5	17.0	16.0	16.5	20.5	18.5	19.5	---	---	---
16	17.0	16.0	16.5	18.0	17.0	17.5	21.0	19.0	20.0	---	---	---
17	16.0	15.5	16.0	18.5	17.5	18.0	22.0	20.0	21.0	---	---	---
18	15.5	14.5	15.5	18.5	17.5	18.0	22.5	20.5	21.5	---	---	---
19	15.5	14.5	15.0	18.0	17.5	17.5	22.5	21.5	22.0	---	---	---
20	14.5	14.0	14.5	18.0	17.0	17.5	22.5	21.5	22.0	---	---	---
21	14.0	13.5	14.0	18.5	18.0	18.5	22.5	21.5	22.0	25.0	24.0	24.5
22	14.5	13.0	14.0	19.5	18.5	19.0	21.5	20.5	21.0	25.5	24.5	25.0
23	15.0	14.0	14.5	19.5	18.5	19.0	21.5	20.0	21.0	25.5	25.0	25.0
24	15.0	15.0	15.0	18.5	17.5	18.0	21.5	20.5	21.0	25.5	25.0	25.5
25	15.0	14.5	15.0	18.0	17.5	17.5	21.5	20.5	21.0	25.5	25.0	25.5
26	15.0	14.0	14.5	17.5	17.0	17.0	22.0	20.5	21.0	26.0	25.0	25.5
27	16.0	14.5	15.0	18.0	16.5	17.0	22.0	20.0	21.0	25.5	25.0	25.0
28	16.0	15.5	15.5	18.0	17.0	17.5	22.0	20.5	21.5	25.0	25.0	25.0
29	---	---	---	18.0	15.5	16.5	22.5	21.0	22.0	25.0	21.0	23.5
30	---	---	---	15.5	14.0	15.0	22.5	21.0	22.0	22.0	21.0	21.5
31	---	---	---	15.5	13.5	14.5	---	---	---	22.5	22.0	22.0
MONTH	18.0	13.0	15.5	19.5	13.5	16.5	22.5	14.5	19.5	26.0	21.0	23.5

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

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
MONTH												

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	8.4	8.0	8.2	8.5	7.2	8.1	6.9	5.4	6.2
2	---	---	---	8.3	7.9	8.1	7.9	7.2	7.6	6.9	6.0	6.4
3	---	---	---	8.2	7.8	8.0	8.4	7.8	8.0	6.1	5.6	5.9
4	---	---	---	8.1	7.8	7.9	8.6	8.0	8.2	6.1	5.3	5.7
5	---	---	---	8.1	7.7	7.9	8.2	7.8	8.0	6.6	6.0	6.2
6	---	---	---	7.9	7.4	7.7	8.4	7.8	8.0	---	---	---
7	---	---	---	7.8	7.2	7.6	8.4	7.6	8.1	---	---	---
8	---	---	---	7.7	7.2	7.4	---	---	---	---	---	---
9	---	---	---	7.6	7.0	7.3	---	---	---	---	---	---
10	---	---	---	7.5	7.1	7.2	7.9	7.1	7.2	---	---	---
11	---	---	---	8.0	7.2	7.5	7.5	6.6	6.9	---	---	---
12	---	---	---	8.1	7.6	7.9	7.8	6.3	7.0	---	---	---
13	---	---	---	8.5	7.8	8.1	---	---	---	---	---	---
14	---	---	---	8.3	7.3	7.8	---	---	---	---	---	---
15	---	---	---	8.0	7.1	7.6	---	---	---	---	---	---
16	---	---	---	8.0	7.2	7.6	---	---	---	---	---	---
17	---	---	---	8.2	7.8	8.0	---	---	---	---	---	---
18	---	---	---	8.1	7.4	7.7	---	---	---	---	---	---
19	---	---	---	8.2	7.3	7.7	---	---	---	---	---	---
20	---	---	---	7.8	7.0	7.5	---	---	---	---	---	---
21	---	---	---	7.8	7.3	7.4	---	---	---	6.9	6.4	6.7
22	---	---	---	7.7	7.1	7.5	---	---	---	6.9	6.4	6.6
23	---	---	---	7.8	7.0	7.3	---	---	---	6.7	6.1	6.5
24	---	---	---	7.5	7.0	7.3	---	---	---	6.3	5.7	6.1
25	---	---	---	7.9	7.4	7.6	---	---	---	6.0	5.4	5.8
26	8.1	7.5	7.9	7.9	7.5	7.6	---	---	---	5.7	5.1	5.5
27	8.1	8.0	8.1	7.9	7.2	7.6	---	---	---	5.4	4.8	5.2
28	8.2	7.9	8.1	7.7	7.2	7.5	---	---	---	5.1	4.4	4.8
29	---	---	---	8.0	7.0	7.6	---	---	6.4	---	---	---
30	---	---	---	9.2	8.1	8.5	5.8	5.3	5.6	---	---	---
31	---	---	---	9.1	8.3	8.6	---	---	---	---	---	---
MONTH	8.2	7.5	8.0	9.2	7.0	7.7	8.6	5.3	7.4	6.9	4.4	6.0

08181500 MEDINA RIVER AT SAN ANTONIO, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	7.1	6.8	7.0	6.3	6.0	6.2	5.7	4.8	5.3
2	---	---	---	7.1	6.8	6.9	6.2	6.0	6.1	5.6	5.0	5.2
3	---	---	---	6.9	6.8	6.8	6.1	5.2	5.8	5.2	4.8	5.0
4	---	---	---	7.0	6.7	6.9	5.2	5.0	5.1	4.9	4.5	4.7
5	---	---	---	7.1	6.7	6.9	5.1	4.9	5.0	5.1	4.6	4.8
6	---	---	---	7.1	6.8	6.9	5.2	4.8	5.0	5.3	4.7	4.9
7	---	---	---	7.2	6.9	7.0	5.2	4.8	4.9	5.6	3.7	5.0
8	---	---	---	7.1	6.9	7.0	5.1	4.6	4.9	5.7	4.0	4.7
9	---	---	---	7.2	6.8	7.0	4.8	4.5	4.7	5.5	5.1	5.3
10	---	---	---	7.2	6.9	7.1	4.5	4.4	4.5	5.2	4.8	5.1
11	---	---	---	7.1	6.8	7.0	4.4	4.1	4.3	5.1	4.8	5.0
12	---	---	---	7.1	6.8	6.9	4.2	4.0	4.1	5.3	4.8	5.0
13	---	---	---	7.3	6.7	7.0	4.3	4.0	4.1	5.2	4.7	4.9
14	---	---	---	7.2	6.9	7.0	4.3	4.0	4.2	5.7	4.7	5.0
15	---	---	---	6.9	6.6	6.8	4.7	4.1	4.4	5.6	4.1	4.9
16	5.6	5.3	5.5	7.1	6.7	6.9	4.6	4.2	4.4	4.4	3.9	4.2
17	6.0	5.6	5.8	7.0	6.8	6.9	4.5	4.1	4.3	4.2	3.7	4.2
18	6.3	6.0	6.1	7.0	6.7	6.8	4.5	4.1	4.3	4.3	3.6	4.2
19	6.5	6.3	6.4	6.9	6.7	6.8	4.6	4.0	4.2	4.4	4.1	4.2
20	6.7	6.5	6.6	7.0	6.8	6.9	4.6	4.1	4.3	4.5	4.3	4.4
21	7.0	6.8	6.8	7.0	6.7	6.8	4.5	4.1	4.3	4.5	4.3	4.4
22	7.2	6.9	6.9	7.1	6.8	6.9	4.5	4.0	4.2	4.9	4.2	4.4
23	7.4	7.0	7.1	7.1	6.8	7.0	4.6	4.0	4.2	5.1	4.8	4.9
24	7.6	7.2	7.4	7.0	6.6	6.9	4.5	4.0	4.2	5.3	4.8	5.0
25	7.7	7.4	7.6	7.1	6.8	6.9	4.3	3.9	4.1	5.1	4.3	4.8
26	7.5	7.2	7.4	7.0	6.7	6.8	4.3	3.9	4.1	4.9	4.4	4.6
27	7.6	7.4	7.5	6.9	6.3	6.6	4.4	4.0	4.2	5.0	4.5	4.7
28	7.6	7.5	7.5	6.8	6.2	6.5	4.6	4.1	4.3	5.0	4.4	4.6
29	7.5	7.2	7.4	6.7	6.1	6.4	5.1	4.3	4.7	4.7	4.3	4.5
30	7.3	7.0	7.2	6.6	6.2	6.4	5.2	4.4	4.7	4.9	4.3	4.6
31	---	---	---	6.4	6.1	6.2	5.1	4.6	4.8	---	---	---
MONTH	7.7	5.3	6.9	7.3	6.1	6.8	6.3	3.9	4.6	5.7	3.6	4.8

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX

LOCATION (REVISED).--Lat 29°14'16", long 98°22'00", Bexar County, Hydrologic Unit 12100301, on left bank at pump station to Braunig Plant Lake, 2.4 mi southwest of Elmendorf, 4.8 mi downstream from Medina River, and 208 mi upstream from mouth. Prior to Dec. 24, 1986, at site 2.4 mi downstream.

DRAINAGE AREA.--1,743 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 393.00 ft above National Geodetic Vertical Datum of 1929. Sept. 12, 1962, to Dec. 19, 1980, at site 0.3 mi downstream at different datum. Dec. 19, 1980, to Dec. 23, 1986, at site 2.4 mi downstream at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow slightly regulated by Medina Lake (station 08179500) and by Olmos flood-control reservoir (combined capacity, 269,500 acre-ft). Storage began in Medina Lake in 1913, and Olmos Dam was completed in 1926. Water is diverted above station from Medina River for irrigation in the vicinity of Devine and Lytle, with some water diverted for irrigation near San Antonio. During the current year, the city of San Antonio discharged 152,100 acre-ft of sewage effluent into the San Antonio River from the Rilling Road, Leon Creek, Salado Creek, and Mitchell Lake plants upstream from this station. The San Antonio City Public Service Board pumped 3,470 acre-ft into Braunig Lake, released 2,450 acre-ft from Braunig Lake, pumped 6,750 acre-ft into Calaveras Lake, and released 18,660 acre-ft from Calaveras Lake upstream from this station. For additional information relative to sewage effluent, see station 08181500. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08178700. Satellite telemeter at station.

AVERAGE DISCHARGE.--25 years, 554 ft³/s (401,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft³/s Sept. 27, 1973 (gage height, 47.60 ft), site and datum then in use; maximum gage height, 53.06 ft June 5, 1986; minimum discharge, 12 ft³/s Aug. 24-26, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 61 ft in 1946. Second highest stage was 53 ft in 1913, from information by local residents. At site and datum in use prior to Dec. 19, 1980.

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)
Dec. 23	Unknown	14,800	a35.98	June 1	Unknown	*20,400	a*40.13
May 20	0700	12,100	33.55				

a From floodmark.

Minimum daily discharge, 327 ft³/s Oct. 4.

DISCHARGE, IN 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	339	452	e440	e1600	e820	1730	833	e490	e16500	2170	907	616
2	354	454	e440	e1550	e800	1510	796	e480	e13000	2080	880	537
3	356	453	e430	e1500	e790	1430	770	e475	e17000	1990	873	521
4	327	501	e420	e1450	e780	1360	746	880	e15000	1890	873	512
5	407	635	e400	e1400	e760	1340	730	720	e12000	1800	797	495
6	2170	501	e380	e1350	e1400	1300	803	1830	e10000	1740	757	494
7	2130	474	e370	e1300	e1150	1270	776	1820	e9000	1680	719	652
8	825	446	e370	e1300	e1050	1240	759	1000	e8200	1620	741	1700
9	515	456	e380	e1250	e960	1240	685	787	e8000	1640	682	685
10	442	450	e390	e1240	e940	1210	664	684	e12000	1570	671	588
11	1410	e450	e420	e1200	e910	1380	697	648	e16000	1450	612	567
12	3700	e450	e400	e1150	e880	1270	682	637	e12000	1410	563	555
13	3320	e455	e390	e1130	876	1240	683	667	e13500	1370	546	559
14	1260	e470	e420	e1100	865	1200	665	1310	e15000	1410	528	578
15	657	e440	e700	e1050	1320	1180	674	939	11600	1770	492	590
16	524	e420	e1900	e1000	1080	1190	612	717	e10000	1400	495	515
17	492	e415	e1500	e1400	940	1610	579	732	e8200	1320	495	483
18	442	e400	e800	e1800	854	1350	571	726	e7000	1240	497	576
19	440	e390	e660	e1300	819	1220	564	1220	e6000	1200	478	646
20	438	e380	e620	e1150	1190	1210	550	8560	e5200	1210	468	547
21	437	e370	e580	e1100	1000	1180	587	2510	e4500	1200	463	522
22	1260	e370	e3000	e1200	865	1140	524	2150	e4000	1250	447	494
23	1120	e360	8000	e1100	824	1150	556	1530	e3500	1150	451	475
24	852	e360	e5000	e1030	1950	1120	579	1320	3050	1170	441	469
25	638	e500	e2300	e980	1510	1090	1060	1200	2850	1050	434	466
26	577	e1000	e1500	e950	4210	1030	593	1110	2730	1030	416	452
27	827	e750	e1100	e920	2530	987	575	1030	2600	1100	413	451
28	606	e520	e1400	e900	2290	956	551	977	2650	1030	454	514
29	516	e490	e1700	e880	---	890	e520	4290	2440	1030	536	541
30	498	e470	e2000	e860	---	903	e500	e12000	2280	1010	559	476
31	476	---	e1700	e840	---	893	---	e18000	---	967	690	---
TOTAL	28855	14282	40110	36980	34363	37819	19884	71439	255800	43947	18378	17276
MEAN	931	476	1294	1193	1227	1220	663	2304	8527	1418	593	576
MAX	3820	1000	8000	1800	4210	1730	1060	18000	17000	2170	907	1700
MIN	327	360	370	840	760	890	500	475	2280	967	413	451
AC-FT	57230	28330	79560	73350	68160	75010	39440	141700	507400	87170	36450	34270

CAL YR 1986 TOTAL 252523 MEAN 692 MAX 26100 MIN 152 AC-FT 500900
WTR YR 1987 TOTAL 619133 MEAN 1696 MAX 18000 MIN 327 AC-FT 1228000

e Estimated.

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1964 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to September 1981.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
pH: June 1984 to current year.
WATER TEMPERATURE: October 1966 to current year.
DISSOLVED OXYGEN: June 1984 to current year.

INSTRUMENTATION.--Beginning June 1984, 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 instruments. 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, 1,240 microsiemens Jan. 29, 1973, Aug. 8, 1975; minimum daily, 200 microsiemens May 19, 1987.
pH: Maximum, 8.2 units May 19, 28, 1987; minimum, 7.3 units Aug. 13-17, 1984.
WATER TEMPERATURE: Maximum daily, 32.0°C on several days during summer months; minimum daily, 5.5°C Jan. 10, 1973.
DISSOLVED OXYGEN: Maximum, 8.9 mg/L July 23, 1984; minimum, 0.0 mg/L Mar. 2, Apr. 14, 15, 1985.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 940 microsiemens Apr. 22, Aug. 19, 22-23, 27; minimum, 200 microsiemens May 19.
pH: Maximum, 8.2 units May 19, 28; minimum, 7.5 units on several days during year.
WATER TEMPERATURE: Maximum, 30.0°C on several days during August and September; minimum, 11.5°C Jan. 19, 22, 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT 30...	1416	565	868	7.70	22.5	4.3	51	20	290	45
FEB 12...	1447	873	776	7.70	19.0	5.6	61	20	290	56
JUL 29...	1320	953	778	7.70	27.0	4.4	57	--	300	58
SEP 04...	1030	570	884	7.80	26.5	4.1	52	7.4	310	67

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 WH WAT TOTAL 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 30...	88	18	61	2	6.4	249	77	73	0.40	16
FEB 12...	85	19	47	1	4.4	235	73	55	0.40	12
JUL 29...	87	19	48	1	4.1	238	66	59	0.40	15
SEP 04...	90	20	58	1	5.5	240	72	75	0.40	15

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 30...	490	2.18	0.820	3.00	4.50	--	--	1.50	2	62
FEB 12...	440	1.86	0.640	2.50	2.50	1.7	4.2	1.50	--	--
JUL 29...	440	3.06	0.540	3.60	2.00	0.80	2.8	1.20	1	56
SEP 04...	480	3.24	0.760	4.00	3.10	0.90	4.0	2.20	--	--

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 30...	1	10	3	25	<5	23	<0.1	<1	<1	26
FEB 12...	--	--	--	--	--	--	--	--	--	--
JUL 29...	<1	<10	3	16	<5	15	<0.1	<1	<1	<3
SEP 04...	--	--	--	--	--	--	--	--	--	--

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR FEBRUARY 1987 TO SEPTEMBER 1987

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)
FEB.	1987	34363	695	395	36600	56	5220	64	5900	250
MAR.	1987	37819	750	425	43400	63	6400	67	6880	260
APR.	1987	19884	824	466	25000	73	3920	72	3840	280
MAY	1987	71439	518	297	57200	36	7010	51	9780	200
JUNE	1987	255800	457	263	181000	30	20500	46	31900	190
JULY	1987	43947	714	405	48100	58	6880	65	7740	260
AUG.	1987	18378	810	458	22700	71	3540	71	3510	270
SEPT	1987	17276	786	445	20800	68	3180	69	3230	270
TOTAL		498906	**	**	435000	**	56600	**	72800	**
WTD.AVG.		2062	566	323	**	42	**	54	**	220

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1							---	---	---	640	610	630
2							---	---	---	650	620	632
3							---	---	---	650	640	648
4							---	---	---	650	620	642
5							---	---	---	660	640	645
6							---	---	---	680	650	669
7							---	---	---	690	660	676
8							---	---	---	690	660	680
9							---	---	---	700	660	683
10							---	---	---	690	670	683
11							---	---	---	670	660	669
12							---	---	---	710	680	686
13							---	---	---	770	680	705
14							---	---	---	730	700	712
15							---	---	---	740	700	723
16							---	---	---	730	700	719
17							---	---	---	720	510	641
18							---	---	---	690	660	675
19							---	---	---	720	700	718
20							---	---	---	770	730	758
21							---	---	---	780	760	768
22							---	---	---	780	730	756
23							---	---	---	780	760	769
24							---	---	---	780	710	763
25							---	---	---	750	700	734
26							---	---	---	750	700	726
27							---	---	---	760	740	753
28							---	---	---	790	740	758
29							---	---	---	784	753	767
30							650	620	632	796	765	783
31							650	610	632	790	760	776
MONTH							650	610	632	796	510	708

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	797	748	774	689	645	663	820	790	795	880	840	858
2	790	760	772	734	694	714	840	810	825	880	840	860
3	800	770	783	733	704	720	840	810	833	870	820	850
4	802	772	793	741	706	725	840	810	823	870	670	828
5	843	780	801	766	724	745	840	790	821	790	660	747
6	755	623	701	777	747	763	830	790	816	770	430	601
7	755	706	730	777	747	767	850	820	833	620	460	552
8	770	717	745	788	738	760	840	800	825	710	640	668
9	769	737	751	769	739	758	830	790	815	760	710	738
10	780	739	766	789	749	773	820	790	804	790	750	773
11	791	761	782	810	720	759	820	800	809	790	770	784
12	801	772	787	760	730	746	830	780	806	830	800	814
13	813	793	798	751	731	744	820	771	796	840	780	813
14	813	772	791	762	722	748	821	791	809	780	620	663
15	842	601	706	772	732	750	821	791	806	771	670	725
16	761	711	745	773	743	759	842	811	826	791	751	766
17	780	750	768	843	663	739	882	832	856	761	710	740
18	789	779	784	724	684	713	892	852	869	781	731	754
19	799	768	786	770	750	756	893	823	858	831	200	438
20	817	647	743	760	730	749	845	823	834	541	280	403
21	756	727	741	770	730	756	866	835	850	531	421	485
22	785	746	770	780	730	759	940	856	882	581	481	537
23	805	775	797	780	740	756	920	874	892	641	581	616
24	867	473	659	780	750	761	910	880	893	651	621	637
25	747	480	684	790	750	771	880	630	736	671	621	656
26	515	412	457	790	760	776	840	800	827	691	661	675
27	674	526	606	790	770	783	830	800	818	701	681	687
28	727	574	633	800	770	785	830	780	818	712	321	567
29	---	---	---	810	760	786	840	800	818	411	381	395
30	---	---	---	790	750	778	870	830	847	451	391	429
31	---	---	---	800	770	781	---	---	---	451	441	449
MONTH	867	412	738	843	645	753	940	630	828	880	200	662

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	481	391	435	682	661	669	760	730	748	870	770	819
2	421	391	404	693	662	680	770	720	746	870	810	849
3	431	281	339	694	673	684	740	720	731	880	840	856
4	391	261	349	685	664	679	760	730	745	890	850	866
5	452	391	407	697	676	686	760	740	755	880	840	867
6	401	371	385	708	687	698	770	750	758	870	840	860
7	452	401	427	720	708	715	790	750	767	860	510	820
8	472	442	456	733	712	719	770	750	760	690	260	561
9	522	472	487	744	693	709	780	750	763	740	650	689
10	522	482	501	716	706	711	770	750	763	820	730	782
11	523	402	451	721	691	707	790	760	778	860	790	818
12	392	312	344	715	695	703	790	760	780	830	790	810
13	443	352	411	730	710	719	800	760	786	820	780	802
14	483	352	406	760	700	731	820	780	805	800	750	783
15	503	392	460	770	610	687	880	800	838	820	740	787
16	534	503	522	730	690	714	890	850	871	830	790	810
17	554	534	544	750	710	729	870	840	855	850	780	825
18	564	544	559	750	720	729	920	840	885	930	720	824
19	575	554	569	740	710	728	940	850	898	780	660	731
20	585	575	582	730	710	718	930	880	904	840	770	810
21	595	585	590	730	710	722	910	880	901	830	790	810
22	606	586	599	740	710	724	940	870	903	830	770	800
23	616	606	610	760	730	746	940	880	903	850	810	831
24	627	606	620	750	720	736	900	860	880	850	810	835
25	637	617	628	770	740	752	930	850	894	850	800	828
26	638	627	636	760	720	742	930	880	910	840	800	832
27	648	618	633	740	700	721	940	890	914	840	790	814
28	628	598	614	780	720	760	910	870	891	810	770	800
29	639	609	621	770	740	760	910	830	871	850	740	807
30	671	630	645	770	750	759	880	580	842	860	800	832
31	---	---	---	780	750	760	780	690	741	---	---	---
MONTH	671	261	508	780	610	719	940	580	825	930	260	805

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1							---	---	---	8.0	7.9	7.9
2							---	---	---	8.0	8.0	8.0
3							---	---	---	8.1	8.0	8.0
4							---	---	---	8.1	8.0	8.0
5							---	---	---	8.1	8.0	8.0
6							---	---	---	8.0	8.0	8.0
7							---	---	---	8.0	7.9	8.0
8							---	---	---	8.0	8.0	8.0
9							---	---	---	8.0	7.9	8.0
10							---	---	---	8.0	7.9	8.0
11							---	---	---	8.0	8.0	8.0
12							---	---	---	8.0	7.9	8.0
13							---	---	---	8.0	7.9	7.9
14							---	---	---	7.9	7.9	7.9
15							---	---	---	7.9	7.8	7.9
16							---	---	---	7.9	7.9	7.9
17							---	---	---	8.0	7.6	7.9
18							---	---	---	8.0	7.9	7.9
19							---	---	---	8.0	7.9	8.0
20							---	---	---	8.0	7.9	7.9
21							---	---	---	8.0	7.9	7.9
22							---	---	---	8.0	7.9	8.0
23							---	---	---	8.0	7.9	8.0
24							---	---	---	8.0	7.9	8.0
25							---	---	---	8.0	7.9	7.9
26							---	---	---	8.0	7.9	7.9
27							---	---	---	8.0	7.9	7.9
28							---	---	---	8.0	8.0	8.0
29							---	---	---	8.0	8.0	8.0
30							8.0	7.9	8.0	8.0	8.0	8.0
31							7.9	7.9	7.9	8.0	8.0	8.0
MONTH							8.0	7.9	8.0	8.1	7.6	8.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	8.0	7.9	7.9	8.0	7.9	8.0	7.8	7.7	7.7	7.7	7.6	7.7
2	8.0	7.9	7.9	8.0	8.0	8.0	7.7	7.7	7.7	7.7	7.7	7.7
3	7.9	7.9	7.9	8.0	7.9	8.0	7.7	7.7	7.7	7.7	7.7	7.7
4	7.8	7.8	7.8	8.0	7.9	8.0	7.8	7.7	7.7	7.8	7.7	7.7
5	7.8	7.7	7.8	8.0	7.9	7.9	7.9	7.7	7.7	7.7	7.6	7.7
6	7.8	7.7	7.8	7.9	7.8	7.9	7.9	7.8	7.8	7.7	7.5	7.7
7	7.7	7.7	7.7	7.9	7.8	7.9	7.8	7.8	7.8	7.8	7.6	7.7
8	7.7	7.6	7.7	8.0	7.8	7.9	7.8	7.8	7.8	7.8	7.7	7.7
9	7.7	7.7	7.7	8.0	7.9	8.0	7.8	7.7	7.7	7.8	7.7	7.8
10	7.8	7.7	7.7	8.0	7.9	7.9	7.7	7.7	7.7	7.8	7.7	7.7
11	7.8	7.7	7.7	8.0	7.9	8.0	7.7	7.7	7.7	7.8	7.7	7.7
12	7.7	7.7	7.7	8.0	7.9	7.9	7.7	7.7	7.7	7.7	7.7	7.7
13	7.9	7.7	7.8	7.9	7.9	7.9	7.8	7.7	7.7	7.7	7.6	7.7
14	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.7	7.7	7.6	7.6
15	8.0	7.8	7.9	7.8	7.8	7.8	7.8	7.7	7.7	7.7	7.6	7.6
16	8.0	7.9	7.9	7.8	7.7	7.7	7.7	7.6	7.7	7.7	7.6	7.6
17	8.0	7.9	7.9	7.7	7.6	7.7	7.7	7.6	7.7	7.7	7.6	7.7
18	7.9	7.9	7.9	7.7	7.5	7.6	7.7	7.6	7.6	7.7	7.7	7.7
19	7.9	7.9	7.9	7.6	7.5	7.6	7.7	7.6	7.6	8.2	7.6	7.8
20	7.9	7.9	7.9	7.6	7.6	7.6	7.7	7.6	7.7	7.7	7.6	7.6
21	8.0	7.9	8.0	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.6	7.7
22	8.0	8.0	8.0	7.7	7.5	7.6	7.7	7.7	7.7	7.7	7.6	7.7
23	8.0	7.9	7.9	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
24	8.0	7.8	7.9	7.7	7.6	7.7	7.7	7.6	7.7	7.8	7.7	7.7
25	8.0	7.9	7.9	7.7	7.6	7.6	7.7	7.6	7.7	7.8	7.7	7.7
26	7.9	7.8	7.9	7.7	7.6	7.6	7.7	7.7	7.7	7.7	7.7	7.7
27	8.0	8.0	8.0	7.6	7.6	7.6	7.7	7.7	7.7	7.7	7.6	7.7
28	8.1	8.0	8.0	7.6	7.5	7.6	7.7	7.7	7.7	8.2	7.6	7.7
29	---	---	---	7.8	7.6	7.6	7.7	7.7	7.7	7.6	7.5	7.6
30	---	---	---	7.8	7.8	7.8	7.7	7.6	7.7	7.7	7.5	7.6
31	---	---	---	7.8	7.8	7.8	---	---	---	7.8	7.7	7.8
MONTH	8.1	7.6	7.9	8.0	7.5	7.8	7.9	7.6	7.7	8.2	7.5	7.7

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.9	7.8	7.8	7.8	7.7	7.7	7.8	7.8	7.8	7.9	7.8	7.9
2	7.8	7.8	7.8	7.8	7.7	7.7	7.8	7.8	7.8	7.9	7.8	7.8
3	7.8	7.7	7.8	7.7	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8
4	7.8	7.7	7.7	7.7	7.6	7.6	7.8	7.8	7.8	7.8	7.7	7.8
5	7.8	7.7	7.7	7.7	7.6	7.6	7.8	7.8	7.8	7.8	7.7	7.7
6	7.9	7.8	7.9	7.7	7.6	7.6	7.8	7.7	7.8	7.7	7.7	7.7
7	7.9	7.9	7.9	7.6	7.6	7.6	7.8	7.8	7.8	7.7	7.7	7.7
8	7.9	7.9	7.9	7.6	7.6	7.6	7.8	7.8	7.8	7.9	7.6	7.7
9	7.9	7.9	7.9	7.6	7.6	7.6	7.8	7.7	7.8	7.7	7.6	7.7
10	7.9	7.7	7.9	7.6	7.6	7.6	7.8	7.7	7.8	7.8	7.7	7.7
11	7.8	7.6	7.7	7.7	7.6	7.6	7.8	7.7	7.7	7.8	7.8	7.8
12	7.7	7.5	7.6	7.7	7.6	7.6	7.7	7.7	7.7	7.8	7.8	7.8
13	7.9	7.6	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.8	7.7	7.8
14	7.9	7.7	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.8	7.7	7.8
15	7.9	7.7	7.8	7.7	7.5	7.6	7.7	7.7	7.7	7.8	7.7	7.8
16	7.9	7.9	7.9	7.7	7.6	7.7	7.7	7.7	7.7	7.8	7.7	7.7
17	7.9	7.9	7.9	7.8	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.7
18	7.9	7.9	7.9	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.7
19	7.9	7.8	7.9	7.7	7.7	7.7	7.8	7.7	7.8	7.7	7.6	7.7
20	7.9	7.8	7.9	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.7
21	7.9	7.9	7.9	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.7	7.7
22	7.9	7.8	7.9	7.7	7.6	7.7	7.8	7.7	7.7	7.7	7.7	7.7
23	7.9	7.8	7.9	7.8	7.6	7.7	7.8	7.8	7.8	7.7	7.7	7.7
24	7.9	7.8	7.9	7.8	7.7	7.8	7.8	7.8	7.8	7.7	7.7	7.7
25	7.8	7.8	7.8	7.8	7.7	7.7	7.8	7.8	7.8	7.7	7.6	7.6
26	7.8	7.8	7.8	7.8	7.7	7.7	7.8	7.8	7.8	7.6	7.6	7.6
27	7.9	7.8	7.8	7.8	7.7	7.7	7.8	7.7	7.8	7.7	7.6	7.6
28	7.8	7.8	7.8	7.7	7.6	7.7	7.8	7.7	7.8	7.7	7.6	7.6
29	7.8	7.8	7.8	7.8	7.7	7.8	7.9	7.8	7.8	7.8	7.6	7.7
30	7.8	7.7	7.8	7.8	7.7	7.8	7.9	7.8	7.9	7.8	7.8	7.8
31	---	---	---	7.8	7.8	7.8	7.9	7.8	7.9	---	---	---
MONTH	7.9	7.5	7.8	7.8	7.5	7.7	7.9	7.7	7.8	7.9	7.6	7.7

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1							---	---	---	14.5	14.0	14.0
2							---	---	---	14.0	13.5	14.0
3							---	---	---	14.5	14.0	14.0
4							---	---	---	14.0	13.5	13.5
5							---	---	---	13.5	13.0	13.5
6							---	---	---	14.5	13.5	14.0
7							---	---	---	16.0	15.0	15.5
8							---	---	---	16.5	16.0	16.0
9							---	---	---	16.5	16.5	16.5
10							---	---	---	16.5	15.0	15.5
11							---	---	---	15.0	14.0	14.5
12							---	---	---	14.0	14.0	14.0
13							---	---	---	14.5	14.0	14.5
14							---	---	---	15.5	14.5	15.0
15							---	---	---	15.5	15.0	15.5
16							---	---	---	15.5	15.5	15.5
17							---	---	---	16.5	12.5	14.0
18							---	---	---	13.5	12.0	12.5
19							---	---	---	12.5	11.5	12.0
20							---	---	---	12.5	12.0	12.5
21							---	---	---	12.5	12.0	12.5
22							---	---	---	12.5	11.5	12.0
23							---	---	---	12.5	11.5	12.0
24							---	---	---	14.0	12.5	13.5
25							---	---	---	14.5	13.5	14.0
26							---	---	---	15.0	14.0	14.5
27							---	---	---	15.5	14.5	15.0
28							---	---	---	16.5	15.0	16.0
29							---	---	---	17.5	16.5	17.0
30							14.5	14.0	14.5	17.0	16.5	17.0
31							14.5	14.0	14.5	17.0	16.0	16.5
MONTH							14.5	14.0	14.5	17.5	11.5	14.5

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	17.5	17.0	17.5	16.0	15.5	16.0	18.5	16.0	17.0	24.0	23.0	23.5
2	18.0	17.0	17.5	16.5	15.5	16.0	18.0	17.0	17.5	24.5	23.0	23.5
3	18.0	17.0	17.5	17.0	16.0	16.5	18.0	16.0	17.0	25.0	24.0	24.0
4	18.5	17.5	18.0	17.0	16.0	16.5	17.0	16.0	16.5	25.0	23.5	24.0
5	19.0	17.5	18.0	17.5	16.0	16.5	17.0	16.0	16.5	24.5	22.5	23.5
6	17.5	16.0	17.0	17.5	16.5	17.0	17.0	16.0	16.5	24.5	23.0	23.5
7	16.0	15.0	16.0	18.0	16.5	17.5	18.0	16.5	17.5	23.5	22.0	23.0
8	16.5	15.5	16.0	18.0	17.0	17.5	19.0	17.0	18.0	24.0	22.5	23.5
9	17.0	16.0	16.5	18.5	17.5	18.0	19.5	17.5	18.5	25.0	23.0	23.5
10	17.5	16.0	17.0	18.5	17.5	18.0	21.0	18.5	19.5	25.5	23.5	24.5
11	18.5	17.0	18.0	17.5	16.5	17.0	22.0	20.0	21.0	25.0	23.5	24.5
12	19.5	18.5	19.0	16.5	16.0	16.5	22.5	21.0	22.0	25.5	23.5	24.5
13	20.0	19.0	19.5	17.0	16.0	16.5	23.5	22.0	22.5	26.0	24.0	25.0
14	19.5	19.0	19.5	17.5	16.5	17.0	22.5	20.5	21.5	26.0	25.0	25.5
15	20.0	18.5	19.0	18.5	18.0	18.0	22.0	19.5	21.0	26.5	24.5	25.5
16	18.0	17.5	18.0	19.5	18.5	19.0	23.0	20.5	21.5	25.5	24.5	25.0
17	18.0	17.0	17.5	20.5	19.5	20.0	23.5	21.0	22.5	26.0	24.5	25.5
18	17.5	16.5	17.0	19.5	18.5	19.0	24.0	22.0	23.0	26.0	25.0	25.5
19	17.0	16.0	16.5	19.0	18.5	19.0	23.5	22.5	23.0	26.0	20.5	22.5
20	16.5	15.0	15.5	19.5	18.5	19.0	24.0	23.0	23.5	24.5	21.0	23.0
21	15.0	14.5	15.0	20.0	19.5	20.0	23.5	22.0	23.0	25.0	24.0	24.5
22	16.0	15.0	15.5	20.5	20.0	20.0	22.5	21.0	22.0	26.0	25.0	25.5
23	16.5	16.0	16.5	21.0	20.0	20.5	23.0	21.5	22.0	26.0	25.5	26.0
24	18.0	15.5	16.0	20.0	18.5	19.5	23.5	22.0	22.5	27.0	25.5	26.0
25	16.5	15.5	15.5	19.0	18.0	18.5	23.5	21.5	22.0	27.0	25.5	26.0
26	15.5	14.5	14.5	18.0	18.0	18.0	23.5	21.5	22.5	27.0	25.5	26.0
27	16.5	15.0	15.5	19.5	17.5	18.5	24.0	22.0	22.5	26.0	25.5	25.5
28	17.5	16.0	16.5	19.5	18.0	19.0	24.5	22.0	23.0	26.0	20.5	23.5
29	---	---	---	19.0	16.0	17.5	24.5	22.5	23.5	21.5	21.0	21.0
30	---	---	---	16.0	15.0	15.5	24.5	22.5	23.5	22.0	21.5	22.0
31	---	---	---	17.0	14.5	15.5	---	---	---	22.0	22.0	22.0
MONTH	20.0	14.5	17.0	21.0	14.5	18.0	24.5	16.0	21.0	27.0	20.5	24.0

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

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1							---	---	---	7.9	7.3	7.6
2							---	---	---	8.0	7.7	7.9
3							---	---	---	7.8	7.8	7.8
4							---	---	---	8.0	7.8	7.9
5							---	---	---	8.0	7.8	7.9
6							---	---	---	7.9	7.6	7.8
7							---	---	---	7.6	7.3	7.4
8							---	---	---	7.3	7.0	7.2
9							---	---	---	7.2	7.0	7.1
10							---	---	---	7.3	7.0	7.2
11							---	---	---	7.7	7.3	7.5
12							---	---	---	7.6	7.5	7.6
13							---	---	---	7.5	7.3	7.4
14							---	---	---	7.3	6.9	7.1
15							---	---	---	7.1	6.9	7.0
16							---	---	---	7.0	6.8	6.9
17							---	---	---	8.0	7.7	7.8
18							---	---	---	8.1	7.8	7.9
19							---	---	---	8.1	7.9	8.0
20							---	---	---	8.0	7.3	7.7
21							---	---	---	7.9	7.2	7.6
22							---	---	---	7.7	7.3	7.5
23							---	---	---	7.6	6.9	7.3
24							---	---	---	7.5	7.0	7.2
25							---	---	---	7.3	6.7	7.0
26							---	---	---	7.2	6.6	6.9
27							---	---	---	7.0	6.6	6.9
28							---	---	---	6.9	6.5	6.7
29							---	---	---	6.5	6.2	6.3
30							8.1	7.5	7.8	6.3	6.1	6.2
31							7.9	7.1	7.5	6.3	6.1	6.2
MONTH							8.1	7.1	7.7	8.1	6.1	7.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	6.2	5.9	6.0	7.8	7.4	7.6	6.0	5.6	5.8	4.3	3.5	3.9
2	6.0	5.5	5.8	7.8	7.6	7.7	5.6	5.2	5.4	4.2	3.6	3.9
3	6.1	5.7	5.9	7.7	7.3	7.5	5.6	5.2	5.5	4.0	3.2	3.6
4	6.0	5.0	5.7	7.8	7.4	7.6	5.3	4.8	5.0	4.9	3.3	3.6
5	6.4	4.9	5.7	7.7	7.5	7.6	5.3	4.6	4.8	4.4	3.8	4.2
6	6.6	6.1	6.3	7.5	6.8	7.3	5.4	4.8	5.1	6.1	2.7	4.7
7	6.5	6.2	6.3	7.3	6.5	7.0	5.2	4.7	4.9	6.2	5.2	5.7
8	6.2	6.0	6.1	7.1	6.4	6.8	5.5	4.9	5.3	---	---	---
9	6.0	5.9	5.9	6.9	6.5	6.7	5.7	5.0	5.3	---	---	---
10	6.0	5.8	5.8	6.9	6.0	6.4	5.5	5.2	5.4	---	---	---
11	5.9	5.7	5.8	7.1	6.2	6.8	5.1	4.8	5.0	---	---	---
12	5.8	5.7	5.8	7.0	6.4	6.7	4.9	4.0	4.5	---	---	---
13	5.9	5.3	5.6	6.8	6.4	6.7	4.7	3.8	4.2	---	---	---
14	5.9	5.5	5.6	6.5	6.0	6.2	4.2	3.7	4.0	---	---	---
15	6.7	4.2	6.0	6.2	5.3	5.8	4.4	3.7	4.1	---	---	---
16	6.6	6.0	6.4	6.2	5.4	5.9	4.2	3.5	3.9	---	---	---
17	6.5	6.2	6.4	6.0	5.0	5.6	3.8	3.1	3.4	---	---	---
18	6.6	6.3	6.4	6.4	5.7	6.1	3.3	2.1	2.5	---	---	---
19	6.6	6.2	6.4	6.0	5.0	5.6	2.8	1.6	2.2	---	---	---
20	7.1	6.4	6.8	5.8	5.4	5.7	3.2	2.0	2.5	---	---	---
21	6.9	6.6	6.8	5.6	5.1	5.3	3.2	2.1	2.6	---	---	---
22	6.8	6.5	6.6	5.5	4.1	4.9	3.2	2.2	2.6	---	---	---
23	6.8	5.9	6.4	5.3	5.0	5.1	3.6	2.6	3.0	---	---	---
24	7.7	5.5	6.9	5.4	4.5	5.1	4.2	2.7	3.6	---	---	---
25	7.6	6.4	7.2	5.7	4.6	5.2	5.2	2.9	4.5	---	---	---
26	8.3	7.1	7.8	5.6	4.9	5.2	5.2	4.0	4.4	---	---	---
27	8.0	7.4	7.8	5.3	4.6	5.0	4.6	3.6	4.1	---	---	---
28	7.9	7.0	7.6	4.8	4.1	4.4	4.8	3.9	4.4	---	---	---
29	---	---	---	6.1	4.4	5.0	4.7	4.0	4.3	---	---	---
30	---	---	---	6.6	6.1	6.3	4.3	3.6	3.9	---	---	---
31	---	---	---	6.5	6.1	6.3	---	---	---	---	---	---
MONTH	8.3	4.2	6.4	7.8	4.1	6.2	6.0	1.6	4.2	6.2	2.7	4.2

08181800 SAN ANTONIO RIVER NEAR ELMENDORF, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1				---	---	---	4.8	4.3	4.7	4.3	3.7	4.1
2				---	---	---	5.1	4.1	4.7	4.4	3.6	4.0
3				---	---	---	4.9	4.4	4.6	4.6	3.6	4.0
4				---	---	---	4.3	3.6	3.9	4.8	3.7	4.2
5				---	---	---	4.6	3.1	3.7	4.8	3.7	4.0
6				---	---	---	4.4	4.1	4.2	4.7	3.7	4.0
7				---	---	---	4.3	3.7	4.0	5.0	3.3	4.1
8				---	---	---	4.2	3.6	3.9	5.3	2.9	4.6
9				---	---	---	4.5	3.7	4.1	5.0	3.4	4.3
10				---	---	---	4.4	3.3	3.9	3.8	3.1	3.5
11				---	---	---	3.7	2.8	3.3	4.1	3.4	3.7
12				---	---	---	3.2	2.5	2.8	3.9	3.4	3.7
13				---	---	---	3.0	2.3	2.6	4.2	3.5	3.9
14				---	---	---	3.2	2.3	2.6	4.1	3.9	4.0
15				---	---	---	3.3	2.3	2.7	5.1	3.9	4.3
16				5.7	5.3	5.4	3.5	2.3	2.8	4.3	3.5	3.9
17				5.7	5.3	5.5	4.5	2.7	3.6	5.0	3.3	3.6
18				5.7	5.2	5.4	4.5	3.3	3.8	5.9	4.8	5.2
19				5.4	5.0	5.2	4.2	3.2	3.6	6.1	5.3	5.7
20				5.5	5.2	5.3	3.7	3.2	3.4	5.5	4.7	5.1
21				5.5	5.1	5.3	4.0	3.1	3.4	4.7	4.0	4.4
22				5.5	5.2	5.4	4.2	3.2	3.6	4.2	3.3	3.7
23				5.5	5.1	5.2	4.5	3.1	3.6	3.5	3.0	3.2
24				5.4	5.1	5.3	4.7	3.3	3.8	3.3	2.7	3.1
25				5.2	4.9	5.1	4.4	3.0	3.6	3.5	2.9	3.2
26				5.3	4.8	5.0	4.5	3.1	3.6	3.9	3.3	3.6
27				5.1	4.6	4.9	4.5	2.9	3.5	4.5	3.6	4.0
28				5.0	4.2	4.6	4.5	3.0	3.5	5.3	4.5	4.8
29				5.0	4.4	4.6	4.2	3.0	3.5	4.9	4.4	4.7
30				4.9	4.3	4.7	5.0	3.2	3.7	5.0	4.3	4.6
31				4.8	4.5	4.6	4.8	3.6	4.4	---	---	---
MONTH				5.7	4.2	5.1	5.1	2.3	3.7	6.1	2.7	4.1

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX

LOCATION.--Lat 28°57'05", long 98°03'50", Karnes County, Hydrologic Unit 12100303, on left bank 23 ft downstream from bridge on Farm Road 791, 0.9 mi upstream from Scared Dog Creek, 3.6 mi southwest of Falls City, and 150.5 mi upstream from mouth.

DRAINAGE AREA.--2,113 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 1732: 1947(M). WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 285.49 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. For diversions and regulation above station, see REMARKS for Salado Creek (upper station) at San Antonio (station 08178700), Medina River at San Antonio (station 08181500), and San Antonio River near Elmendorf (station 08181800). Flow is slightly regulated by Calaveras Lake on Calaveas Creek, which enters the San Antonio River downstream from the station near Elmendorf. Flow is affected at times by discharge from the flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 26,130 acre-ft. These structures control runoff from 73.8 mi². Records provided by San Antonio City Public Service Board show that during the current year, 18,660 acre-ft was released into Calaveras Creek from Calaveras Lake. Satellite telemeter at station.

AVERAGE DISCHARGE.--62 years (water years 1926-87), 429 ft³/s (310,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft³/s Sept. 29, 1946 (gage height, 33.80 ft, from floodmark); minimum daily, 19 ft³/s June 27, 1956.
Maximum stage since at least 1875, that of Sept. 29, 1946.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1913 reached a stage of 28.4 ft, from floodmark, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	2400	9,670	14.96	June 7	1700	*19,900	*24.00
May 22	0800	5,650	9.39	June 15	2100	16,200	20.96

Minimum daily discharge, 378 ft³/s Nov. 23.

REVISIONS.--Revised figures of discharge for water years 1983-1984, superseding those published in corresponding annual reports, are given herein.

EXTREMES FOR WATER YEARS 1983-1984.--Peak discharges above base of 4,000 ft³/s and maximum (*) have been revised as follows:

Water year	Date	Time	Discharge (ft³/s)	Gage height (ft)
1983	Sept. 19, 1983	0200	*6,460	*10.64
1984	Nov. 6, 1983	2400	*1,550	*3.42

Minimum daily discharge.--WTR YR 1983: 190 ft³/s Oct. 1, 5-6, 1982; WTR YR 1984: 115 ft³/s Sept. 15, 1984.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e190	e360	e500	e490	e325	e340	e410	e230	e315	e210	e170	e240
2	e195	e320	e410	e590	e325	e280	e380	e225	e310	e200	e175	e215
3	e200	e550	e400	e530	e330	e290	e360	e220	e305	e190	e180	e200
4	e195	e870	e440	e380	e335	e310	e350	e215	e300	e185	e200	e185
5	e190	e600	e510	e370	e350	e300	e340	e210	e320	e180	e450	e190
6	e190	e480	e430	e370	e460	e290	e360	e210	e780	e200	e440	e200
7	e330	e385	e380	e365	e570	e280	e370	e205	e720	e210	e370	e210
8	e310	e355	e360	e360	e480	e300	e340	e205	e710	e450	e530	e220
9	e305	e350	e355	e350	e400	e285	e300	e200	e560	e270	e530	e370
10	e680	e340	e350	e345	e380	e275	e280	e235	e430	e230	e750	e590
11	e1290	e320	e370	e340	e370	e275	e285	e240	e370	e250	e420	e440
12	e820	e300	e470	e340	e360	e280	e290	e245	e340	e260	e360	e300
13	e565	e300	465	e340	e365	e285	e280	e230	e330	e270	e340	e260
14	e610	e290	e420	e340	e370	e280	e275	e220	e320	e590	e320	e260
15	e480	e280	e380	e340	e370	e280	e270	e285	e315	e550	e310	e240
16	e430	e280	e370	e335	e1280	e460	e260	e270	e320	e440	e305	e230
17	e390	e285	e365	e330	e850	e400	e250	e250	e320	e510	e300	e220
18	e375	e290	e360	e330	e660	e360	e260	e240	e480	e570	e295	e220
19	e360	e300	e355	e370	e500	e320	e265	e235	e340	e420	e290	e2200
20	e350	e335	e350	e420	e450	e300	e250	e230	e320	e580	e280	e5030
21	e340	e320	e345	e410	e420	e305	e245	e600	e300	e400	e270	e1120
22	e325	e305	e340	e380	e400	e290	e240	e1830	e290	e340	e260	e505
23	e320	e310	e335	e440	e390	e1640	e235	e1900	e285	e235	e255	e400
24	e315	e315	e325	e380	e385	e1710	e230	e1050	e280	e200	e250	e380
25	e310	e320	e320	e355	e380	e860	e230	e540	e320	e190	e240	e360
26	e305	e370	e320	e350	e370	e1620	e235	e400	e300	e195	e210	e360
27	e280	e770	e315	e345	e365	e1060	e230	e380	e260	e200	e205	e355
28	e260	e1750	e490	e340	e360	e750	e240	e355	e240	e185	e210	e355
29	e255	e1180	e435	e340	---	e540	e245	e340	e230	e190	e235	e350
30	e710	e620	e390	e335	---	e460	e240	e330	e220	e170	e250	e350
31	e460	---	e370	e330	---	e440	---	e320	---	e165	e260	---
TOTAL	12335	13850	12025	11640	12600	15865	8545	12645	10930	9235	9660	16555
MEAN	398	462	388	375	450	512	285	408	364	298	312	552
MAX	1290	1750	510	590	1280	1710	410	1900	780	590	750	5030
MIN	190	280	315	330	325	275	230	200	220	165	170	185
AC-FT	24470	27470	23850	23090	24990	31470	16950	25080	21680	18320	19160	32840

CAL YR 1982 TOTAL 38210 MEAN 415 MAX 1750 MIN 190 AC-FT 75790
WTR YR 1983 TOTAL 145885 MEAN 400 MAX 5030 MIN 165 AC-FT 289400

e Estimated.

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e330	e230	e280	e325	e295	e305	e295	e195	e220	e160	e170	e125
2	e325	e235	e260	e330	e290	e310	e295	e195	e190	e280	e170	e120
3	e320	e230	e245	e335	e295	e315	e295	e190	e180	e210	e175	e125
4	e310	e245	e290	e360	e300	e310	e250	e190	e175	e180	e180	e150
5	e305	e250	e320	e300	e285	e305	e240	e150	e170	e170	e180	e270
6	e300	e1050	e310	e270	e290	e295	e240	e155	e170	e165	e175	e410
7	e295	e1080	e290	e260	e290	e290	e235	e165	e270	e160	e175	e280
8	e290	e590	e275	e250	e295	e260	e270	e175	e280	e160	e170	e155
9	e300	e350	e270	e240	e300	e270	e355	e280	e190	e155	e170	e140
10	e530	e300	e260	e820	e300	e260	e310	e160	e180	e150	e165	e135
11	e650	e320	e255	e580	e295	e270	e260	e145	e185	e150	e165	e130
12	e480	e280	e260	e460	e300	e680	e240	e225	e190	e150	e160	e125
13	e400	e260	e270	e370	e300	e880	e230	e160	e200	e150	e240	e125
14	e360	e245	e280	e280	e310	e1020	e220	e145	e210	e150	e420	e120
15	e300	e265	e290	e260	e330	e640	e215	e145	e330	e150	e310	e115
16	e275	e250	e280	e255	e330	e400	e225	e140	e230	e150	e620	e140
17	e255	e245	e270	e250	e330	e350	e225	e180	e220	e150	e460	e190
18	e250	e240	e260	e250	e290	e330	e220	e200	e200	e150	e310	e145
19	e245	e240	e255	e255	e285	e310	e220	e550	e190	e150	e250	e140
20	e255	e235	e250	e270	e290	e320	e215	e770	e180	e150	e200	e140
21	e260	e235	e245	e260	e310	e460	e210	e890	e175	e150	e180	e135
22	e265	e240	e250	e265	e370	e440	e215	e460	e170	e150	e170	e135
23	e250	e290	e255	e270	e380	e340	e255	e330	e165	e150	e160	e140
24	e240	e470	e260	e325	e310	e315	e250	e290	e160	e150	e150	e150
25	e235	e420	e260	e355	e305	e300	e215	e260	e155	e155	e140	e185
26	e230	e360	e265	e370	e300	e310	e210	e230	e155	e155	e135	e180
27	e230	e330	e270	e340	e290	e310	e205	e210	e155	e155	e130	e145
28	e235	e350	e275	e330	e295	e310	e205	e200	e155	e160	e130	e155
29	e230	e330	e280	e320	e300	e305	e200	e190	e155	e160	e130	e190
30	e225	e320	e290	e315	---	e305	e200	e570	e155	e165	e125	e240
31	e230	---	e320	e310	---	e300	---	e235	---	e170	e125	---
TOTAL	9405	10485	8440	10180	8860	11815	7220	8380	5760	5010	6440	4935
MEAN	303	349	272	328	306	381	241	270	192	162	208	164
MAX	650	1080	320	820	380	1020	355	890	330	280	620	410
MIN	225	230	245	240	285	260	200	140	155	150	125	115
AC-FT	18650	20800	16740	20190	17570	23440	14320	16620	11420	9940	12770	9790

CAL YR 1983 TOTAL 136005 MEAN 373 MAX 5030 MIN 165 AC-FT 269800
WTR YR 1984 TOTAL 96930 MEAN 265 MAX 1080 MIN 115 AC-FT 192300
e Estimated.

DISCHARGE, IN 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	447	510	465	1800	903	2320	870	543	11000	e2250	997	797
2	422	490	457	1720	875	1860	835	530	16000	e2130	957	659
3	418	481	455	1660	867	1500	796	544	18600	e2000	912	615
4	433	477	410	1620	862	1610	779	520	18900	e1940	902	574
5	416	503	395	1540	845	1540	772	584	18000	e1840	899	561
6	439	647	385	1490	967	1410	754	810	15500	e1750	854	544
7	1650	541	384	1430	1460	1150	791	1440	19000	e1690	814	534
8	2380	507	397	1390	1130	1100	787	1690	17900	e1620	781	611
9	1110	482	471	1400	989	1070	778	974	12400	e1560	788	1530
10	586	479	437	1380	923	1050	757	755	9230	e1500	743	880
11	544	473	421	1300	914	1050	696	663	8160	e1470	712	665
12	1150	489	456	1240	870	1140	736	623	10300	e1420	683	631
13	2810	483	440	1180	843	1140	722	615	13800	1400	625	626
14	3470	491	428	1180	816	1070	712	614	16100	1390	600	619
15	2050	447	543	1160	821	1060	697	977	15800	1420	586	623
16	788	420	1980	1130	1110	1040	679	914	14200	1710	553	646
17	594	416	1470	1150	1030	1020	653	686	10600	1460	542	607
18	535	417	737	1640	871	1300	624	670	e8900	1280	532	527
19	495	410	658	1830	813	1330	614	663	e7500	1230	527	545
20	470	396	686	1320	785	1100	607	1350	e6400	1180	523	716
21	463	384	608	1180	967	1070	590	3820	e5400	1180	501	616
22	474	387	1620	1150	988	1060	615	5300	e4700	1180	492	581
23	1110	378	3740	1210	836	1030	577	3480	e4200	1220	479	545
24	1320	389	7860	1180	835	1020	573	1700	3700	1140	478	519
25	957	497	7830	1050	1560	1030	587	1270	3450	1160	473	507
26	716	1030	2650	997	2750	1000	906	1110	3150	1070	459	504
27	600	843	1230	974	3320	968	672	989	2950	1050	433	498
28	822	546	1250	1020	3290	933	602	900	2800	1090	425	484
29	682	477	1510	1010	---	893	577	876	e2500	1050	490	516
30	574	470	1790	1000	---	862	577	2470	e2390	1030	573	574
31	528	---	2010	955	---	851	---	5440	---	1030	600	---
TOTAL	29453	14960	44173	40286	33240	36577	20935	43520	303530	44440	19933	18854
MEAN	950	499	1425	1300	1187	1180	698	1404	10120	1434	643	628
MAX	3470	1030	7860	1830	3320	2320	906	5440	19000	2250	997	1530
MIN	416	378	384	955	785	851	573	520	2390	1030	425	484
AC-FT	58420	29670	87620	79910	65930	72550	41520	86320	602100	88150	39540	37400

CAL YR 1986 TOTAL 260371 MEAN 715 MAX 12200 MIN 190 AC-FT 516400
WTR YR 1987 TOTAL 649901 MEAN 1781 MAX 19000 MIN 378 AC-FT 1289000

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1959. Chemical and biochemical analyses: May 1965 to September 1981, October 1986 to current year. Sediment analyses: November 1958 to February 1975.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January to September 1987.
pH: January to September 1987.
WATER TEMPERATURE: January to September 1987.
DISSOLVED OXYGEN: January to September 1987.

INSTRUMENTATION.--Beginning January 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. 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 CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,110 microsiemens May 13; minimum, 325 microsiemens Sept. 9.
WATER TEMPERATUE: Maximum, 30.0°C on several days during August; minimum, 14.0°C on several days during January and February.
DISSOLVED OXYGEN: Maximum, 7.0 mg/L Feb. 26; minimum, 0.0 mg/L May 16.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
DEC										
12...	1501	485	965	7.60	14.5	4.4	43	8.4	310	56
FEB										
11...	1350	910	783	7.80	16.0	4.8	49	5.2	290	72
JUL										
29...	1142	1080	775	7.60	27.0	3.6	46	2.4	290	67
SEP										
04...	0905	588	952	7.70	25.5	3.6	44	4.4	310	93

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 WH WAT TOTAL 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									
12...	93	19	70	2	6.2	254	80	83	0.40
FEB									
11...	86	18	48	1	4.4	217	80	59	0.40
JUL									
29...	86	19	48	1	4.0	226	76	61	0.30
SEP									
04...	93	19	73	2	5.2	217	100	91	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-PHORUS, TOTAL (MG/L AS P)
DEC									
12...	15	520	4.68	0.620	5.30	2.40	0.80	3.2	2.60
FEB									
11...	13	440	4.00	0.400	4.40	0.360	1.5	1.9	1.00
JUL									
29...	14	440	4.49	0.510	5.00	0.070	1.6	1.7	0.700
SEP									
04...	16	530	5.52	0.780	6.30	0.930	1.1	2.0	1.50

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR JANUARY 1987 TO SEPTEMBER 1987

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT-ANCE (MICRO-SIEMENS)S)	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)
JAN.	1987	40286	651	369	40100	49	5330	66	7150	240
FEB.	1987	33240	707	400	35900	57	5070	72	6420	250
MAR.	1987	36577	776	440	43400	65	6420	79	7780	270
APR.	1987	20935	866	491	27800	79	4460	88	4990	290
MAY	1987	43520	855	485	57000	78	9170	87	10200	290
JUNE	1987	303530	821	465	381000	74	60600	84	68500	280
JULY	1987	44440	773	438	52600	64	7730	78	9410	270
AUG.	1987	19933	942	535	28800	92	4950	96	5190	300
SEPT	1987	18854	848	481	24500	77	3910	86	4400	290
TOTAL		561315	**	**	691000	**	108000	**	124000	**
WTD.AVG.		2056	805	456	**	71	**	82	**	270

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1										690	599	632
2										600	565	587
3										587	542	558
4										560	526	544
5										550	534	544
6										541	506	520
7										524	492	510
8										514	492	505
9										511	477	498
10										503	486	496
11										495	483	490
12										494	478	487
13										503	481	489
14										597	493	533
15										643	595	618
16										641	618	626
17										667	596	629
18										733	671	701
19										780	733	758
20										810	780	797
21										824	806	816
22										838	818	828
23										842	831	835
24										843	833	838
25										840	827	834
26										832	818	824
27										819	801	810
28										830	798	815
29										840	800	825
30										840	800	818
31										840	810	826
MONTH										843	477	664

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	840	830	836	720	560	629	840	800	819	882	852	871
2	840	790	816	680	610	640	830	810	818	901	862	881
3	820	790	805	750	680	695	860	830	848	911	881	896
4	810	780	795	860	740	811	880	860	868	931	901	913
5	810	790	804	870	850	859	890	860	875	931	870	908
6	830	780	808	880	860	866	890	790	859	870	769	841
7	790	610	725	870	790	814	870	850	863	746	440	676
8	770	690	720	810	780	803	870	845	856	793	524	660
9	780	730	749	820	790	808	874	833	859	962	802	890
10	790	750	765	850	780	800	883	853	866	1020	970	998
11	780	760	769	800	770	788	872	852	867	1080	1020	1050
12	810	760	790	840	790	809	871	850	864	1100	1030	1080
13	830	800	817	830	760	790	870	850	863	1110	1010	1060
14	850	830	842	800	770	788	879	849	866	1010	936	974
15	850	830	841	800	780	788	867	837	853	977	853	920
16	860	790	826	800	770	792	876	836	854	954	751	869
17	860	660	731	810	760	792	885	855	869	945	752	869
18	810	740	792	810	770	792	894	854	874	934	804	890
19	830	800	820	850	700	756	913	883	896	861	770	818
20	850	820	837	770	730	755	942	913	929	779	419	700
21	850	820	836	780	760	775	941	901	926	768	489	645
22	840	700	783	780	760	770	930	876	903	857	758	811
23	820	760	792	790	760	778	915	875	897	1020	558	828
24	870	720	815	810	760	783	934	904	916	965	836	905
25	870	670	829	790	770	778	974	914	940	994	965	986
26	520	390	452	810	770	787	934	873	900	993	972	982
27	650	430	503	810	780	797	903	670	761	972	901	935
28	550	430	481	820	790	807	873	766	822	911	870	889
29	---	---	---	830	800	816	873	844	862	920	870	901
30	---	---	---	840	800	821	862	843	854	946	887	903
31	---	---	---	870	810	834	---	---	---	954	935	944
MONTH	870	390	764	880	560	785	974	670	868	1110	419	887

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	1000	954	979	700	660	680	860	840	846	936	705	859
2	1060	1000	1010	710	690	702	870	840	859	826	695	784
3	1060	1030	1050	740	710	720	870	850	868	887	776	833
4	1050	1030	1040	750	720	735	880	850	866	938	878	910
5	1040	968	1010	760	730	745	870	850	858	949	919	932
6	968	927	952	760	740	749	910	850	873	959	929	940
7	964	940	951	770	740	757	920	870	895	960	930	947
8	939	876	910	790	750	770	930	900	909	971	921	949
9	880	814	847	800	780	789	950	900	919	921	325	641
10	870	777	833	820	770	791	940	920	923	712	406	587
11	785	762	773	810	770	791	940	920	926	743	692	715
12	773	751	765	830	780	804	950	920	933	855	753	804
13	764	744	754	830	790	800	963	939	952	895	855	879
14	757	717	733	800	780	790	965	948	958	936	866	897
15	716	673	696	800	780	790	990	959	968	907	857	885
16	672	585	636	800	730	764	1010	980	994	887	838	863
17	582	520	544	800	680	725	1040	1010	1020	870	828	851
18	550	520	541	800	780	790	1050	1020	1040	910	870	892
19	570	550	560	820	790	804	1070	1040	1050	922	882	905
20	590	560	578	820	790	806	1080	1050	1070	913	843	881
21	600	580	595	810	790	802	1050	1020	1040	884	723	812
22	620	600	609	800	780	787	1040	1020	1030	868	714	825
23	640	610	625	800	770	785	1040	1030	1030	921	868	900
24	660	620	642	810	790	795	1030	990	1020	926	887	907
25	670	640	658	820	800	809	1030	970	1000	950	899	922
26	680	670	675	830	800	813	1030	991	1000	960	930	949
27	690	670	682	850	820	834	1020	972	994	970	940	955
28	690	680	685	830	800	817	1030	983	1010	970	920	949
29	680	650	666	810	790	802	1030	753	930	970	840	941
30	670	650	659	870	800	841	1000	935	972	930	870	912
31	---	---	---	860	830	843	965	905	934	---	---	---
MONTH	1060	520	755	870	660	782	1080	753	958	971	325	868

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										7.8	7.8	7.8
2										7.8	7.7	7.8
3										7.8	7.7	7.8
4										7.8	7.8	7.8
5										7.9	7.8	7.8
6										7.9	7.8	7.8
7										7.8	7.8	7.8
8										7.8	7.8	7.8
9										7.9	7.8	7.9
10										7.9	7.8	7.9
11										7.8	7.8	7.8
12										7.9	7.8	7.8
13										7.9	7.9	7.9
14										7.9	7.8	7.9
15										7.8	7.8	7.8
16										7.9	7.8	7.8
17										7.9	7.8	7.9
18										7.9	7.8	7.8
19										7.8	7.8	7.8
20										7.8	7.8	7.8
21										7.9	7.8	7.8
22										7.9	7.8	7.8
23										7.8	7.8	7.8
24										7.8	7.8	7.8
25										7.8	7.8	7.8
26										7.8	7.7	7.8
27										7.7	7.7	7.7
28										7.8	7.7	7.7
29										7.8	7.7	7.7
30										7.8	7.7	7.8
31										7.9	7.8	7.8
MONTH										7.9	7.7	7.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.9	7.7	7.8	7.1	7.0	7.1	7.7	7.6	7.7	7.6	7.5	7.6
2	7.8	7.7	7.7	7.1	7.0	7.1	7.7	7.6	7.7	7.7	7.6	7.6
3	7.8	7.6	7.7	7.0	7.0	7.0	7.7	7.7	7.7	7.6	7.4	7.5
4	7.8	7.6	7.7	7.0	7.0	7.0	7.7	7.7	7.7	7.7	7.1	7.3
5	7.8	7.7	7.8	7.0	7.0	7.0	7.7	7.7	7.7	7.7	7.6	7.7
6	7.8	7.8	7.8	7.0	7.0	7.0	7.7	7.7	7.7	7.7	7.4	7.5
7	7.9	7.6	7.7	7.1	7.0	7.1	7.8	7.7	7.7	7.9	7.0	7.4
8	7.8	7.6	7.7	7.2	7.1	7.1	7.8	7.6	7.7	7.3	7.0	7.1
9	7.7	7.6	7.7	7.3	7.1	7.2	7.7	7.5	7.6	---	---	---
10	7.8	7.7	7.7	7.3	7.3	7.3	7.6	7.5	7.6	---	---	---
11	7.8	7.6	7.7	7.3	7.3	7.3	7.6	7.4	7.6	---	---	---
12	7.8	7.6	7.7	7.5	7.3	7.4	7.6	7.5	7.5	---	---	---
13	7.7	7.4	7.6	7.5	7.5	7.5	7.6	7.4	7.5	---	---	---
14	7.6	7.6	7.6	7.5	7.5	7.5	7.5	7.4	7.4	---	---	---
15	7.7	7.6	7.6	7.7	7.5	7.7	7.6	7.4	7.5	---	---	---
16	7.7	7.6	7.6	7.8	7.5	7.7	7.6	7.4	7.5	---	---	---
17	7.6	7.5	7.5	7.7	7.5	7.6	7.5	7.4	7.5	---	---	---
18	7.7	7.6	7.6	7.7	7.6	7.7	7.5	7.4	7.5	---	---	---
19	7.6	7.6	7.6	7.7	7.5	7.6	7.5	7.4	7.5	---	---	---
20	7.7	7.6	7.6	7.6	7.5	7.6	7.5	7.5	7.5	---	---	---
21	7.7	7.6	7.6	7.6	7.5	7.6	7.6	7.5	7.5	---	---	---
22	7.7	7.5	7.6	7.6	7.5	7.5	7.6	7.5	7.6	---	---	---
23	7.6	7.5	7.5	7.6	7.5	7.5	7.7	7.6	7.6	---	---	---
24	7.6	7.5	7.6	7.7	7.5	7.6	7.7	7.6	7.6	---	---	---
25	7.6	7.4	7.6	7.7	7.6	7.6	7.7	7.6	7.7	---	---	---
26	7.5	7.4	7.5	7.7	7.6	7.6	7.7	7.6	7.6	---	---	---
27	7.5	7.2	7.4	7.7	7.6	7.6	7.7	7.3	7.5	7.3	7.0	7.1
28	7.2	7.0	7.0	7.7	7.6	7.6	7.6	7.4	7.5	7.5	7.1	7.3
29	---	---	---	7.7	7.7	7.7	7.6	7.5	7.5	7.5	7.0	7.2
30	---	---	---	7.7	7.6	7.7	7.6	7.5	7.5	7.2	7.0	7.1
31	---	---	---	7.7	7.6	7.7	---	---	---	8.0	7.1	7.5
MONTH	7.9	7.0	7.6	7.8	7.0	7.4	7.8	7.3	7.6	8.0	7.0	7.4

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	8.0	7.4	7.7	---	---	---	7.8	7.6	7.8	7.8	7.6	7.7
2	8.1	8.0	8.0	---	---	---	7.7	7.5	7.6	7.7	7.6	7.7
3	8.0	7.8	7.9	---	---	---	7.5	7.2	7.4	7.7	7.6	7.7
4	8.0	7.8	7.9	---	---	---	7.2	7.1	7.2	7.7	7.6	7.7
5	8.0	7.2	7.6	---	---	---	7.2	7.0	7.1	7.8	7.6	7.7
6	---	---	---	---	---	---	7.2	7.0	7.1	7.8	7.7	7.7
7	---	---	---	---	---	---	7.2	7.0	7.1	7.7	7.7	7.7
8	---	---	---	---	---	---	7.2	7.0	7.1	7.8	7.7	7.8
9	---	---	---	---	---	---	7.2	7.1	7.2	7.8	7.2	7.5
10	---	---	---	---	---	---	7.4	7.1	7.2	7.3	7.1	7.2
11	---	---	---	---	---	---	7.4	7.1	7.3	7.7	7.2	7.5
12	---	---	---	7.9	7.3	7.5	7.6	7.2	7.4	7.7	7.5	7.6
13	---	---	---	7.8	7.4	7.6	7.7	7.1	7.5	7.9	7.7	7.8
14	---	---	---	7.3	7.0	7.1	---	---	---	8.2	7.9	8.1
15	---	---	---	7.2	7.0	7.0	---	---	---	8.2	7.7	8.0
16	---	---	---	7.8	7.2	7.5	---	---	---	8.1	7.7	7.9
17	---	---	---	7.9	7.8	7.9	---	---	---	7.9	7.6	7.7
18	---	---	---	8.0	7.9	7.9	---	---	---	7.8	7.7	7.7
19	---	---	---	8.1	7.5	7.8	---	---	---	7.8	7.5	7.6
20	---	---	---	7.6	7.1	7.3	---	---	---	7.6	7.3	7.5
21	---	---	---	8.0	7.3	7.5	---	---	---	7.6	7.3	7.4
22	---	---	---	---	---	---	---	---	---	7.7	7.5	7.6
23	---	---	---	---	---	---	7.8	7.6	7.7	7.7	7.5	7.5
24	---	---	---	---	---	---	7.8	7.5	7.6	7.9	7.5	7.7
25	---	---	---	---	---	---	7.9	7.8	7.8	7.8	7.5	7.7
26	---	---	---	---	---	---	7.9	7.8	7.9	7.8	7.7	7.7
27	---	---	---	7.7	7.4	7.6	7.9	7.8	7.8	7.8	7.6	7.7
28	---	---	---	7.6	7.3	7.5	7.8	7.7	7.7	8.3	7.6	7.9
29	---	---	---	7.6	7.4	7.5	7.7	7.6	7.7	8.2	8.0	8.1
30	---	---	---	7.5	7.2	7.4	7.7	7.7	7.7	8.1	7.8	8.0
31	---	---	---	7.8	7.5	7.6	7.8	7.7	7.7	---	---	---
MONTH	8.1	7.2	7.8	8.1	7.0	7.5	7.9	7.0	7.5	8.3	7.1	7.7

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1										14.5	14.0	14.5
2										14.5	14.0	14.5
3										14.5	14.5	14.5
4										14.5	14.0	14.5
5										14.5	14.0	14.5
6										14.5	14.0	14.5
7										15.0	14.5	14.5
8										15.5	15.0	15.0
9										16.0	15.5	16.0
10										16.0	16.0	16.0
11										16.0	16.0	16.0
12										16.0	15.5	16.0
13										15.5	15.5	15.5
14										15.5	15.0	15.5
15										15.5	15.5	15.5
16										16.0	15.5	15.5
17										16.0	15.5	16.0
18										15.5	15.5	15.5
19										15.5	15.0	15.5
20										15.0	14.5	15.0
21										14.5	14.5	14.5
22										14.5	14.0	14.5
23										14.5	14.0	14.0
24										14.0	14.0	14.0
25										14.5	14.0	14.5
26										14.5	14.5	14.5
27										15.0	14.5	14.5
28										15.0	15.0	15.0
29										16.0	15.0	15.5
30										16.5	16.0	16.0
31										17.0	16.0	16.5
MONTH										17.0	14.0	15.0

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	17.0	16.5	17.0	17.0	15.5	16.0	16.5	15.0	16.0	24.0	23.0	23.5
2	17.0	16.5	16.5	16.5	15.5	16.0	16.5	16.0	16.0	24.0	23.0	23.5
3	17.0	16.5	17.0	16.5	15.5	16.0	17.0	16.0	16.5	24.5	23.5	24.0
4	17.5	17.0	17.5	16.5	16.0	16.5	17.0	16.0	16.5	24.0	24.0	24.0
5	17.5	17.5	17.5	17.0	16.0	16.5	16.5	16.0	16.0	24.5	23.5	24.0
6	17.0	16.5	17.0	17.0	16.5	17.0	16.0	15.5	16.0	24.0	23.5	24.0
7	17.5	16.5	16.5	17.5	16.5	17.0	17.0	16.0	16.5	24.0	23.0	23.5
8	16.5	15.5	16.0	18.0	17.0	17.5	17.5	16.0	16.5	23.5	23.0	23.5
9	16.0	15.0	15.5	18.0	17.5	18.0	18.0	17.0	17.5	23.5	23.0	23.0
10	16.0	15.0	15.5	18.0	17.5	18.0	19.5	18.0	18.5	23.5	23.0	23.5
11	17.0	16.0	16.5	17.5	17.0	17.5	20.5	19.5	20.0	24.0	23.5	23.5
12	17.5	16.5	17.0	17.0	16.5	17.0	22.0	20.5	21.0	24.5	24.0	24.0
13	18.5	17.5	18.0	17.0	16.5	16.5	23.0	22.0	22.5	24.5	24.5	24.5
14	19.0	18.0	18.5	16.5	16.0	16.5	22.5	22.0	22.0	25.0	24.5	25.0
15	19.0	18.5	19.0	17.5	16.5	17.0	22.0	21.5	22.0	25.5	25.0	25.0
16	18.5	18.0	18.0	18.5	17.5	18.0	22.0	21.5	22.0	25.5	25.5	25.5
17	18.0	16.5	17.5	19.0	18.5	18.5	22.0	21.0	21.5	25.5	25.0	25.5
18	16.5	16.0	16.5	19.5	18.5	19.0	22.0	21.0	21.5	26.0	25.5	26.0
19	16.0	15.5	15.5	19.5	19.0	19.5	23.5	21.5	22.0	26.5	25.0	26.0
20	15.5	14.5	15.0	20.0	18.5	19.5	23.5	22.0	22.5	26.0	23.0	25.5
21	14.5	14.0	14.5	20.0	19.5	19.5	23.5	22.0	22.5	23.5	22.5	23.0
22	14.5	14.0	14.5	20.5	19.5	20.0	23.0	22.5	23.0	24.5	22.0	22.5
23	14.5	14.0	14.0	21.0	20.0	20.5	23.0	22.5	22.5	25.5	24.5	25.0
24	15.0	14.0	14.5	20.5	19.5	20.0	23.0	22.0	22.5	26.0	25.5	25.5
25	16.5	15.0	15.5	20.0	19.5	20.0	22.5	22.0	22.5	26.5	25.5	26.0
26	15.0	14.0	14.5	19.5	18.5	19.0	22.5	22.0	22.0	26.5	26.0	26.5
27	16.0	14.5	15.0	19.0	18.0	18.5	23.0	22.0	22.5	26.5	26.0	26.5
28	15.5	14.5	15.0	18.5	18.0	18.5	23.0	22.0	22.5	26.0	26.0	26.0
29	---	---	---	18.0	17.0	17.5	24.0	23.0	23.0	26.0	25.0	25.5
30	---	---	---	17.0	16.0	16.5	24.0	23.0	23.0	25.0	22.5	24.5
31	---	---	---	16.5	15.5	16.0	---	---	---	22.5	22.0	22.0
MONTH	19.0	14.0	16.5	21.0	15.5	18.0	24.0	15.0	20.5	26.5	22.0	24.5

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

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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										---	---	---
15										---	---	---
16										---	---	---
17										---	---	---
18										---	---	---
19										---	---	---
20										---	---	---
21										---	---	---
22										---	---	---
23										---	---	---
24										---	---	---
25										---	---	---
26										---	---	---
27										---	---	---
28										---	---	---
29										---	---	---
30										5.5	4.6	4.9
31										5.3	4.6	5.0
MONTH										5.5	4.6	5.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	5.6	4.4	5.1	6.2	4.0	5.4	5.1	4.1	4.6	3.2	2.4	2.7
2	5.2	4.7	5.0	6.5	4.5	5.6	4.6	3.8	4.3	3.3	2.3	2.7
3	5.5	4.7	5.1	6.2	4.8	5.5	4.8	3.9	4.2	3.2	2.3	2.6
4	5.6	4.6	5.1	6.3	5.0	5.8	5.8	3.9	4.4	3.0	2.2	2.5
5	5.8	4.7	5.1	6.1	4.8	5.5	4.7	3.9	4.4	3.3	2.4	2.7
6	5.2	3.8	4.5	6.2	5.2	5.6	4.4	4.1	4.2	2.5	1.2	1.9
7	5.0	.2	2.9	5.3	4.8	5.1	4.4	3.7	4.1	1.4	.2	.9
8	5.3	1.8	3.8	5.1	4.5	4.8	4.3	3.3	3.9	1.1	.2	.7
9	5.3	4.6	5.0	4.8	4.2	4.6	4.0	2.8	3.3	2.3	1.2	1.6
10	5.4	4.6	4.9	4.9	3.7	4.4	4.0	2.7	3.2	2.1	1.6	1.9
11	5.5	4.3	4.8	4.9	4.2	4.5	3.9	2.9	3.1	2.2	1.5	2.0
12	4.9	3.1	4.1	4.7	3.8	4.3	3.8	2.7	3.0	2.6	2.0	2.4
13	4.2	3.5	3.9	4.5	3.5	4.2	3.6	2.7	3.0	2.8	2.2	2.5
14	4.0	2.9	3.5	4.4	3.6	4.0	4.1	2.8	3.3	2.9	2.2	2.4
15	3.9	2.9	3.5	4.2	3.9	4.0	4.3	3.1	3.5	2.1	.5	1.6
16	3.9	3.0	3.5	4.0	3.7	3.9	4.3	3.2	3.5	1.5	.0	.4
17	4.6	.2	2.5	4.0	3.0	3.5	4.2	2.7	3.4	1.9	1.1	1.6
18	4.7	3.7	4.2	3.9	2.6	3.4	4.4	3.2	3.6	2.2	1.5	1.8
19	4.7	3.9	4.2	2.5	.8	1.8	4.1	3.0	3.5	2.1	1.6	1.8
20	4.7	4.1	4.4	3.2	2.5	2.8	4.3	2.9	3.5	2.2	.9	1.9
21	4.6	4.3	4.4	3.1	2.7	2.9	3.4	2.9	3.2	---	---	---
22	4.7	3.3	4.2	3.2	2.8	3.0	3.8	2.8	3.2	---	---	---
23	5.1	4.3	4.6	3.3	2.6	2.9	4.2	3.0	3.4	---	---	---
24	6.2	4.1	4.8	3.8	2.5	3.0	3.8	2.9	3.3	---	---	---
25	4.8	.9	4.0	3.9	3.1	3.4	3.2	2.8	3.0	---	---	---
26	7.0	3.6	6.2	3.9	2.9	3.2	3.0	2.2	2.7	---	---	---
27	6.1	3.6	4.8	3.9	3.1	3.5	2.1	.8	1.3	---	---	---
28	6.5	5.7	6.1	3.8	3.1	3.3	3.4	1.8	2.6	---	---	---
29	---	---	---	3.9	3.2	3.5	3.4	2.5	2.8	---	---	---
30	---	---	---	4.0	3.6	3.8	3.6	2.5	2.8	---	---	---
31	---	---	---	4.7	4.0	4.2	---	---	---	---	---	---
MONTH	7.0	.2	4.4	6.5	.8	4.1	5.8	.8	3.4	3.3	.0	1.9

08183500 SAN ANTONIO RIVER NEAR FALLS CITY, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	4.4	3.6	3.9	4.0	1.8	3.0
2	---	---	---	---	---	---	4.4	3.1	3.8	5.4	.9	3.0
3	---	---	---	---	---	---	3.7	3.0	3.4	5.2	3.0	3.7
4	---	---	---	---	---	---	4.2	3.1	3.6	4.1	3.5	3.8
5	---	---	---	---	---	---	4.4	3.2	3.9	3.9	3.5	3.7
6	5.8	4.5	5.3	---	---	---	3.7	2.7	3.2	3.6	3.4	3.5
7	6.1	5.8	6.0	---	---	---	3.6	2.7	3.2	3.8	3.2	3.4
8	5.9	5.4	5.6	---	---	---	3.2	2.5	2.9	4.1	3.1	3.5
9	5.4	4.8	5.2	---	---	---	3.9	2.3	2.9	3.8	.2	1.4
10	5.0	4.8	4.9	---	---	---	3.2	2.3	2.7	1.5	.6	.8
11	4.9	4.3	4.6	---	---	---	4.0	2.6	3.0	2.7	1.0	2.1
12	4.8	4.3	4.6	---	---	---	4.9	3.0	3.6	2.6	1.7	2.3
13	4.9	4.6	4.8	---	---	---	5.0	3.1	3.8	2.8	2.1	2.5
14	5.4	5.0	5.2	4.9	4.7	4.8	4.4	3.0	3.5	3.0	2.1	2.5
15	5.6	5.3	5.4	4.9	4.7	4.8	4.5	2.9	3.4	4.3	2.5	3.2
16	5.4	5.0	5.2	4.9	2.9	4.0	4.7	3.0	3.6	5.2	2.9	3.9
17	5.3	5.1	5.2	4.1	.3	3.0	4.6	3.6	4.0	6.6	3.2	4.4
18	5.2	5.0	5.1	4.8	3.4	4.0	4.9	3.7	4.0	5.0	3.6	4.3
19	5.1	4.8	4.9	5.3	3.6	4.3	4.8	3.3	3.9	5.8	4.3	4.8
20	4.9	4.8	4.8	5.2	3.6	4.4	5.3	4.0	4.4	5.6	4.5	5.0
21	5.0	4.7	4.8	5.0	3.8	4.3	4.4	3.6	4.0	5.8	3.1	4.7
22	4.9	4.7	4.8	4.9	3.8	4.3	5.1	3.8	4.5	5.7	4.5	5.1
23	4.9	4.5	4.7	4.4	3.6	3.9	5.3	3.5	4.1	5.3	4.2	4.7
24	4.6	4.1	4.4	4.3	3.4	3.7	4.1	3.1	3.5	5.4	4.3	4.8
25	---	---	---	4.2	3.0	3.4	4.3	2.9	3.4	4.8	3.4	4.3
26	---	---	---	4.2	3.2	3.6	4.8	2.8	3.6	4.6	3.3	3.6
27	---	---	---	4.3	3.4	3.6	5.8	3.5	4.5	4.2	3.2	3.5
28	---	---	---	4.6	3.3	3.9	5.0	3.6	4.2	4.8	3.3	3.9
29	---	---	---	4.5	3.4	3.9	3.8	2.2	3.1	4.8	3.4	3.9
30	---	---	---	4.4	2.8	3.4	4.5	3.2	3.6	6.0	4.7	5.3
31	---	---	---	4.3	2.9	3.5	4.4	3.3	3.6	---	---	---
MONTH	6.1	4.1	5.0	5.3	.3	3.9	5.8	2.2	3.6	6.6	.2	3.6

08183900 CIBOLO CREEK NEAR BOERNE, TX

LOCATION.--Lat 29°46'26", long 98°41'50", Kendall County, Hydrologic Unit 12100304, on left bank 0.6 mi upstream from Southern Pacific Lines bridge, 0.9 mi downstream from Menger Creek, and 2.5 mi southeast of Boerne.

DRAINAGE AREA.--68.4 mi².

PERIOD OF RECORD.--March 1962 to current year.

REVISED RECORDS.--WDR TX-73-1: 1964-65, 1966(P), 1968-72(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,339.61 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for Dec. 21-31, which are poor. No known diversion above station. Flow is affected at times by discharge from the flood-detention pools of four floodwater-retarding structures with a combined detention capacity of 8,850 acre-ft. These structures control runoff from 34.0 mi². An observation of water temperature was made during the year.

AVERAGE DISCHARGE.--25 years, 30.1 ft³/s (5.98 in/yr), 21,810 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,400 ft³/s Sept. 27, 1964 (gage height, 19.15 ft, from floodmark), from rating curve extended above 2,500 ft³/s on basis of slope-area measurement at 12,000 ft³/s and contracted-opening measurement of 36,400 ft³/s; no flow at times in 1962-64, 1966-67, 1971, and 1984.
Maximum stage since at least 1892, that of Sept. 27, 1964.

EXTREMES OUTSIDE PERIOD OF RECORDS.--The second highest flood occurred in 1952, and reached a stage of 16.3 ft (discharg 25,600 ft³/s), from information by local residents.

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)
Oct. 12	0545	1,560	5.05	June 4	0445	*4,410	*7.42
Dec. 22	Unknown	3,560	a6.68	June 10	1045	1,510	5.00
May 29	0900	4,100	7.15	June 11	1130	2,940	6.19
June 3	1845	1,910	5.35	June 13	0315	1,200	4.69

a From floodmark.

Minimum daily discharge, 4.2 ft³/s Sept. 27.

DISCHARGE, IN 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	7.6	91	37	e160	38	101	39	18	464	56	19	7.8
2	7.3	85	36	e150	39	91	39	18	328	50	16	6.9
3	6.8	81	36	e140	38	87	35	19	875	46	15	6.0
4	6.4	109	34	e130	37	81	31	24	2110	42	14	5.2
5	25	96	34	e120	54	76	34	13	917	38	13	5.2
6	101	79	35	e112	61	75	39	12	555	34	13	4.5
7	46	80	45	e105	48	72	33	11	413	31	13	9.2
8	36	76	42	e99	43	69	29	8.9	339	29	12	5.2
9	32	71	40	94	39	68	28	8.7	324	34	13	6.0
10	27	67	39	e88	39	66	28	8.9	718	32	13	5.2
11	147	63	e39	e81	39	101	28	8.9	1340	30	14	22
12	799	59	e39	e76	39	75	29	9.4	538	28	17	7.3
13	328	57	e38	71	40	69	37	11	643	27	19	6.0
14	185	55	e38	67	41	67	33	12	409	25	18	5.6
15	134	54	e37	65	48	65	30	12	314	26	18	4.9
16	107	54	e37	62	40	67	29	19	260	27	16	5.2
17	90	54	e36	71	38	81	28	7.5	225	28	14	4.9
18	77	53	e36	67	37	68	25	6.4	197	26	13	7.2
19	69	51	e35	58	36	64	22	29	172	25	12	6.0
20	64	48	e35	53	48	63	21	60	150	22	11	5.2
21	67	46	e200	52	40	64	21	41	136	23	10	5.2
22	e90	45	e1500	51	37	62	21	26	125	26	9.4	4.9
23	e110	45	e1000	47	35	59	20	16	113	26	8.3	4.5
24	149	46	e600	46	129	50	20	11	102	23	7.8	4.5
25	174	63	e400	44	106	46	22	9.3	93	23	7.3	4.5
26	160	51	e340	39	238	44	23	8.5	86	22	6.9	4.5
27	137	45	e290	39	137	42	23	7.4	74	21	6.4	4.2
28	120	44	e250	39	124	43	21	6.7	63	20	6.4	4.5
29	109	41	e220	39	---	47	20	1250	62	21	6.4	4.9
30	100	39	e200	39	---	44	18	1020	57	20	7.3	4.9
31	93	---	e180	37	---	41	---	942	---	20	8.9	---
TOTAL	3604.1	1848	5928	2341	1688	2048	826	3654.6	12202	901	378.1	182.1
MEAN	116	61.6	191	75.5	60.3	66.1	27.5	118	407	29.1	12.2	6.07
MAX	799	109	1500	160	238	101	39	1250	2110	56	19	22
MIN	6.4	39	34	37	35	41	18	6.4	57	20	6.4	4.2
AC-FT	7150	3670	11760	4640	3350	4060	1640	7250	24200	1790	750	361
CFSM	1.70	.90	2.80	1.10	.88	.97	.40	1.72	5.95	.42	.18	.09
IN.	1.96	1.01	3.22	1.27	.92	1.11	.45	1.99	6.64	.49	.21	.10

CAL YR 1986	TOTAL	19576.5	MEAN	53.6	MAX	1500	MIN	6.0	AC-FT	38830	CFSM	.78	IN.	10.6
WTR YR 1987	TOTAL	35600.8	MEAN	97.5	MAX	2110	MIN	4.2	AC-FT	70610	CFSM	1.43	IN.	19.4

e Estimated.

08185000 CIBOLO CREEK AT SELMA, TX

LOCATION.--Lat 29°35'38", long 98°18'39", Bexar-Guadalupe County line, Hydrologic Unit 12100304, on right bank 0.6 mi downstream from Missouri-Kansas-Texas Railroad Co. bridge and 0.9 mi upstream from bridge on Interstate Highway 35 at Selma.

DRAINAGE AREA.--274 mi².

PERIOD OF RECORD.--March 1946 to current year. Figures for water year 1960 in WSP 1813 are in error and should be disregarded.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 728.34 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Small diversion above station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08183900. Considerable flow of Cibolo Creek enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between this station and the station near Boerne (station 08183900).

AVERAGE DISCHARGE.--41 years, 16.5 ft³/s (11,950 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,000 ft³/s July 16, 1973 (gage height, 26.2 ft, from floodmark), from rating curve extended above 16,000 ft³/s on basis of field estimate of 54,000 ft³/s and contracted-opening measurement of 65,000 ft³/s; no flow most of time.
Maximum stage since at least 1869, that of July 16, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 26 ft occurred in 1889, but stage for flood in 1913 is unknown, from information by local residents.

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)
Dec. 22	1900	566	5.08	June 3	0100	786	5.42
Dec. 23	0700	2,400	7.30	June 3	1500	677	5.26
May 30	1000	979	5.69	June 4	1300	*19,000	a*15.41
June 1	1200	1,040	5.78	June 12	0100	9,170	11.45
June 2	0800	891	5.57				

a From floodmark.

Minimum daily discharge, no flow most of year.

DISCHARGE, IN 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	.00	.00	.00	.00	.00	.00	775	7.7	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	562	1.8	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	557	.35	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	9550	.1	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	2700	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	1290	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	822	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	580	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	465	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	801	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	3320	.00	.00	.00
12	11	.00	.00	.00	.00	.00	.00	.00	3030	.00	.00	.00
13	93	.00	.00	.00	.00	.00	.00	.00	1440	.00	.00	.00
14	58	.00	.00	.00	.00	.00	.00	.00	1030	.00	.00	.00
15	.21	.00	.00	.00	.00	.00	.00	.00	708	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	530	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	411	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	324	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	261	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	219	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	187	.00	.00	.00
22	.00	.00	202	.00	.00	.00	.00	.00	158	.00	.00	.00
23	.00	.00	1550	.00	.00	.00	.00	.00	134	.00	.00	.00
24	.00	.00	607	.00	.00	.00	.00	.00	113	.00	.00	.00
25	.00	.00	346	.00	.00	.00	.00	.00	92	.00	.00	.00
26	.00	.00	217	.00	15	.00	.00	.00	73	.00	.00	.00
27	.00	.00	161	.00	.00	.00	.00	.00	62	.00	.00	.00
28	.00	.00	93	.00	.00	.00	.00	.00	47	.00	.00	.00
29	.00	.00	48	.00	---	.00	.00	21	35	.00	.00	.00
30	.00	.00	18	.00	---	.00	.00	453	19	.00	.00	.00
31	.00	---	2.6	.00	---	.00	---	623	---	.00	.00	---
TOTAL	162.21	.00	3244.60	.00	15.00	.00	.00	1097.00	30295	9.95	.00	.00
MEAN	5.23	.00	105	.00	.54	.00	.00	35.4	1010	.32	.00	.00
MAX	93	.00	1550	.00	15	.00	.00	623	9550	7.7	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	19	.00	.00	.00
AC-FT	322	.00	6440	.00	30	.00	.00	2180	60090	20	.00	.00

CAL YR 1986	TOTAL	3545.69	MEAN	9.71	MAX	1550	MIN	.00	AC-FT	7030
WTR YR 1987	TOTAL	34823.73	MEAN	95.4	MAX	9550	MIN	.00	AC-FT	69070

08186000 CIBOLO CREEK NEAR FALLS CITY, TX

LOCATION.--Lat 29°00'50", long 97°55'48", Karnes County, Hydrologic Unit 12100304, on right bank at downstream side of pier of bridge on State Highway 123, 5.7 mi northeast of Falls City, and 10.4 mi upstream from mouth.

DRAINAGE AREA.--827 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 733: 1931. WSP 1058: 1935. WSP 1562: 1931(M), 1933. WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 264.28 ft above National Geodetic Vertical Datum of 1929. Nov. 4, 1930, to Aug. 4, 1940, water-stage recorder at site 1,600 ft upstream at datum 0.56 ft higher. Aug. 5 to Sept. 13, 1940, nonrecording gage at present site and datum.

REMARKS.--Records good. There are several diversions for irrigation above station. Much of the base flow is effluent from the Carrizo Sands in the vicinity of Sutherland Springs. Flow is affected at times by discharge from the flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 16,620 acre-ft. These structures control runoff from 62.9 mi². Satellite telemeter at station.

AVERAGE DISCHARGE.--57 years, 125 ft³/s (90,560 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,600 ft³/s July 6, 1942 (gage height, 34.45 ft); maximum gage height, 35.44 ft Sept. 28, 1973; no flow July 30, 31, Aug. 4-22, 1956, and Aug. 1, 1971.
Maximum stage since at least 1890, that of Sept. 28, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--In October 1913, a stage of 35 ft occurred (discharge, about 35,000 ft³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Dec. 24	0500	8,410	22.26	June 4	0700	*13,500	*26.94
May 21	0800	9,540	24.02	June 6	0800	9,460	23.95
June 2	0700	8,010	22.69	June 11	2300	11,800	25.75

Minimum daily discharge, 25 ft³/s Oct. 1, 5.

DISCHARGE, IN 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	25	42	40	190	62	744	54	42	4430	162	84	73
2	26	38	37	163	60	265	54	41	6510	150	82	70
3	27	36	35	145	60	183	53	40	7080	140	81	61
4	26	34	34	129	60	150	51	39	11200	131	79	55
5	25	34	33	116	67	130	51	44	5990	124	78	53
6	30	34	31	108	72	116	53	70	7770	118	77	51
7	39	44	31	103	73	106	54	100	2790	113	74	51
8	38	41	31	99	82	99	55	165	1410	109	71	51
9	57	39	30	94	78	92	54	95	1350	110	69	51
10	52	37	33	89	71	88	52	75	2450	112	67	54
11	70	34	34	85	67	88	51	61	6880	134	66	56
12	84	35	31	82	65	84	50	53	9510	126	65	52
13	312	35	30	80	64	87	50	49	6160	111	64	49
14	262	36	37	79	65	87	47	48	3070	106	63	47
15	169	36	267	77	72	83	47	45	1810	103	62	46
16	141	36	413	76	75	81	46	52	1130	255	62	45
17	120	38	234	131	100	82	45	47	837	167	61	43
18	104	38	140	382	94	85	43	44	664	117	60	42
19	89	39	106	229	84	96	42	44	521	103	58	46
20	78	38	97	144	83	89	42	1770	425	97	58	50
21	66	35	91	110	82	84	41	7240	370	94	57	54
22	e120	33	1620	94	105	79	42	626	324	92	61	49
23	e100	34	4600	85	99	76	42	365	288	92	60	45
24	e85	66	6210	82	200	73	42	295	259	96	58	41
25	e72	298	1420	78	460	69	51	261	246	91	57	40
26	e63	62	687	72	2560	65	46	227	240	89	56	39
27	e60	67	515	69	2940	62	69	176	330	91	52	42
28	e90	55	424	67	908	60	54	134	219	90	52	75
29	71	49	368	64	---	57	48	147	190	89	52	64
30	55	43	309	63	---	56	44	908	177	88	74	55
31	49	---	238	63	---	54	---	1110	---	85	77	---
TOTAL	2605	1486	18206	3448	8808	3570	1473	14413	84630	3585	2037	1550
MEAN	84.0	49.5	587	111	315	115	49.1	465	2821	116	65.7	51.7
MAX	312	298	6210	382	2940	744	69	7240	11200	255	84	75
MIN	25	33	30	63	60	54	41	39	177	85	52	39
AC-FT	5170	2950	36110	6840	17470	7080	2920	28590	167900	7110	4040	3070

CAL YR 1986	TOTAL	43002	MEAN	118	MAX	6210	MIN	15	AC-FT	85290
WTR YR 1987	TOTAL	145811	MEAN	399	MAX	11200	MIN	25	AC-FT	289200

e Estimated.

08186000 CIBOLO CREEK NEAR FALLS CITY, TX

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1961 to current year. Chemical and biochemical analyses: December 1969 to current year. Sediment analyses: 1960, November 1965 to May 1975.

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

INSTRUMENTATION.--Beginning March 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, 2,270 microsiemens May 20, 21, 1971; minimum, 115 microsiemens Dec. 22, 23, 1986.
WATER TEMPERATURE: Maximum daily, 34.0°C July 31, Aug. 8, 9, 1980; minimum, 0.0°C Dec. 25, 26, 1983.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 1,580 microsiemens Feb. 24; minimum, 115 microsiemens Dec. 22, 23.
WATER TEMPERATURE: Maximum, 31.5°C Aug. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT										
23...	1054	101	643	9.00	21.5	8.5	98	2.2	200	58
DEC										
10...	1255	34	1210	8.20	13.0	8.8	84	1.3	360	120
FEB										
06...	1055	71	1220	8.10	14.5	10.2	101	1.9	380	140
MAY										
14...	1110	56	1040	8.00	27.0	8.3	105	1.4	300	110
JUL										
08...	0930	61	1190	8.10	27.5	7.2	92	0.1	390	180
SEP										
04...	0815	59	1170	8.10	24.5	6.8	82	0.8	360	120

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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT									
23...	63	11	54	2	6.9	145	100	55	0.30
DEC									
10...	110	21	110	3	6.7	246	180	130	0.40
FEB									
06...	120	20	110	3	5.9	240	210	130	0.40
MAY									
14...	91	17	97	3	6.8	183	170	110	0.20
JUL									
08...	120	21	91	2	5.0	204	200	110	0.30
SEP									
04...	110	21	110	3	5.7	242	180	110	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)
OCT									
23...	14	390	1.42	0.180	1.60	0.100	0.50	0.60	0.690
DEC									
10...	4.7	710	1.98	0.020	2.00	0.050	0.65	0.70	0.850
FEB									
06...	2.4	740	1.58	0.020	1.60	0.060	0.74	0.80	0.270
MAY									
14...	18	620	1.65	0.050	1.70	0.090	1.0	1.1	0.570
JUL									
08...	19	690	2.09	0.010	2.10	0.040	0.66	0.70	0.170
SEP									
04...	15	700	2.18	0.020	2.20	0.050	0.45	0.50	0.260

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	2605	1020	622	4370	110	781	160	1140	310
NOV.	1986	1486	864	520	2090	89	357	130	527	270
DEC.	1986	18206	263	153	7540	21	1040	34	1650	88
JAN.	1987	3448	898	540	5030	92	855	140	1270	280
FEB.	1987	8808	496	297	7060	48	1150	73	1730	160
MAR.	1987	3570	853	514	4960	89	854	130	1260	260
APR.	1987	1473	1320	809	3220	160	617	220	881	380
MAY	1987	14413	428	253	9860	39	1510	59	2310	140
JUNE	1987	84630	304	177	40500	24	5500	38	8780	100
JULY	1987	3585	1040	627	6070	110	1070	160	1560	320
AUG.	1987	2037	1150	698	3840	130	698	180	1010	340
SEPT	1987	1550	1160	707	2960	130	541	190	783	350
TOTAL		145811	**	**	97500	**	15000	**	22900	**
WTD.AVG.		399	418	248	**	38	**	58	**	140

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	OCTOBER MAX	OCTOBER MIN	OCTOBER MEAN	NOVEMBER MAX	NOVEMBER MIN	NOVEMBER MEAN	DECEMBER MAX	DECEMBER MIN	DECEMBER MEAN	JANUARY MAX	JANUARY MIN	JANUARY MEAN
1	1450	1440	1460	910	870	887	1110	1060	1080	560	510	532
2	1460	1440	1450	940	900	916	1110	1090	1100	600	550	579
3	1460	1450	1450	960	930	943	1120	1100	1110	650	590	623
4	1460	1450	1460	980	960	968	1130	1110	1120	670	640	656
5	1470	1460	1470	990	970	986	1130	1120	1130	700	670	683
6	1490	1470	1480	990	950	966	1130	1110	1120	740	700	718
7	1490	1480	1480	990	960	973	1140	1110	1120	760	730	748
8	1490	1480	1480	980	960	971	1170	1130	1150	800	760	780
9	1500	1480	1490	990	980	986	1190	1160	1170	820	790	805
10	1500	1480	1490	1020	990	1000	1190	1180	1190	840	810	827
11	1490	1460	1470	1040	1010	1020	1180	1150	1160	860	840	849
12	1510	1460	1480	1050	1030	1040	1160	1140	1150	880	850	864
13	1510	970	1280	1050	1040	1040	1180	1160	1160	900	880	889
14	960	810	868	1060	1040	1050	1180	1130	1150	910	890	904
15	860	820	844	1060	1050	1050	1350	387	714	940	910	923
16	870	860	866	1080	1060	1060	810	512	651	950	930	941
17	880	860	871	1090	1070	1080	648	512	591	970	950	961
18	890	870	880	1090	1070	1080	617	533	566	990	970	980
19	920	890	902	1110	1090	1100	627	544	579	1010	990	1000
20	930	920	922	1120	1100	1110	700	627	668	---	---	1020
21	940	930	930	1110	1100	1100	720	638	706	---	---	1040
22	940	930	933	1130	1100	1110	554	115	242	---	---	1060
23	940	720	838	1140	1120	1130	199	115	168	---	---	1080
24	850	710	785	1140	387	1040	199	136	154	---	---	1100
25	850	770	803	575	178	326	261	209	237	---	---	1120
26	810	730	774	850	418	631	303	261	282	---	---	1140
27	820	770	799	1020	860	964	345	303	325	1180	1160	1170
28	850	820	828	1050	990	1020	387	345	367	1200	1170	1190
29	820	760	787	1020	940	985	429	387	407	1240	1210	1220
30	810	760	781	1070	1020	1040	481	429	456	1250	1230	1240
31	860	810	841	---	---	---	523	481	502	1260	1240	1250
MONTH	1510	710	1100	1140	178	986	1350	115	759	1260	510	932

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1280	1250	1270	429	332	374	1300	1280	1290	1310	1270	1290
2	1300	1280	1290	538	419	477	1300	1290	1300	1320	1300	1310
3	1310	1280	1290	647	548	595	1310	1290	1300	1320	1310	1320
4	1310	1280	1300	745	658	698	1320	1290	1310	1330	1310	1320
5	1380	1150	1280	823	745	781	1320	1310	1320	1360	1220	1330
6	1270	1220	1240	878	823	848	1330	1310	1320	1320	1210	1260
7	1280	1250	1260	923	878	905	1320	1310	1320	1220	1080	1170
8	1270	1220	1240	969	924	945	1330	1310	1320	1180	931	993
9	1220	1170	1190	1010	958	989	1330	1300	1320	1020	942	980
10	1240	1190	1210	1040	1000	1020	1330	1290	1320	1020	900	973
11	1270	1240	1260	1200	1020	1070	1350	1310	1330	957	901	926
12	1290	1270	1280	1090	1050	1070	1370	1320	1340	935	902	917
13	1330	1290	1310	1100	1070	1090	1360	1340	1350	1010	914	967
14	1340	1320	1330	1090	1070	1080	1360	1330	1340	1050	1010	1030
15	1310	1290	1300	1120	1080	1100	1360	1330	1350	1110	1050	1070
16	1320	1290	1300	1160	1120	1130	1370	1340	1360	1160	1120	1140
17	1310	1220	1280	1160	1130	1150	1360	1350	1360	1170	1140	1150
18	1220	1160	1180	1170	1130	1150	1370	1340	1360	1180	1150	1170
19	1210	1180	1190	1150	1090	1120	1370	1350	1360	1180	1170	1170
20	1300	1210	1260	1120	1100	1110	1370	1350	1360	1170	124	676
21	1290	1260	1280	1180	1120	1140	1360	1340	1350	283	124	177
22	1280	1190	1250	1210	1170	1180	1350	1320	1340	522	317	442
23	1190	1120	1150	1230	1200	1210	1350	1330	1340	603	522	560
24	1580	563	861	1230	1210	1220	1350	1330	1340	661	603	638
25	990	373	773	1220	1200	1220	1340	1280	1320	697	673	686
26	309	213	250	1240	1210	1230	1310	1260	1290	733	697	716
27	278	235	256	1260	1240	1250	1310	1230	1270	945	733	824
28	364	257	298	1290	1250	1270	1250	1230	1240	1060	945	1000
29	---	---	---	1280	1250	1270	1240	1220	1230	1340	1010	1080
30	---	---	---	1290	1270	1280	1270	1230	1250	1070	295	652
31	---	---	---	1290	1280	1290	---	---	---	408	170	338
MONTH	1580	213	1120	1290	332	1040	1370	1220	1320	1360	124	944
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	316	147	221	996	975	983	1130	1030	1120	1150	1100	1120
2	281	214	233	1020	985	1000	1140	1110	1130	1110	973	1040
3	225	157	183	1050	1020	1030	1140	1050	1130	1140	1090	1110
4	223	168	196	1070	1050	1060	1150	1110	1140	1170	1140	1150
5	323	212	262	1090	1070	1080	1170	1020	1120	1190	1170	1180
6	311	245	264	1110	1090	1100	1150	1070	1110	1190	1170	1180
7	465	322	399	1120	1100	1110	1140	1100	1130	1190	1170	1180
8	530	465	499	1130	1110	1120	1140	1110	1130	1200	1180	1190
9	541	462	511	1130	1110	1120	1160	1120	1130	1200	1180	1190
10	407	341	383	1150	1100	1130	1150	1130	1140	1270	1090	1160
11	341	175	244	1130	1050	1090	1160	1140	1150	1170	1070	1130
12	295	197	261	1080	1020	1050	1160	1140	1150	1170	1130	1150
13	338	284	313	1100	1030	1070	1160	1150	1150	1170	1140	1160
14	435	338	377	1110	1050	1090	1160	1150	1150	1190	1160	1180
15	542	435	495	1100	1020	1080	1160	1150	1150	1190	1180	1190
16	606	542	574	1090	824	960	1170	1140	1160	1200	1190	1200
17	648	605	624	901	758	858	1170	1160	1170	1210	1190	1200
18	700	647	672	824	715	762	1170	1160	1160	1220	1200	1210
19	741	699	720	824	748	787	1180	1160	1170	1230	1220	1220
20	762	740	749	968	825	904	1190	1170	1180	1220	1190	1210
21	781	749	761	1030	979	1000	1190	1170	1180	1200	1170	1180
22	801	758	787	1100	1030	1060	1190	1170	1180	1170	1150	1160
23	831	788	798	1120	1090	1100	1180	1160	1170	1170	1150	1160
24	840	798	834	1130	1100	1110	1170	1160	1160	1200	1170	1180
25	870	839	856	1140	1100	1120	1170	1160	1160	1210	1190	1200
26	890	869	878	1130	1080	1110	1180	1170	1170	1220	1210	1210
27	878	761	807	1120	1050	1100	1190	1170	1180	1220	1200	1210
28	971	813	880	1120	1090	1100	1190	1170	1180	1230	1110	1190
29	916	843	882	1150	1050	1120	1200	1180	1190	1130	1070	1100
30	967	925	947	1120	1090	1110	1190	612	1060	1110	866	1030
31	---	---	---	1120	1010	1100	1200	1050	1150	---	---	---
MONTH	971	147	554	1150	715	1050	1200	612	1150	1270	866	1170

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	28.5	26.5	59.0	21.0	18.5	19.5	14.0	11.5	13.0	---	---	---
2	28.5	26.5	27.5	20.5	19.0	20.0	13.5	11.0	12.5	---	---	---
3	28.0	26.5	27.0	20.0	19.0	19.5	13.5	11.0	12.5	---	---	---
4	28.5	26.5	27.5	21.0	19.5	20.5	13.5	11.5	12.5	---	---	---
5	28.5	26.5	27.5	19.5	18.0	19.0	14.5	12.5	13.5	---	---	---
6	27.0	24.0	25.0	18.0	17.5	17.5	14.5	13.5	14.0	---	---	---
7	24.0	23.0	23.5	19.0	17.5	18.0	16.0	14.5	15.5	---	---	---
8	24.0	22.5	23.0	21.0	18.5	19.5	17.5	16.0	16.5	---	---	---
9	25.0	23.0	24.0	21.5	20.0	20.5	17.0	14.5	16.5	---	---	---
10	25.0	23.0	24.0	22.0	20.0	20.5	14.5	11.0	12.5	---	---	---
11	24.0	22.0	23.5	21.0	17.0	18.5	11.0	9.5	10.5	---	---	---
12	23.5	20.0	22.0	16.5	14.0	16.0	11.0	8.5	10.0	---	---	---
13	20.0	18.5	19.5	14.0	11.5	12.5	12.0	9.0	10.5	---	---	---
14	19.5	18.0	19.0	12.0	11.0	11.5	11.5	11.0	11.5	---	---	---
15	19.5	18.0	18.5	13.0	11.5	12.0	13.0	11.5	12.5	---	---	---
16	19.5	18.0	19.0	16.0	13.0	14.5	13.5	12.5	13.0	---	---	---
17	20.0	18.5	19.0	17.5	15.5	16.5	13.0	12.5	12.5	---	---	---
18	20.5	19.0	19.5	19.5	17.0	18.0	13.5	13.0	13.5	---	---	---
19	21.0	19.5	20.0	19.0	17.5	18.5	13.5	12.5	13.0	---	---	---
20	21.5	19.5	20.5	19.5	18.0	19.0	13.0	12.5	13.0	---	---	---
21	20.5	20.0	20.5	18.0	17.5	17.5	13.5	12.0	13.0	---	---	---
22	22.0	20.5	21.0	18.5	17.0	18.0	11.5	8.5	9.5	---	---	---
23	22.5	21.5	22.0	18.0	16.5	17.5	8.5	8.0	8.5	---	---	---
24	22.5	21.0	21.5	16.0	6.5	14.0	9.0	7.5	8.0	---	---	---
25	22.0	20.5	21.0	10.5	6.0	9.0	10.0	8.5	9.0	---	---	---
26	22.0	20.0	20.5	13.5	10.5	12.0	10.5	9.5	10.0	13.0	9.5	11.0
27	21.5	19.5	20.5	14.0	12.5	13.5	11.0	10.5	11.0	14.0	10.5	12.0
28	21.5	19.5	20.5	15.0	13.0	13.5	11.5	11.0	11.0	16.0	12.0	13.5
29	21.0	19.5	20.0	14.5	12.0	13.0	11.5	11.0	11.0	17.0	14.0	15.5
30	21.0	18.5	19.5	14.0	11.0	12.5	11.5	11.0	11.0	16.5	14.5	15.5
31	20.5	18.0	19.5	---	---	---	11.5	10.0	11.0	16.5	14.0	15.0
MONTH	28.5	18.0	23.0	22.0	6.0	16.5	17.5	7.5	12.0	17.0	9.5	14.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	17.0	15.5	16.0	11.5	11.0	11.0	16.0	11.5	13.5	24.5	22.5	23.5
2	17.5	15.0	16.0	12.0	10.0	11.0	15.0	13.5	14.5	25.5	23.0	24.0
3	17.5	15.0	16.0	13.0	11.0	12.0	15.5	12.0	14.0	26.0	24.0	24.5
4	18.5	15.5	17.0	13.5	11.0	12.0	14.0	12.0	13.0	25.0	24.0	24.5
5	17.0	16.5	17.0	14.0	11.5	12.5	13.5	13.0	13.0	25.0	23.0	24.0
6	16.0	14.0	15.0	14.5	12.0	13.0	14.5	12.5	13.5	24.0	23.0	23.5
7	16.0	13.0	14.5	15.0	12.5	13.5	16.0	13.0	14.5	24.5	22.0	23.5
8	17.0	13.5	15.0	15.5	13.0	14.0	17.0	13.0	15.0	25.5	23.5	24.0
9	17.0	14.0	15.0	16.0	13.5	14.5	18.0	14.0	16.0	25.5	23.0	24.0
10	17.5	14.0	15.5	15.5	13.5	14.5	20.0	15.5	17.5	26.5	23.5	24.5
11	19.0	15.5	17.0	14.0	12.5	13.0	21.5	17.0	19.5	26.0	23.5	24.5
12	20.0	17.0	18.0	13.5	12.0	12.5	22.5	19.0	20.5	26.5	23.5	25.0
13	20.0	17.5	19.0	14.5	12.0	13.0	23.0	20.5	21.5	27.0	24.5	25.5
14	20.5	18.0	19.5	14.5	12.0	13.5	21.5	18.5	20.0	28.0	25.0	26.5
15	20.5	18.0	19.0	15.5	13.5	14.5	22.0	17.0	19.5	28.0	25.5	26.5
16	18.5	16.5	17.5	17.0	15.0	16.0	23.0	18.0	20.5	27.5	26.0	26.5
17	17.5	16.0	16.5	18.0	15.5	16.5	23.5	19.0	21.5	28.5	25.0	26.5
18	17.0	14.5	16.0	18.0	15.0	16.5	24.5	20.0	22.0	28.0	26.0	27.0
19	15.5	14.0	15.0	17.0	15.5	16.5	24.0	21.5	22.5	28.5	26.5	27.0
20	14.0	13.0	13.5	19.5	16.0	17.5	24.5	21.5	23.0	26.5	18.5	23.0
21	13.5	13.0	13.0	19.0	17.5	18.0	23.0	21.5	22.5	23.5	18.5	20.5
22	15.0	12.5	13.5	20.0	18.0	19.0	23.5	20.0	21.5	25.0	24.0	24.5
23	15.5	13.5	14.5	20.0	18.0	19.0	23.5	20.5	22.0	25.5	24.0	25.0
24	15.0	14.5	14.5	19.0	16.0	17.5	24.0	21.0	22.5	25.5	25.0	25.5
25	15.0	14.5	15.0	18.0	16.0	17.0	23.0	21.5	22.5	26.5	25.5	25.5
26	14.5	10.0	11.5	17.5	15.5	16.0	24.5	20.5	22.5	26.5	25.5	26.0
27	11.5	9.5	10.5	18.5	15.0	16.5	24.5	20.5	22.5	26.0	25.5	26.0
28	11.5	11.0	11.5	18.5	15.5	17.0	24.5	21.0	22.5	---	---	---
29	---	---	---	16.5	12.5	14.0	25.0	21.5	23.0	---	---	---
30	---	---	---	13.5	10.5	12.0	25.0	21.5	23.0	---	---	---
31	---	---	---	15.0	10.5	12.5	---	---	---	---	---	---
MONTH	20.5	9.5	15.5	20.0	10.0	14.5	25.0	11.5	19.5	28.5	18.5	25.0

08186000 CIBOLO CREEK NEAR FALLS CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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

08186500 ECLETO CREEK NEAR RUNGE, TX

LOCATION.--Lat 28°55'12", long 97°46'19", Karnes County, Hydrologic Unit 12100303, on left bank 55 ft downstream from Farm Road 81, 215 ft to left of left end of bridge, 2.6 mi upstream from Salt Branch, 4.5 mi northwest of Runge, and 5.2 mi upstream from mouth.

DRAINAGE AREA.--239 mi².

PERIOD OF RECORD.--March 1962 to current year.
Water-quality records.--Sediment records: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 215.03 ft above National Geodetic Vertical Datum of 1929, from State Department of Highways and Public Transportation datum.

REMARKS.--No estimated daily discharges. Records good.

AVERAGE DISCHARGE.--25 years, 39.5 ft³/s (2.24 in/yr), 28,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 74,000 ft³/s Aug. 31, 1981 (gage height, 34.10 ft, from floodmark), from rating curve extended above 7,300 ft³/s on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information begins with the flood in June 1903, which reached a stage of 34 ft (discharge, 71,000 ft³/s). A stage of 32 ft (discharge, 39,000 ft³/s) occurred in September 1952, from information by local residents.

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)
Dec. 23	1030	2,920	16.56	June 4	1200	4,320	19.62
Feb. 26	2300	2,080	14.09	June 12	1400	*7,780	*23.65
June 2	0300	1,480	12.20				

Minimum daily discharge, no flow Oct. 1-10.

DISCHARGE, IN 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	1.1	3.1	12	3.4	253	3.0	.64	1340	12	2.4	.89
2	.00	.50	2.1	11	3.2	89	3.0	.64	1090	11	2.4	.44
3	.00	.30	1.4	11	3.1	36	3.0	.51	2080	11	2.6	.30
4	.00	.22	1.6	9.8	3.0	21	2.8	.48	4080	9.8	2.5	.24
5	.00	.17	1.3	9.0	3.5	16	2.8	3.7	3040	8.9	2.1	.24
6	.00	.12	.92	8.2	7.6	14	2.9	32	1150	8.4	1.7	.21
7	.00	.12	.83	7.6	6.0	12	3.0	5.7	566	7.6	1.6	.27
8	.00	.11	.82	7.0	4.9	11	2.8	9.9	332	6.9	1.5	.22
9	.00	.11	.92	6.6	3.6	10	2.7	3.4	333	6.6	1.4	.15
10	.00	.15	.45	6.2	3.3	9.8	2.6	1.5	475	6.7	1.4	.22
11	2.0	.19	.40	5.6	3.1	11	2.4	.85	1850	6.7	1.2	.88
12	13	.24	.38	5.1	2.8	11	2.5	.60	6580	6.5	1.2	.54
13	13	.37	.35	4.8	2.7	9.8	2.4	.50	3220	5.9	.98	.94
14	25	.38	.60	4.7	2.6	9.0	2.0	.43	413	5.4	.83	.62
15	15	.38	38	4.5	3.1	8.3	1.9	.37	322	5.0	.75	.53
16	8.2	.38	313	12	3.2	8.1	1.6	.34	256	4.7	.76	.42
17	3.0	.38	90	111	3.2	8.0	1.4	.45	196	4.7	.65	.33
18	.99	.38	25	191	3.2	7.3	1.2	.40	103	4.7	.65	.31
19	.43	.38	26	57	3.4	6.8	1.8	.27	152	4.2	.61	.41
20	.26	.39	23	27	5.2	7.3	1.3	.24	127	3.9	.78	.31
21	.24	.48	13	16	5.3	6.7	1.2	.26	51	3.8	.81	.24
22	2.5	.56	419	12	7.3	6.3	.99	.27	32	3.9	.74	.21
23	47	.58	2650	10	7.9	5.9	.82	.27	25	4.2	.79	.18
24	42	.84	1480	8.9	51	4.7	1.2	1.5	21	3.8	.81	.17
25	15	293	212	7.3	209	4.6	.94	1.5	19	3.7	.70	.18
26	8.4	243	54	6.1	1510	4.1	.78	.74	21	3.8	.64	.16
27	8.4	32	27	4.9	1680	4.0	.64	.46	17	3.7	.56	.17
28	11	14	18	4.4	495	3.8	.62	.37	17	3.9	1.1	.22
29	9.0	8.8	16	4.4	---	3.5	.62	2.1	18	3.6	.70	.20
30	5.1	4.9	14	3.8	---	3.2	.48	6.6	14	3.2	.75	.20
31	2.7	---	14	3.4	---	3.1	---	102	---	2.7	.76	---
TOTAL	232.22	604.53	5447.17	592.3	4039.6	608.3	55.39	178.99	27940	180.9	36.37	10.40
MEAN	7.49	20.2	176	19.1	144	19.6	1.85	5.77	931	5.84	1.17	.35
MAX	47	293	2650	191	1680	253	3.0	102	6580	12	2.6	.94
MIN	.00	.11	.35	3.4	2.6	3.1	.48	.24	14	2.7	.56	.15
AC-FT	461	1200	10800	1170	8010	1210	110	355	55420	359	72	21
CFSM	.0	.08	.74	.08	.60	.08	.0	.0	3.90	.0	.0	.0
IN.	.0	.09	.85	.09	.63	.09	.0	.0	4.35	.0	.0	.0

CAL YR 1986 TOTAL 6901.71 MEAN 18.9 MAX 2650 MIN .00 AC-FT 13690 CFSM .08 IN. 1.07
WTR YR 1987 TOTAL 39925.77 MEAN 109 MAX 6580 MIN .00 AC-FT 79190 CFSM .46 IN. 6.21

08188500 SAN ANTONIO RIVER AT GOLIAD, TX
(National stream-quality accounting network)

LOCATION.--Lat 28°38'58", long 97°23'04", Goliad County, Hydrologic Unit 12100303, on right bank at upstream side of bridge on U.S. Highway 183, 1.2 mi southeast of courthouse in Goliad, 11.7 mi upstream from Manahuilla Creek, and 66.5 mi upstream from mouth.

DRAINAGE AREA.--3,921 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1924 to March 1929, February 1939 to current year.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 91.08 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1929, nonrecording gage at Texas and New Orleans Railroad Co. bridge 1.1 mi (revised) upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Many diversions and regulations above station (see station 08181800). Flow is affected at times by discharge from the flood-detention pools of 36 floodwater-retarding structures with a combined detention capacity of 66,730 acre-ft. These structures control runoff from 213 mi².

AVERAGE DISCHARGE.--52 years (water years 1925-28, 1940-87), 698 ft³/s (505,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft³/s Sept. 23, 1967 (gage height, 53.7 ft, from floodmark), from rating curve extended above 26,000 ft³/s on basis of slope-area measurement of peak flow; minimum observed, 1.2 ft³/s June 16, 1956.
Maximum stage since 1869, that of Sept. 23, 1967. Flood of July 9, 1942, reached a stage of 44.9 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in October 1913 and June 15, 1935, reached about the same stage as flood in 1942. Maximum stage since about 1800 occurred in 1869 and was several feet higher than flood of Sept. 23, 1967.

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)
Dec. 27	1000	10,800	29.60	June 7	1700	*33,200	*43.08
Feb. 28	2400	7,640	24.80	June 15	0500	26,200	40.56
May 24	0500	7,840	25.11				

Minimum daily discharge, 354 ft³/s Oct. 5.

DISCHARGE, IN 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	360	642	532	2210	1050	7230	929	645	4560	3050	1190	830
2	385	611	520	2070	1020	4720	931	626	6880	2810	1170	804
3	376	588	507	1910	979	2600	923	592	9270	2610	1130	865
4	355	566	500	1800	961	1900	896	578	12200	2440	1080	794
5	354	556	486	1730	953	1730	875	581	18400	2320	1050	738
6	371	547	443	1670	964	1660	866	568	27400	2190	1040	697
7	393	628	433	1600	997	1580	856	753	32800	2080	1000	682
8	612	659	425	1550	1250	1420	851	953	32000	1990	961	669
9	1930	593	419	1500	1330	1300	867	1550	29000	1930	937	655
10	1560	562	441	1470	1140	1250	859	1400	26300	1860	914	919
11	899	531	485	1460	1050	1230	850	979	23900	1830	833	1270
12	848	529	458	1420	1000	1230	822	865	21100	1810	861	895
13	806	534	452	1350	969	1210	803	801	19700	1740	840	767
14	2050	543	484	1310	937	1210	812	762	24300	1660	819	726
15	3250	537	542	1280	927	1210	798	746	25900	1600	795	709
16	2940	538	603	1380	917	1200	790	816	24000	1580	778	697
17	1300	492	1720	1510	939	1160	772	1050	22200	1660	760	702
18	859	469	2050	1540	1060	1130	754	889	20600	1960	728	713
19	735	461	1120	1850	1020	1160	721	795	16500	1670	724	665
20	674	460	824	2130	954	1380	693	785	13200	1510	709	606
21	627	450	816	1700	912	1240	683	1230	9940	1460	702	649
22	628	433	1100	1400	907	1150	671	4790	7350	1410	700	755
23	739	432	3260	1270	1030	1130	658	7120	5940	1400	671	680
24	920	428	6860	1290	1050	1110	674	7420	5110	1390	658	643
25	1370	435	8720	1290	1060	1080	637	3550	4520	1390	637	606
26	1110	1280	10100	1210	2140	1080	642	1740	4120	1360	632	581
27	915	1070	10700	1100	5500	1070	706	1500	3800	1330	625	569
28	786	1050	5600	1070	7180	1040	884	1340	3550	1260	621	563
29	779	732	2060	1080	---	1000	735	1200	3340	1250	583	559
30	855	581	1980	1090	---	970	674	1150	3190	1240	594	564
31	726	---	2090	1090	---	948	---	1830	---	1200	650	---
TOTAL	30512	17937	66730	46330	40196	49328	23632	49604	461070	54990	25392	21572
MEAN	984	598	2153	1495	1436	1591	788	1600	15370	1774	819	719
MAX	3250	1280	10700	2210	7180	7230	931	7420	32800	3050	1190	1270
MIN	354	428	419	1070	907	948	637	568	3190	1200	583	559
AC-FT	60520	35580	132400	91900	79730	97840	46870	98390	914500	109100	50370	42790

CAL YR 1986 TOTAL 297635 MEAN 815 MAX 10700 MIN .00 AC-FT 590400
WTR YR 1987 TOTAL 887293 MEAN 2431 MAX 32800 MIN 354 AC-FT 1760000

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued
(National stream-quality accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1941 to December 1942, November 1944 to September 1946, September 1958 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to May 1982. Sediment analyses: April 1959, October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1942 to September 1946, September 1958 to current year.
WATER TEMPERATURE: September 1958 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, 1,580 microsiemens July 22, 1978; minimum daily, 138 microsiemens Oct. 27, 1960.
WATER TEMPERATURE: Maximum daily, 36.0°C June 5, 1969; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,230 microsiemens Aug. 29; minimum daily, 260 microsiemens Dec. 26.
WATER TEMPERATURE: Maximum daily, 33.0°C Aug. 5; minimum daily, 10.0°C Dec. 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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											
21...	1115	612	740	8.10	21.5	120	7.3	82	2.2	250	420
DEC											
08...	1500	418	995	8.00	17.5	15	8.6	91	1.4	440	270
FEB											
10...	1230	1160	813	7.60	15.0	130	8.2	80	6.6	420	K60
APR											
14...	1415	816	983	8.10	21.0	1.8	7.3	81	1.9	K72	200
JUN											
23...	1130	5960	641	7.90	28.0	97	5.3	68	1.2	K340	K100
AUG											
18...	1600	726	1150	7.90	30.5	55	6.7	90	0.1	K44	130

DATE	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT											
21...	240	65	75	13	57	2	7.1	177	76	69	0.40
DEC											
08...	330	74	99	20	80	2	6.4	256	100	110	0.50
FEB											
10...	270	83	82	16	55	2	4.7	189	99	73	0.30
APR											
14...	330	96	99	21	71	2	4.7	238	100	100	0.40
JUN											
23...	250	49	77	14	27	0.8	4.0	202	48	37	0.30
AUG											
18...	400	130	120	25	94	2	5.4	275	120	140	0.40

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT										
21...	15	462	420	3.88	--	0.020	<0.010	3.90	3.90	0.030
DEC										
08...	16	619	590	5.85	5.95	0.050	0.050	5.90	6.00	0.050
FEB										
10...	11	466	460	3.68	3.68	0.020	0.020	3.70	3.70	0.030
APR										
14...	14	583	560	4.80	4.70	0.100	0.100	4.90	4.80	0.050
JUN										
23...	16	379	350	1.53	1.53	0.070	0.070	1.60	1.60	0.020
AUG										
18...	20	708	730	5.07	4.97	0.030	0.030	5.10	5.00	0.040

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 21...	<0.010	4.3	4.3	1.20	0.910	0.830	2.5	234	387	100
DEC 08...	0.050	0.95	1.0	1.30	1.10	1.20	3.7	47	53	96
FEB 10...	0.020	2.6	2.6	2.00	0.850	0.860	2.6	201	630	95
APR 14...	0.050	0.25	0.30	1.40	1.10	1.00	3.1	89	196	80
JUN 23...	0.020	1.1	1.1	0.650	0.210	0.170	0.52	793	12800	96
AUG 18...	0.020	0.86	0.90	1.50	1.10	1.00	3.1	125	245	100

DATE	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)	LEAD, DIS-SOLVED (UG/L AS PB)
OCT 21...	10	4	85	<0.5	2	<1	<3	3	9	<5
DEC 08...	--	--	--	--	--	--	--	--	--	--
FEB 10...	<10	2	62	<0.5	1	<1	<3	2	9	<5
APR 14...	--	--	--	--	--	--	--	--	--	--
JUN 23...	<10	3	90	<0.5	8	<1	<3	3	14	<5
AUG 18...	<10	4	99	<0.5	<1	<1	<3	1	9	<5

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 21...	30	1	0.2	<10	7	<1	<1	690	7	18
DEC 08...	--	--	--	--	--	--	--	--	--	--
FEB 10...	28	<1	<0.1	<10	4	<1	<1	770	<6	<3
APR 14...	--	--	--	--	--	--	--	--	--	--
JUN 23...	16	1	0.2	<10	<1	<1	<1	540	7	17
AUG 18...	32	3	1.2	<10	4	<1	<1	1100	8	10

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	30512	637	367	30200	60	4980	62	5150	220
NOV.	1986	17937	892	519	25100	98	4760	92	4450	290
DEC.	1986	66730	463	265	47800	40	7250	44	7970	160
JAN.	1987	46330	724	418	52200	70	8780	71	8940	250
FEB.	1987	40196	707	409	44400	72	7780	71	7680	240
MAR.	1987	49328	729	421	56100	73	9750	73	9690	250
APR.	1987	23632	969	564	36000	110	7050	100	6430	310
MAY	1987	49604	593	341	45700	56	7450	58	7760	200
JUNE	1987	461070	402	229	285000	30	37800	37	46000	150
JULY	1987	54990	872	506	75100	94	13900	89	13200	290
AUG.	1987	25392	1080	630	43200	130	9000	110	7870	340
SEPT	1987	21572	1010	592	34500	120	6960	110	6210	320
TOTAL		887293	**	**	775000	**	125000	**	131000	**
WTD.AVG.		2431	562	324	**	52	**	55	**	190

08188500 SAN ANTONIO RIVER AT GOLIAD, TX--Continued
(National stream-quality accounting network)

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	733	755	654	893	406	912	984	540	730	936	1110
2	1020	790	858	737	909	436	914	988	328	737	968	989
3	1010	852	958	679	912	618	907	998	351	761	968	1080
4	1020	906	966	686	914	603	903	1020	343	786	977	1070
5	1040	948	988	676	892	678	923	1030	326	800	997	938
6	994	959	1020	688	886	820	940	1050	308	829	993	992
7	968	952	1040	710	892	863	954	1050	337	850	976	1070
8	1020	922	1020	698	908	887	970	954	364	864	997	1120
9	888	974	1070	712	839	863	949	788	353	870	1030	1130
10	486	893	1080	734	791	859	950	631	378	884	1040	1000
11	502	916	1060	738	847	868	944	613	416	908	1040	957
12	552	960	1060	759	844	874	970	670	417	909	1050	540
13	553	970	1080	767	848	868	972	768	360	930	1060	874
14	676	977	1040	766	873	877	971	842	291	942	1060	911
15	394	986	914	774	890	872	964	879	318	937	1090	985
16	363	978	1040	747	913	870	969	888	358	922	1110	1050
17	409	985	624	696	914	863	979	857	424	922	1140	1060
18	469	1020	566	676	883	878	975	831	408	903	1160	1050
19	545	1020	546	662	897	885	975	780	481	879	1160	1030
20	671	1030	566	624	887	850	1000	804	527	896	1160	1050
21	734	1060	658	584	883	893	1020	600	579	904	1160	1060
22	795	1020	630	679	922	832	1030	385	605	920	1160	1050
23	762	1030	500	734	902	858	1060	275	634	927	1150	1050
24	738	1040	264	782	891	861	1060	354	652	915	1160	1040
25	795	1060	280	770	861	868	1020	596	674	905	1180	984
26	584	897	260	801	727	880	1030	596	695	921	1200	1080
27	642	418	330	849	431	859	1040	662	714	939	1210	1080
28	668	692	436	842	294	869	1020	693	732	953	1190	1090
29	699	807	610	862	---	889	991	717	735	973	1230	1110
30	772	887	714	848	---	896	869	756	754	965	1210	1110
31	813	---	742	892	---	903	---	709	---	957	1200	---
MEAN	729	923	764	736	841	818	973	767	480	888	1100	1020

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.0	21.5	15.0	14.0	17.0	16.5	18.5	24.5	24.0	29.0	31.0	28.5
2	28.0	21.5	15.0	14.5	18.0	16.0	19.0	25.0	23.0	28.0	29.0	26.0
3	30.0	21.0	16.0	14.0	17.0	18.0	17.0	25.5	23.0	28.0	30.5	26.0
4	28.0	23.0	15.5	14.5	18.0	15.0	16.5	24.5	23.0	28.5	32.0	25.5
5	28.5	22.0	15.0	14.0	17.5	18.0	15.5	24.5	23.0	28.5	33.0	28.0
6	27.0	19.5	15.0	15.0	16.0	18.0	16.0	24.5	23.5	30.5	32.0	26.0
7	25.0	22.0	18.0	14.5	17.0	19.0	16.0	25.0	24.0	29.0	29.5	26.5
8	24.5	23.0	19.0	15.5	17.0	20.5	17.5	26.0	24.5	28.0	30.0	29.5
9	25.0	23.0	18.0	15.5	17.5	20.5	19.0	23.0	24.5	28.0	30.5	29.5
10	25.0	22.5	15.5	15.0	18.0	18.0	20.5	25.0	24.5	28.0	30.5	27.5
11	23.0	20.5	14.0	15.0	18.0	17.5	22.0	23.5	25.0	29.0	30.5	27.0
12	22.0	19.0	11.5	15.0	18.5	18.0	22.0	24.5	25.5	29.0	31.0	27.0
13	20.0	15.5	15.0	14.5	19.5	18.0	23.0	25.5	26.5	28.0	28.5	29.0
14	20.0	14.0	14.0	17.0	19.0	18.5	23.0	27.0	26.5	30.0	31.0	24.5
15	22.0	15.0	14.5	16.0	19.5	18.0	23.0	27.0	28.0	30.0	29.0	30.0
16	19.0	17.0	15.5	15.5	19.0	20.0	24.0	25.5	28.5	28.0	30.5	29.0
17	20.5	20.0	15.5	14.5	17.5	19.0	21.0	25.0	28.0	28.0	29.0	28.5
18	20.0	19.5	15.5	14.5	17.0	20.0	24.0	27.0	27.5	27.5	30.5	29.0
19	21.0	19.5	15.0	13.0	15.5	21.0	22.5	26.0	27.5	27.5	30.5	27.5
20	20.5	20.5	15.5	12.5	14.0	22.0	25.0	26.0	28.0	30.0	28.5	28.0
21	21.0	20.0	14.5	11.0	14.0	21.0	24.5	26.5	28.0	28.5	29.0	26.5
22	22.0	21.0	13.0	11.5	15.0	23.0	24.5	23.0	28.0	29.0	28.5	27.5
23	23.0	20.5	12.5	13.0	14.5	21.5	24.0	23.0	29.0	28.0	28.5	26.5
24	23.0	18.0	10.0	13.5	15.0	21.5	25.5	24.0	28.5	27.5	30.0	25.0
25	22.5	16.5	12.5	14.0	15.0	20.0	24.5	27.5	28.0	26.5	31.0	22.5
26	22.5	16.5	11.0	15.0	15.0	20.0	24.5	26.5	27.5	27.0	31.0	25.5
27	23.5	11.5	12.0	13.5	18.0	18.0	25.5	27.0	27.0	29.0	28.5	25.5
28	21.5	16.5	12.0	16.0	17.0	19.0	24.0	26.0	27.0	28.5	30.0	27.0
29	23.0	16.0	12.5	15.0	---	17.0	23.0	26.0	27.5	28.0	28.5	26.0
30	23.0	15.5	13.0	15.5	---	16.0	25.0	24.5	28.0	30.5	27.5	29.5
31	23.5	---	13.5	17.5	---	16.5	---	24.5	---	27.5	27.0	---
MEAN	23.5	19.0	14.5	14.5	17.0	19.0	21.5	25.5	26.0	28.5	30.0	27.0

08188600 GUADALUPE-BLANCO RIVER AUTHORITY CALHOUN CANAL FLUME NO. 1 NEAR LONG MOTT, TX

LOCATION.--Lat 28°29'44", long 96°46'18", Calhoun County, Hydrologic Unit 12100204, on right bank at concrete Parshall flume No. 1, 518 ft upstream from State Highway 185, 1,900 ft downstream from pumping station on Goff Bayou, and 1.1 mi northwest of Long Mott.

PERIOD OF RECORD.--March 1968 to February 1970 (monthly discharge only), March 1970 to current year.

GAGE.--Water-stage and velocity recorders, duplex water-stage recorder, and Parshall flume. Datum of gage is 23.53 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 6, 1981, deflection-vane recorder.

REMARKS.--No estimated daily discharges. Records fair. Flow is diverted from Guadalupe River 550 ft upstream from Guadalupe River near Tivoli (station 08188800), and then through a system of canals, Hog Bayou, and Goff Bayou, a distance of 8.9 mi to the pumping station on Goff Bayou 1,900 ft upstream from Flume No. 1.

COOPERATION.--Log of pumping station on Goff Bayou provided by Guadalupe-Blanco River Authority.

AVERAGE DISCHARGE.--19 years (water years 1969-87), 92.9 ft^3/s (67,310 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 311 ft^3/s July 7, 1968; no flow at times in 1968-74 and 1977-87.

DISCHARGE, IN 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	96	48	32	16	16	23	32	137	78	130	128	80
2	102	24	32	16	32	16	32	128	96	112	128	80
3	112	5.3	32	16	35	16	32	139	96	112	128	89
4	112	16	32	16	16	16	32	126	103	129	128	105
5	112	16	32	16	16	21	32	138	98	144	122	121
6	103	16	32	31	22	27	50	89	80	144	112	128
7	90	9.8	32	22	22	27	74	48	92	177	105	128
8	74	.00	32	48	22	27	80	32	90	192	96	128
9	64	.00	32	31	35	16	80	7.0	67	192	96	135
10	64	18	41	16	48	23	80	.00	48	192	80	155
11	64	50	48	16	48	32	80	.00	39	192	64	154
12	56	64	29	16	48	32	80	.00	42	192	73	144
13	40	64	16	31	48	25	96	.00	57	210	80	136
14	32	45	16	48	48	25	135	23	54	212	95	128
15	32	16	16	48	48	25	171	16	108	186	117	128
16	32	16	16	34	48	41	192	25	135	176	105	155
17	22	19	25	42	54	64	192	48	144	176	76	159
18	.00	16	40	42	51	46	192	53	146	176	71	163
19	.00	16	32	42	32	25	131	53	174	176	88	160
20	9.0	44	16	64	23	16	89	48	199	190	94	160
21	24	44	16	56	23	16	151	82	176	199	105	160
22	32	16	40	37	23	16	176	128	176	187	106	160
23	23	16	36	16	16	25	167	163	176	166	106	160
24	8.0	16	16	16	22	38	166	192	184	167	106	160
25	.00	36	16	16	32	58	144	187	187	163	99	150
26	.00	55	16	16	32	64	144	161	167	144	122	154
27	.00	48	29	16	23	44	144	154	192	144	128	160
28	.00	38	27	16	23	27	144	159	208	144	128	151
29	.00	32	15	16	---	16	144	81	182	144	121	144
30	25	32	32	16	---	23	144	25	152	137	103	144
31	48	---	25	16	---	32	---	38	---	128	89	---
TOTAL	1376.00	836.10	851	848	906	902	3406	2480.00	3746	5133	3199	4179
MEAN	44.4	27.9	27.5	27.4	32.4	29.1	114	80.0	125	166	103	139
MAX	112	64	48	64	54	64	192	192	208	212	128	163
MIN	.00	.00	15	16	16	16	32	.00	39	112	64	80
AC-FT	2730	1660	1690	1680	1800	1790	6760	4920	7430	10180	6350	8290

CAL YR 1986 TOTAL 28968.39 MEAN 79.4 MAX 199 MIN .00 AC-FT 57460
WTR YR 1987 TOTAL 27862.10 MEAN 76.3 MAX 212 MIN .00 AC-FT 55260

08188800 GUADALUPE RIVER NEAR TIVOLI, TX

LOCATION.--Lat 28°30'20", long 96°53'04", Calhoun-Refugio County line, Hydrologic Unit 12100204, on right bank at diversion and saltwater barrier, one orifice located upstream and one downstream, 550 ft downstream from Calhoun County Irrigation Canal intake, 0.4 mi downstream from San Antonio River, 3.5 mi north of Tivoli, and at mile 10.2. Water-quality sampling site on left bank 474 ft upstream.

DRAINAGE AREA.--10,128 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1965 to current year.

REVISED RECORDS.--WDR TX-68-1: Drainage area.

GAGE.--Duplex water-stage recorder. Datum of gage is 0.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Many small diversions above station. Some regulation by powerplants. Upstream regulation same as that for Guadalupe River at Cuero (station 08175800) and San Antonio River at Goliad (station 08188500).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (upstream from barrier), 13.7 ft Sept. 22, 1967; minimum, 1.2 ft July 2, 1984. Maximum gage height (downstream from barrier), 13.6 ft Sept. 22, 1967; minimum, 0.5 ft July 12, 14, 1967.
Maximum stage since at least 1936, that of Sept. 22, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1936 reached a stage of 11 ft, present site and datum. Levees along the Navigation Canal from San Antonio Bay to Victoria were built in 1961 thus decreasing the flood plain.

EXTREMES FOR CURRENT YEAR.--Maximum gage height (upstream from barrier), 12.0 ft June 8, 9; minimum, 4.2 ft Oct. 6. Maximum gage height (downstream from barrier), 11.6 ft June 9; minimum, 4.2 ft Oct. 2, 6.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	4.5	4.4	7.4	7.3	7.5	7.2	8.3	8.0	7.7	7.5	8.2	8.0
2	4.4	4.2	7.3	7.2	7.2	7.1	8.1	7.9	7.7	7.5	8.3	8.1
3	4.5	4.4	7.3	7.1	6.9	6.8	8.0	7.9	7.6	7.4	8.4	8.3
4	4.5	4.4	7.3	7.2	6.6	6.6	8.0	7.9	7.5	7.4	8.5	8.3
5	4.3	4.3	7.2	7.1	6.5	6.4	7.9	7.9	7.5	7.5	8.5	8.3
6	4.2	4.2	7.1	7.0	6.4	6.3	7.9	7.8	7.5	7.5	8.1	8.0
7	4.4	4.3	7.0	6.9	6.3	6.3	7.9	7.8	7.4	7.4	8.0	7.8
8	4.6	4.3	6.9	6.9	6.2	6.1	7.9	7.8	7.4	7.4	7.9	7.8
9	4.6	4.3	7.0	7.0	6.1	6.0	7.9	7.8	7.4	7.3	7.9	7.7
10	6.3	6.0	7.0	7.0	5.8	5.8	7.9	7.8	7.5	7.3	7.8	7.7
11	6.7	6.5	7.0	7.0	5.7	5.7	7.8	7.7	7.5	7.4	7.8	7.6
12	6.9	6.6	6.9	6.9	5.6	5.6	7.8	7.7	7.5	7.4	7.8	7.6
13	6.9	6.9	6.9	6.7	5.7	5.6	7.8	7.6	7.4	7.2	7.7	7.5
14	6.9	6.9	6.8	6.7	5.7	5.6	7.8	7.6	7.3	7.2	7.6	7.5
15	7.4	7.4	6.8	6.7	6.0	5.9	7.8	7.5	7.3	7.3	7.7	7.6
16	7.8	7.8	6.8	6.7	6.6	6.6	7.9	7.7	7.1	7.0	7.7	7.6
17	7.9	7.9	6.8	6.7	6.9	6.8	8.0	7.8	7.0	6.9	7.7	7.6
18	7.9	7.9	6.8	6.7	7.6	7.6	7.9	7.7	7.0	6.9	7.7	7.5
19	7.7	7.7	6.7	6.6	7.9	7.9	7.9	7.7	7.1	7.0	7.7	7.5
20	7.4	7.5	6.6	6.5	7.9	7.9	7.9	7.7	7.3	7.2	7.7	7.5
21	7.3	7.3	6.5	6.4	7.8	7.8	7.9	7.8	7.3	7.2	7.8	7.6
22	7.5	7.3	6.5	6.4	7.9	7.8	7.9	7.8	7.3	7.2	7.8	7.6
23	7.8	7.7	6.5	6.5	8.1	8.0	7.9	7.7	7.2	7.1	7.8	7.6
24	7.9	7.8	6.6	6.5	8.1	8.1	7.8	7.7	7.5	7.3	7.7	7.6
25	7.9	7.8	6.8	6.7	8.2	8.2	7.8	7.7	7.8	7.7	7.7	7.5
26	7.8	7.7	6.8	6.7	8.3	8.2	7.7	7.7	8.0	7.9	7.6	7.5
27	7.8	7.7	7.2	7.1	8.4	8.3	7.7	7.7	8.1	7.9	7.6	7.5
28	7.7	7.6	7.6	7.5	8.6	8.3	7.7	7.7	8.1	8.0	7.6	7.5
29	7.6	7.6	7.6	7.5	8.8	8.4	7.7	7.5	---	---	7.6	7.5
30	7.5	7.4	7.6	7.5	8.8	8.5	7.7	7.4	---	---	7.5	7.4
31	7.4	7.3	---	---	8.7	8.3	7.7	7.5	---	---	7.4	7.4
MAX	7.9	7.9	7.6	7.5	8.8	8.5	8.3	8.0	8.1	8.0	8.5	8.3
MIN	4.2	4.2	6.5	6.4	5.6	5.6	7.7	7.4	7.0	6.9	7.4	7.4

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DAY	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.4	7.3	5.3	5.2	7.9	7.6	8.2	8.1	7.8	7.4	6.9	6.6
2	7.4	7.3	5.2	5.0	8.1	7.8	8.1	8.0	7.7	7.4	7.0	6.7
3	7.3	7.2	5.1	5.0	8.1	7.9	8.1	8.0	7.8	7.4	7.1	6.8
4	7.3	7.2	5.2	5.0	8.2	7.9	8.1	7.9	7.7	7.6	7.1	6.8
5	7.3	7.2	5.0	5.0	8.3	8.0	8.1	7.9	7.7	7.6	7.1	6.8
6	7.3	7.1	5.0	4.9	8.7	8.5	8.0	7.8	7.7	7.6	7.1	6.7
7	7.2	7.0	5.1	4.9	10.8	10.5	7.9	7.7	7.7	7.6	7.1	6.7
8	7.2	7.0	5.3	5.1	12.0	11.5	8.1	7.9	7.7	7.6	6.9	6.5
9	7.1	7.0	6.0	5.8	12.0	11.6	8.0	7.8	7.7	7.5	6.9	6.5
10	7.1	7.0	6.4	6.2	11.6	11.3	7.8	7.7	7.7	7.6	6.8	6.4
11	7.0	7.0	6.5	6.3	11.0	10.8	7.8	7.7	7.7	7.6	7.0	6.5
12	7.0	7.0	6.5	6.3	11.2	10.8	7.8	7.7	7.7	7.6	7.2	6.8
13	7.0	6.8	6.2	6.1	11.2	10.8	7.8	7.7	7.7	7.5	7.3	6.8
14	6.9	6.7	6.0	5.9	10.7	10.4	8.0	7.9	7.6	7.5	7.2	6.8
15	6.8	6.7	5.8	5.6	10.6	10.2	8.1	7.7	7.6	7.4	7.2	6.8
16	6.5	6.3	5.6	5.4	10.7	10.3	7.9	7.6	7.6	7.4	7.2	6.7
17	6.4	6.2	5.4	5.2	10.7	10.3	7.9	7.6	7.6	7.4	7.1	6.7
18	6.4	6.2	5.8	5.5	10.6	10.2	7.8	7.6	7.5	7.4	7.1	6.7
19	6.4	6.2	5.8	5.6	10.4	10.0	7.9	7.7	7.5	7.3	7.1	6.7
20	6.3	6.1	5.8	5.6	10.2	9.8	7.9	7.7	7.5	7.2	7.2	6.7
21	6.2	6.0	6.1	5.9	9.9	9.5	7.9	7.6	7.4	7.2	7.2	6.8
22	6.1	5.9	6.9	6.6	9.5	9.1	7.9	7.6	7.4	7.1	7.2	6.8
23	6.0	5.8	7.7	7.5	9.1	8.8	7.9	7.5	7.4	7.0	7.2	6.8
24	5.8	5.6	8.1	7.7	8.8	8.5	7.9	7.6	7.3	7.0	7.2	6.8
25	5.5	5.3	8.1	7.7	8.6	8.2	7.9	7.5	7.2	7.0	7.1	6.7
26	5.4	5.2	8.2	7.8	8.4	8.1	7.9	7.6	7.2	6.9	7.1	6.7
27	5.3	5.1	8.2	7.9	8.3	8.1	7.9	7.6	7.2	6.8	7.2	6.8
28	5.3	5.1	8.2	7.8	8.3	8.0	7.9	7.5	7.0	6.7	7.3	6.8
29	5.4	5.3	8.0	7.7	8.2	8.0	7.8	7.5	7.0	6.6	7.2	6.8
30	5.4	5.3	7.9	7.6	8.2	8.0	7.8	7.4	6.9	6.6	7.1	6.6
31	---	---	7.8	7.5	---	---	7.8	7.4	6.9	6.5	---	---
MAX	7.4	7.3	8.2	7.9	12.0	11.6	8.2	8.1	7.8	7.6	7.3	6.8
MIN	5.3	5.1	5.0	4.9	7.9	7.6	7.8	7.4	6.9	6.5	6.8	6.4

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1965 to current year. Chemical and biochemcial analyses: January 1968 to current year. Pesticide analyses: October 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1965 to October 1982.
WATER TEMPERATURES: August 1965 to October 1982.

INSTRUMENTATON.--Beginning July 1965, specific conductance was recorded continuously at this station. Beginning March 1981, water temperature was recorded continuously at this station. Continuous recording of specific conductance and water temperature was discontinued October 1982.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,000 microsiemens June 1, 1971, Aug. 3, 1978; minimum daily, 159 microsiemens Apr. 28, 1980.
WATER TEMPERATURES (1966-69, 1981-82): Maximum daily, 32.0°C on many days during summer months; minimum daily 8.0°C Jan. 15, 1968.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	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 (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 22...	1410	450	8.70	--	7.3	--	1.2	180	20	55	11	20
DEC 09...	1330	638	8.10	16.5	8.3	85	1.5	250	34	74	16	34
FEB 03...	1604	656	8.20	15.5	9.2	93	1.4	260	45	77	17	37
APR 09...	1530	709	8.20	17.0	9.0	94	0.9	290	53	83	19	40
JUL 09...	1515	724	8.00	29.0	5.8	75	2.8	290	57	88	17	40
AUG 05...	1538	672	8.10	30.0	6.4	84	1.5	270	50	82	16	36

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT 22...	0.7	3.8	163	29	23	0.20	11	250	1.07	0.030	1.10	0.050
DEC 09...	1	3.2	217	35	41	0.20	13	350	1.67	0.030	1.70	0.090
FEB 03...	1	3.3	217	54	49	0.30	11	380	1.78	0.020	1.80	0.080
APR 09...	1	3.0	233	58	60	0.30	12	420	1.88	0.020	1.90	0.050
JUL 09...	1	3.5	233	55	50	0.30	17	410	1.77	0.030	1.80	0.090
AUG 05...	1	3.2	221	50	52	<0.10	15	390	--	<0.010	1.80	0.020

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	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)
OCT 22...	0.25	0.30	0.240	--	--	--	--	--	--	--	--	--
DEC 09...	1.0	1.1	0.300	--	--	--	--	--	--	--	--	--
FEB 03...	1.0	1.1	0.520	--	--	--	--	--	--	--	--	--
APR 09...	1.2	1.2	0.130	2	75	1	<10	<1	32	<5	5	<0.1
JUL 09...	0.91	1.0	0.630	4	95	<1	20	<1	5	<5	2	0.1
AUG 05...	0.68	0.70	0.420	--	--	--	--	--	--	--	--	--

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)
OCT 22...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 09...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--	--
APR 09...	<1	<1	13	--	--	--	--	--	--	--	--	--
JUL 09...	<1	<1	4	<0.1	13	<0.10	<1.0	<0.010	<0.1	<0.1	<1.0	<0.010
AUG 05...	--	--	--	--	--	--	--	--	--	--	--	--

08188800 GUADALUPE RIVER NEAR TIVOLI, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDOSULFAN, TOTAL (UG/L)	ENDOSULFAN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
OCT 22...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 09...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--	--
APR 09...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 09...	<0.1	<0.010	0.2	<0.010	1.0	0.01	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1
AUG 05...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	ETHION, TOTAL (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOTAL (UG/L)	METHYL TRITHION, TOTAL (UG/L)
OCT 22...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 09...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--	--
APR 09...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 09...	<0.01	<0.010	<0.1	<0.010	<0.1	<0.010	<0.1	<0.01	<0.01	<0.1	<0.01	<0.01
AUG 05...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	PARATHION, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	PERTHANE IN BOTTOM MATERIAL (UG/KG)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
OCT 22...	--	--	--	--	--	--	--	--	--	--	--	--
DEC 09...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--	--
APR 09...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 09...	<0.01	<0.1	<0.01	<0.1	<1.00	<0.01	<1	<10	<0.01	0.01	<0.01	<0.01
AUG 05...	--	--	--	--	--	--	--	--	--	--	--	--

08189200 COPANO CREEK NEAR REFUGIO, TX

LOCATION.--Lat 28°18'12", long 97°06'44", Refugio County, Hydrologic Unit 12100405, on right bank at downstream end of bridge on Farm Road 774, 3.6 mi upstream from Alameda Creek, 8.1 mi east of Refugio, and 11.9 mi upstream from mouth.

DRAINAGE AREA.--87.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 17.25 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known diversion above station. Recording rain gage at station.

AVERAGE DISCHARGE.--17 years, 47.3 ft³/s (7.32 in/yr), 34,270 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,300 ft³/s Sept. 12, 1971 (gage height, 21.00 ft), from rating curve extended above 3,800 ft³/s; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1921, 22 ft in September 1967, 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)
Dec. 26	2100	*422	*9.69				

Minimum daily discharge, no flow for many days.

DISCHARGE, IN 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	36	68	99	4.6	238	.0	.00	.00	6.6	.00	.00
2	.00	25	53	89	3.7	220	.0	.00	.00	6.2	.00	.00
3	.00	17	40	74	2.9	184	.0	.00	.00	3.3	.00	.00
4	.00	13	29	64	2.3	131	.0	.00	.00	1.9	.00	.00
5	.00	9.0	19	55	2.6	86	.0	.00	.00	1.1	.00	.00
6	.00	6.5	14	48	7.6	58	.0	.00	.74	.59	.00	.00
7	.00	5.0	10	36	6.5	47	.0	.00	1.0	.35	.00	.00
8	.00	3.9	8.9	20	5.0	58	.00	.00	.81	.23	.00	.00
9	.00	3.6	7.0	12	3.3	58	.00	.00	12	.37	.00	.00
10	.00	39	5.5	9.1	2.4	51	.00	.00	31	3.0	.00	.00
11	.00	123	4.2	7.0	1.9	45	.00	.00	53	2.3	.00	.00
12	2.2	144	3.3	5.8	1.5	43	.00	.00	80	1.3	.00	.00
13	23	78	2.4	5.0	1.1	32	.00	.00	108	.65	.00	.00
14	52	62	2.0	5.0	.93	17	.00	.00	161	.28	.00	.00
15	65	62	2.3	5.7	1.1	8.3	.00	.00	332	.14	.00	.00
16	71	55	7.7	46	.72	5.3	.00	.00	345	.0	.00	.00
17	59	38	15	107	.50	3.8	.00	.00	221	.0	.00	.00
18	42	25	14	114	.35	2.8	.00	.00	144	.00	.00	.00
19	27	17	22	89	.26	1.9	.00	.00	95	.00	.00	.00
20	17	11	26	69	1.3	1.4	.00	.00	61	.00	.00	.00
21	13	8.6	29	62	2.4	1.0	.00	.00	40	.00	.00	.00
22	10	6.6	75	59	2.3	.83	.00	.00	27	.00	.00	.00
23	22	7.3	230	51	2.9	.67	.00	.00	19	.00	.00	.00
24	24	40	294	40	8.5	.31	.00	.00	12	.00	.00	.00
25	26	59	290	31	38	.25	.00	.00	9.7	.00	.00	.00
26	29	85	370	24	295	.18	.00	.00	6.6	.00	.00	.00
27	46	93	388	18	356	.13	.00	.00	5.2	.00	.00	.00
28	67	94	270	12	292	.13	.00	.00	3.9	.00	.00	.00
29	70	93	187	10	---	.10	.00	.00	2.9	.00	.00	.00
30	62	84	139	8.0	---	.1	.00	.00	3.2	.00	.00	.00
31	50	---	104	5.9	---	.0	---	.00	---	.00	.00	---
TOTAL	777.20	1343.5	2729.3	1280.5	1047.66	1295.20	.00	.00	1775.05	28.31	.00	.00
MEAN	25.1	44.8	88.0	41.3	37.4	41.8	.00	.00	59.2	.91	.00	.00
MAX	71	144	388	114	356	238	.00	.00	345	6.6	.00	.00
MIN	.00	3.6	2.0	5.0	.26	.00	.00	.00	.00	.00	.00	.00
AC-FT	1540	2660	5410	2540	2080	2570	.0	.0	3520	56	.0	.0
CFSM	.29	.51	1.00	.47	.43	.48	.00	.00	.67	.0	.00	.00
IN.	.33	.57	1.16	.54	.44	.55	.00	.00	.75	.0	.00	.00

CAL YR 1986	TOTAL	4855.22	MEAN	13.3	MAX	388	MIN	.00	AC-FT	9630	CFSM	.15	IN.	2.06
WTR YR 1987	TOTAL	10276.67	MEAN	28.2	MAX	388	MIN	.00	AC-FT	20380	CFSM	.32	IN.	4.35

08189200 COPANO CREEK NEAR REFUGIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: June 1970 to current year. Pesticide analyses: July 1970 to July 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT 16...	1400	73	113	7.10	20.5	6.0	66	2.9	--	--
DEC 03...	1045	43	124	7.10	13.0	8.6	81	2.7	39	0
FEB 04...	1038	2.4	247	7.00	17.0	6.0	62	2.8	59	0
APR 08...	0925	0.01	575	7.60	12.5	3.1	29	5.9	160	0
JUN 10...	1140	29	296	7.36	25.5	4.8	58	3.2	42	0

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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 16...	--	--	--	--	--	32	--	--	--	--
DEC 03...	11	2.9	11	0.8	5.8	39	14	10	<0.10	28
FEB 04...	18	3.5	25	1	6.1	66	25	23	0.10	13
APR 08...	51	7.6	60	2	7.8	167	38	65	0.20	21
JUN 10...	13	2.4	40	3	6.3	56	33	33	0.20	18

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, 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)
OCT 16...	--	--	0.020	<0.100	0.080	0.92	1.0	0.140	--	--
DEC 03...	110	--	0.060	<0.100	0.110	1.9	2.0	0.110	--	--
FEB 04...	150	0.00	0.130	0.100	0.210	2.5	2.7	0.270	2	91
APR 08...	350	--	0.030	<0.100	0.110	3.0	3.1	0.410	--	--
JUN 10...	180	--	0.050	<0.100	0.090	1.7	1.8	0.210	2	71

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 16...	--	--	--	--	--	--	--	--	--	--
DEC 03...	--	--	--	--	--	--	--	--	--	--
FEB 04...	<1	40	4	220	<5	19	<0.1	<1	<1	13
APR 08...	--	--	--	--	--	--	--	--	--	--
JUN 10...	<1	<10	5	160	<5	6	<0.1	<1	<1	13

08189500 MISSION RIVER AT REFUGIO, TX

LOCATION.--Lat 28°17'30", long 97°16'44", Refugio County, Hydrologic Unit 12100406, on left bank at upstream side of upstream bridge of two bridges on U.S. Highway 77, 560 ft upstream from Missouri Pacific Railroad Co. bridge, and 0.2 mi southwest of Refugio.

DRAINAGE AREA.--690 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1939 to current year.

REVISED RECORDS.--WSP 1923: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.00 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 25, 1958, nonrecording gage at site 59 ft downstream at same datum. Nov. 26, 1958, to Apr. 18, 1963, non-recording gage at present site and datum.

REMARKS.--Records good. There are several small diversions above station.

AVERAGE DISCHARGE.--48 years, 119 ft³/s (2.34 in/yr), 86,220 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,000 ft³/s Sept. 12, 1971 (gage height, 38.25 ft); minimum observed, 0.7 ft³/s Oct. 7, 9, 1940, Aug. 18-20, Sept. 5, 1945, Dec. 29, 31, 1949, Jan. 1, 1950, July 13, Aug. 28, 1963, July 18, 19, 22-26, 31, Aug. 1, 2, 1971.
Maximum stage since about 1899, that of Sept. 12, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in August 1914 and May 17, 1938, reached a stage of 32.3 ft, from information by local residents.

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)
Dec. 24	0300	3,220	18.95	June 6	0900	*4,920	*22.96
Feb. 27	0800	3,340	19.29	June 12	1000	3,100	18.60

Minimum daily discharge, 0.90 ft³/s Oct. 3-5.

DISCHARGE, IN 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	e1.0	13	26	55	25	411	17	8.3	8.3	30	17	12
2	e1.0	11	23	45	25	208	17	8.3	7.7	30	17	10
3	e.90	9.5	20	38	24	120	17	8.4	40	27	16	9.0
4	e.90	8.7	18	34	24	82	17	8.7	268	26	15	8.0
5	e.90	8.2	17	31	27	62	17	8.7	3040	25	15	7.9
6	e2.8	7.4	16	29	29	51	16	8.7	4650	24	15	7.2
7	1.9	7.1	15	28	29	44	17	8.7	2680	23	14	7.8
8	1.7	6.5	15	27	27	39	18	8.7	971	25	14	9.0
9	1.5	99	14	26	24	36	17	8.6	693	23	13	10
10	1.1	269	14	25	23	33	16	7.9	977	22	13	10
11	2.1	108	13	24	24	35	15	8.1	2000	22	13	9.2
12	48	48	13	23	23	34	15	8.5	2860	22	13	9.3
13	101	124	13	23	22	32	15	14	1280	22	11	8.7
14	93	190	13	24	22	30	15	20	520	20	11	8.4
15	51	94	16	24	23	28	14	12	906	19	11	7.6
16	31	49	197	204	22	27	13	10	471	19	11	6.5
17	18	30	205	908	22	27	13	9.0	213	19	11	6.5
18	11	23	86	727	21	26	13	8.5	138	19	9.9	7.6
19	7.8	18	73	368	21	25	12	8.7	108	18	9.4	8.7
20	5.9	15	78	161	27	24	11	8.2	112	17	9.4	12
21	5.0	13	51	91	91	23	10	7.4	79	21	9.4	11
22	5.2	11	444	71	75	23	10	6.5	64	20	9.4	8.0
23	9.3	78	2440	57	49	23	10	6.5	54	19	8.7	6.8
24	472	788	2700	45	44	22	9.8	6.2	48	18	8.7	5.9
25	355	429	777	39	133	21	9.7	6.1	43	34	8.7	5.8
26	115	306	244	35	1790	21	9.4	5.8	40	57	8.3	5.8
27	49	141	128	31	3090	20	9.3	5.8	37	51	8.3	5.8
28	38	66	85	29	1270	20	8.7	5.8	35	27	7.6	8.3
29	32	42	65	28	---	19	8.3	7.6	33	23	9.9	6.7
30	22	32	74	27	---	19	8.3	7.2	32	20	9.2	6.2
31	16	---	69	26	---	18	---	8.2	---	19	9.9	---
TOTAL	1501.00	3044.4	7962	3303	7026	1603	398.5	265.1	22408.0	761	356.8	245.7
MEAN	48.4	101	257	107	251	51.7	13.3	8.55	747	24.5	11.5	8.19
MAX	472	788	2700	908	3090	411	18	20	4650	57	17	12
MIN	.90	6.5	13	23	21	18	8.3	5.8	7.7	17	7.6	5.8
AC-FT	2980	6040	15790	6550	13940	3180	790	526	44450	1510	708	487

CAL YR 1986 TOTAL 16315.87 MEAN 44.7 MAX 2700 MIN .90 AC-FT 32360
WTR YR 1987 TOTAL 48874.33 MEAN 134 MAX 4650 MIN .90 AC-FT 96940

e Estimated.

08189500 MISSION RIVER AT REFUGIO, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1961 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: October 1970 to April 1979. Sediment analyses: January 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1961 to September 1981.
WATER TEMPERATURE: September 1961 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 100,000 microsiemens Nov. 28, 1965; minimum daily, 85 microsiemens Sept. 13, 1971.
WATER TEMPERATURE: Maximum daily, 39.0°C June 20, 1981; minimum daily, 0.0°C Jan. 18, 1977.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
OCT												
21...	1500	5.1	1470	7.80	22.5	19	6.8	78	2.7	180	340	250
FEB												
10...	1600	23	1610	8.10	16.0	7.4	10.2	103	1.4	190	150	370
JUN												
23...	1500	47	1120	6.20	29.5	12	6.2	82	1.4	96	150	300
AUG												
18...	1815	9.2	2070	7.00	30.5	8.7	7.0	94	0.6	K40	170	440

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 WH WAT TOTAL 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												
21...	120	75	15	190	5	4.8	131	24	380	0.20	18	839
FEB												
10...	96	110	22	190	4	3.6	271	59	340	0.30	28	958
JUN												
23...	90	93	15	110	3	3.6	205	32	200	0.30	37	640
AUG												
18...	180	130	27	250	5	3.4	261	53	450	0.30	46	1190

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT												
21...	790	--	<0.010	<0.100	0.030	0.040	1.3	1.3	0.060	<0.010	0.010	0.03
FEB												
10...	920	--	<0.010	<0.100	0.020	0.020	0.98	1.0	0.040	<0.010	<0.010	--
JUN												
23...	620	0.110	0.020	0.130	0.080	0.090	0.82	0.90	0.040	0.050	0.020	0.06
AUG												
18...	1100	--	<0.010	<0.100	0.010	0.030	1.1	1.1	0.030	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)
OCT												
21...	104	1.4	100	10	6	350	<0.5	<1	<1	<3	2	26
FEB												
10...	44	2.7	85	20	5	420	<0.5	1	<1	<3	1	11
JUN												
23...	66	8.4	71	20	6	380	<0.5	<1	<1	<3	<1	21
AUG												
18...	46	1.1	68	10	7	490	<2	<3	<1	<9	<1	10

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT											
21...	<5	35	55	<0.1	<10	<1	<1	<1	1300	<6	7
FEB											
10...	<5	38	72	<0.1	<10	1	<1	<1	1400	6	8
JUN											
23...	<5	30	67	0.1	<10	<1	<1	<1	850	7	8
AUG											
18...	<5	34	22	0.1	<30	<1	<1	<1	2000	<18	23

08189700 ARANSAS RIVER NEAR SKIDMORE, TX

LOCATION.--Lat 28°16'56", long 97°37'14", Bee County, Hydrologic Unit 12100407, on right bank 160 ft downstream from centerline of county road bridge, 3.8 mi downstream from confluence of West Aransas and Poesta Creeks, and 4.4 mi northeast of Skidmore.

DRAINAGE AREA.--247 mi².

PERIOD OF RECORD.--March 1964 to current year.
Water-quality records: Chemical analyses: October 1965 to September 1966. Sediment records: February 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 72.37 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Mar. 11 to Apr. 5. Records good. No known diversion. Chase Field Naval Air Station and the city of Beeville discharge sewage effluent into the stream via Poesta Creek.

AVERAGE DISCHARGE.--23 years, 38.5 ft³/s (2.12 in/yr), 27,890 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,800 ft³/s Sept. 22, 1967 (gage height, 42.22 ft, from floodmark), from rating curve extended above 14,000 ft³/s on basis of slope-area measurements of 29,600 and 82,800 ft³/s; no flow at times in 1964-67, 1971, and 1986.
Maximum stage since at least 1914, that of Sept. 22, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 1954 reached a stage of 33 ft (discharge, 19,600 ft³/s), from information by local resident.

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 1	1200	2,860	17.48	June 11	1800	*3,690	*19.14
June 4	0300	930	11.55	June 14	1100	1,530	13.95
June 5	0600	1,200	12.72				

Minimum daily discharge, 0.50 ft³/s May 21.

DISCHARGE, IN 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	1.8	2.3	2.5	4.6	3.0	24	2.6	1.4	1540	7.1	4.3	20
2	1.6	2.3	2.4	4.3	2.8	14	2.7	1.8	172	6.9	4.0	7.3
3	1.0	2.3	2.3	3.7	3.0	9.4	2.7	1.3	297	6.6	4.0	4.3
4	.69	2.3	2.3	3.7	3.0	7.0	2.9	1.2	538	6.4	4.0	3.3
5	.61	2.2	2.3	3.6	3.6	5.9	2.9	1.2	569	5.9	4.0	2.9
6	.59	2.1	2.3	3.5	19	5.2	3.0	1.2	71	6.2	4.0	2.7
7	.53	2.1	2.3	3.5	20	5.0	3.0	1.1	172	5.9	3.8	2.6
8	2.8	2.1	2.3	3.5	9.7	4.9	3.2	.99	157	6.2	3.5	2.6
9	4.0	3.5	2.7	3.5	5.9	4.5	3.4	.90	404	6.4	3.5	2.5
10	2.8	10	2.7	3.5	4.4	4.4	3.0	.79	366	5.9	3.5	2.3
11	2.0	5.7	2.7	3.5	4.0	4.4	3.0	.94	2440	5.5	3.0	2.5
12	30	4.0	2.7	3.5	4.0	5.9	2.9	1.3	797	5.4	3.4	2.8
13	24	4.4	2.7	3.5	4.0	6.9	2.7	4.7	141	5.3	3.2	4.0
14	16	6.2	2.7	3.8	4.0	3.7	2.6	3.2	747	6.0	2.7	3.2
15	9.4	7.3	4.2	4.0	4.0	2.7	2.2	1.8	157	14	2.5	2.6
16	6.0	4.6	12	48	4.0	2.7	2.0	1.3	49	13	2.4	2.4
17	4.5	3.6	9.4	52	4.0	2.7	1.8	1.5	28	8.2	2.2	2.2
18	3.5	3.2	5.7	24	4.0	2.6	2.2	1.1	21	6.1	2.3	2.0
19	3.2	3.0	4.6	14	4.0	2.6	2.0	.83	18	5.0	2.2	2.2
20	2.9	3.0	3.9	8.7	5.1	2.6	1.9	.65	16	4.5	1.9	1.8
21	2.6	2.6	3.8	6.5	8.3	2.6	1.9	.50	14	5.5	2.0	1.7
22	2.8	2.4	13	5.4	9.5	2.5	2.2	.86	13	7.6	1.9	1.6
23	3.4	2.2	39	4.7	5.7	2.5	2.7	1.1	12	5.8	1.8	1.5
24	3.9	2.2	23	4.2	5.4	2.3	2.2	1.1	11	10	1.8	1.5
25	7.6	2.6	12	4.0	12	2.2	1.6	1.1	10	24	1.7	1.3
26	4.4	4.0	7.5	3.8	230	2.2	42	.74	9.9	13	1.8	1.3
27	3.0	6.2	5.7	3.5	126	2.2	15	.56	9.2	9.9	1.8	1.3
28	2.5	4.1	4.8	3.2	37	2.3	5.5	.52	7.9	15	2.0	1.8
29	2.4	3.1	4.6	3.2	---	2.5	2.7	.61	7.5	8.8	3.5	2.7
30	2.3	2.7	4.6	3.2	---	2.5	1.7	2.6	7.4	5.5	4.1	2.8
31	2.3	---	4.6	3.2	---	2.6	---	208	---	4.7	45	---
TOTAL	155.12	108.3	197.3	247.3	549.4	147.5	130.2	246.89	8801.9	246.3	131.8	93.7
MEAN	5.00	3.61	6.36	7.98	19.6	4.76	4.34	7.96	293	7.95	4.25	3.12
MAX	30	10	39	52	230	24	42	208	2440	24	45	20
MIN	.53	2.1	2.3	3.2	2.8	2.2	1.6	.50	7.4	4.5	1.7	1.3
AC-FT	308	215	391	491	1090	293	258	490	17460	489	261	186
CFSM	.0	.0	.0	.0	.08	.0	.0	.0	1.19	.0	.0	.0
IN.	.0	.0	.0	.0	.08	.0	.0	.0	1.33	.0	.0	.0

CAL YR 1986 TOTAL 1433.60 MEAN 3.93 MAX 182 MIN .00 AC-FT 2840 CFSM .02 IN. .22
WTR YR 1987 TOTAL 11055.63 MEAN 30.3 MAX 2440 MIN .50 AC-FT 21930 CFSM .12 IN. 1.67

08190000 NUECES RIVER AT LAGUNA, TX

LOCATION.--Lat 29°25'42", long 99°59'49", Uvalde County, Hydrologic Unit 12110101, on right bank 0.5 mi downstream from Sycamore Creek, 1.0 mi northeast of Laguna, and at mile 370.8.

DRAINAGE AREA.--737 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year.

REVISED RECORDS.--WSP 1562: 1930, 1931(M), 1932, 1939. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,119.72 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 26, 1925, nonrecording gage at site 2 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Many small diversions above station for irrigation.

AVERAGE DISCHARGE.--64 years, 152 ft³/s (2.80 in/yr), 110,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 307,000 ft³/s Sept. 24, 1955 (gage height, 29.95 ft, in gage well, 32.7 ft, from outside floodmarks), from rating curve extended above 40,000 ft³/s on basis of float measurement of 110,000 ft³/s and slope-area measurements of 213,000 and 307,000 ft³/s; minimum, 2.6 ft³/s Mar. 14-16, 1957. Maximum stage since at least 1866, that of Sept. 24, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1913 reached a stage of about 29 ft (discharge, 210,000 ft³/s); flood of Sept. 21, 1923, reached a stage of about 26.5 ft (discharge, 160,000 ft³/s); from information by local residents. Discharges based on rating curve mentioned above.

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)
Oct. 7	0500	2,600	6.23	June 3	2300	7,640	8.56
Oct. 12	0800	5,080	7.56	June 11	2330	6,770	8.10
Nov. 5	0330	1,440	5.33	July 17	1700	2,440	5.60
May 29	0500	14,900	11.23	Aug. 28	1000	760	4.11
May 31	1530	13,700	10.82	Sept. 15	1300	*20,300	*12.82

Minimum daily discharge, 149 ft³/s Oct. 4.

DISCHARGE, IN 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	213	329	222	318	209	225	199	207	1830	563	287	307
2	184	321	217	310	206	219	196	206	1080	538	280	288
3	164	312	212	305	203	217	193	204	2740	516	274	276
4	149	351	210	298	200	218	190	232	4910	498	268	266
5	151	1060	209	294	225	215	196	271	2540	479	263	260
6	170	653	205	289	248	212	201	258	1920	458	258	255
7	1560	524	212	285	237	209	196	237	1560	443	251	250
8	865	463	210	283	228	208	192	225	1370	435	246	248
9	580	421	205	286	220	207	189	218	1350	428	242	244
10	465	396	215	280	216	209	187	213	1440	414	238	241
11	1100	385	214	275	212	216	184	213	1910	397	234	240
12	3090	373	209	271	209	212	181	221	3780	387	231	234
13	1490	351	205	269	207	208	179	379	2780	378	233	230
14	982	335	220	265	206	206	176	393	2470	376	227	226
15	771	320	231	262	203	204	175	363	1800	381	226	5520
16	652	309	228	257	199	209	174	331	1530	389	222	2030
17	573	301	226	258	196	281	172	304	1370	958	216	844
18	516	293	223	258	193	262	169	308	1230	841	209	627
19	471	284	220	252	192	247	168	362	1130	522	210	514
20	438	276	218	248	196	238	192	347	1040	437	205	453
21	423	269	220	246	192	233	272	339	968	397	204	407
22	446	263	260	243	190	230	319	321	931	375	200	369
23	426	258	307	237	189	227	276	309	853	356	198	351
24	411	250	328	233	206	224	255	336	803	345	195	336
25	388	253	335	230	209	220	244	326	761	331	192	322
26	405	251	348	226	218	217	236	313	725	327	190	309
27	409	243	345	222	221	216	228	306	681	328	192	301
28	386	237	337	219	227	212	220	302	645	319	380	301
29	367	232	334	216	---	206	215	5090	616	312	408	290
30	353	226	328	213	---	205	209	1070	590	302	367	284
31	340	---	322	210	---	203	---	3640	---	293	334	---
TOTAL	18938	10539	7775	8058	5857	6815	6183	17844	47353	13523	7680	16823
MEAN	611	351	251	260	209	220	206	576	1578	436	248	561
MAX	3090	1060	348	318	248	281	319	5090	4910	958	408	5520
MIN	149	226	205	210	189	203	168	204	590	293	190	226
AC-FT	37560	20900	15420	15980	11620	13520	12260	35390	93920	26820	15230	33370
CFSM	.83	.48	.34	.35	.28	.30	.28	.78	2.14	.59	.34	.76
IN.	.96	.53	.39	.41	.30	.34	.31	.90	2.39	.68	.39	.85

CAL YR 1986 TOTAL 63848 MEAN 175 MAX 3090 MIN 34 AC-FT 126600 CFSM .24 IN. 3.22
WTR YR 1987 TOTAL 167388 MEAN 459 MAX 5520 MIN 149 AC-FT 332000 CFSM .62 IN. 8.45

08190000 NUECES RIVER AT LAGUNA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1949 to June 1952, September 1964 to current year. Chemical, biochemical, and pesticide analyses: February 1970 to current year. Sediment analyses: January 1966.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
JAN											
22...	1345	240	408	8.20	13.0	<1	0.20	11.0	107	0.6	K2
MAY											
06...	0925	256	421	8.10	20.5	1	0.40	8.3	96	0.5	K22
SEP											
02...	1755	91	460	8.00	28.0	3	2.5	8.2	108	0.6	46

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
JAN											
22...	K6	220	25	62	15	6.9	0.2	0.70	192	14	12
MAY											
06...	K22	200	20	59	14	7.2	0.2	0.70	185	14	14
SEP											
02...	40	220	34	65	15	12	0.4	1.1	190	17	20

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
JAN											
22...	0.10	11	240	5	<1	<0.010	1.40	<0.010	--	0.50	<0.010
MAY											
06...	0.10	11	230	<1	<1	<0.010	1.10	0.020	2.3	2.3	0.010
SEP											
02...	0.10	13	260	7	4	<0.010	1.70	0.010	0.29	0.30	0.020

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
JAN											
22...	0.9	<1	38	<1	<10	1	<3	<5	2	<0.1	<1
MAY											
06...	1.1	--	--	--	--	--	--	--	--	--	--
SEP											
02...	1.8	<1	50	<1	<10	<1	3	<5	<1	0.1	2

DATE	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN										
22...	<1	4	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	<1	<3	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JAN										
22...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01

08190000 NUECES RIVER AT LAGUNA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JAN										
22...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01

08190500 WEST NUECES RIVER NEAR BRACKETTVILLE, TX

LOCATION.--Lat 29°28'21", long 100°14'10", Kinney County, Hydrologic Unit 12110102, at Wilson Ranch on Farm Road 3199, 1.3 mi upstream from Miguel Canyon, 16.0 mi northeast of Brackettville, and 40.2 mi upstream from mouth.

DRAINAGE AREA.--694 mi².

PERIOD OF RECORD.--September 1939 to September 1950, April 1956 to current year.

REVISED RECORDS.--WSP 1312: 1949(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,326.79 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 14, 1940, nonrecording gage at same site and datum.

REMARKS.--Records good. In ordinary years, a large part of streamflow is lost by seepage into the Balcones Fault Zone of the Edwards and associated limestones above station. No known diversion above station.

AVERAGE DISCHARGE.--42 years (water years 1940-50, 1957-87), 35.1 ft³/s (25,430 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246,000 ft³/s Sept. 20, 1964 (gage height, 31.3 ft, from floodmark), from rating curve extended above 4,500 ft³/s on basis of slope-area measurements of 10,000, 51,000, 150,000, and 246,000 ft³/s; no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, about 40 ft June 14, 1935 (discharge, 550,000 ft³/s, based on slope-area measurements of 580,000 ft³/s at site 33 mi upstream from gage) and 536,000 ft³/s (at site 24 mi downstream from gage, present site and datum), from gage-height relation of 1935 and 1955 flood peaks at site 0.6 mi upstream. Flood in 1900 reached a stage of about 34 ft, and flood of Sept. 24, 1955, reached a stage of 27.1 ft, from floodmark at present site (discharge, 150,000 ft³/s, by slope-area measurement).

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 6	0430	1,170	5.64	Sept. 15	Unknown	*4,600	a*8.73
July 17	0800	2,400	7.02				

a From inside floodmark.

Minimum daily discharge, 0.09 ft³/s Oct. 2-4.

DISCHARGE, IN 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	.10	28	4.4	7.3	2.0	1.6	1.2	8.2	93	29	14	15
2	.09	25	4.2	6.7	1.9	1.6	1.1	7.5	83	26	12	14
3	.09	22	4.2	5.5	1.9	1.6	1.1	7.0	87	24	11	13
4	.09	24	4.2	5.2	2.0	1.5	1.2	9.1	105	21	11	11
5	.20	21	4.0	5.2	2.1	1.5	1.4	11	122	19	9.8	9.8
6	.56	18	3.8	5.2	1.6	1.5	1.0	398	124	17	9.2	8.7
7	1.8	18	3.8	5.0	1.3	1.5	.81	165	115	16	8.9	8.2
8	5.4	18	3.6	4.5	1.5	1.4	.76	117	103	15	8.7	7.6
9	7.1	16	3.4	4.0	1.5	1.4	.80	85	99	14	8.3	7.0
10	7.7	14	3.5	3.8	1.5	1.4	.83	68	96	13	8.0	6.8
11	48	13	3.4	3.8	1.5	1.4	.83	56	98	12	7.6	6.2
12	128	12	3.4	3.8	1.5	1.2	.83	45	114	11	7.3	6.0
13	147	11	3.4	3.6	1.5	1.2	.72	246	111	9.9	7.1	5.9
14	150	11	3.4	3.4	1.5	1.2	.69	354	102	10	7.0	5.5
15	150	9.9	3.5	3.2	1.2	1.2	.67	184	97	9.5	6.8	1000
16	147	8.9	4.4	3.2	1.3	1.5	.69	148	92	9.1	6.7	e350
17	144	8.5	5.0	3.0	1.3	1.4	.69	128	86	581	6.5	e200
18	138	8.0	4.6	2.4	1.3	2.2	.69	107	80	163	6.4	e150
19	129	7.5	4.0	2.7	1.4	3.6	.69	101	73	99	6.2	e120
20	117	7.2	4.0	2.8	1.3	3.8	1.4	95	68	71	6.1	e100
21	109	6.8	3.9	2.8	1.2	3.2	2.1	95	64	54	5.9	e85
22	112	6.6	4.0	2.5	1.1	2.6	7.0	89	64	43	5.5	e75
23	106	6.3	5.9	2.5	1.3	2.1	9.1	86	57	36	5.1	e66
24	97	5.9	8.6	2.4	1.7	1.8	10	85	53	31	5.1	e58
25	84	6.0	9.3	2.2	1.5	1.8	11	81	48	27	5.1	e52
26	72	5.5	9.7	2.2	1.6	1.7	12	76	43	24	4.8	e47
27	62	5.5	9.5	2.2	1.6	1.6	12	69	41	23	4.8	e43
28	53	5.1	9.5	2.2	1.6	1.6	11	64	37	21	7.3	e40
29	45	4.6	9.1	2.1	---	1.4	10	64	34	18	9.5	e37
30	39	4.7	8.3	2.0	---	1.1	9.6	56	31	16	12	e35
31	34	---	7.5	2.2	---	1.1	---	122	---	15	15	---
TOTAL	2134.13	358.0	163.5	109.6	42.7	53.7	111.90	3226.8	2420	1477.5	248.7	2582.7
MEAN	68.8	11.9	5.27	3.54	1.52	1.73	3.73	104	80.7	47.7	8.02	86.1
MAX	150	28	9.7	7.3	2.1	3.8	12	398	124	581	15	1000
MIN	.09	4.6	3.4	2.0	1.1	1.1	.67	7.0	31	9.1	4.8	5.5
AC-FT	4230	710	324	217	85	107	222	6400	4800	2930	493	5120

CAL YR 1986 TOTAL 4002.33 MEAN 11.0 MAX 505 MIN .04 AC-FT 7940
WTR YR 1987 TOTAL 12929.17 MEAN 35.4 MAX 1000 MIN .09 AC-FT 25650

e Estimated.

08192000 NUECES RIVER BELOW UVALDE, TX

LOCATION.--Lat 29°07'25", long 99°53'40", Uvalde County, Hydrologic Unit 12110103, on right bank at McDaniel Ranch, 5.7 mi upstream from bridge on U.S. Highway 83, 8.8 mi southwest of Uvalde, 18.2 mi downstream from West Nueces River, and at mile 338.7.

DRAINAGE AREA.--1,861 mi².

PERIOD OF RECORD.--April 1939 to current year. October 1927 to April 1939, published as "near Uvalde"; records equivalent only during periods of flood flow.

REVISED RECORDS.--WSP 1732: 1956(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 796.12 ft above National Geodetic Vertical Datum of 1929. Oct. 4, 1927, to Apr. 30, 1939, water-stage recorder at site 6.2 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Part of the flow of the Nueces River enters the Edwards and associated limestones in the Balcones Fault Zone that crosses the basin downstream from Laguna (station 08190000) and upstream from this station. At low stage, most of headwater flow enters this formation. There are many small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--48 years, 127 ft³/s (92,010 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft³/s Sept. 24, 1955 (gage height, 24.61 ft, from floodmark), from rating curve extended above 34,000 ft³/s on basis of conveyance study and slope-area measurement of peak flow; no flow at times in 1951-57.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1836, 40.4 ft June 14, 1935, from floodmark (discharge at former site, 616,000 ft³/s, by slope-area measurement). Large floods also occurred in 1901 and 1913, stages unknown.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 8	0530	1,100	5.15	May 31	2230	28,000	13.61
Oct. 12	1800	4,000	7.00	June 4	0930	7,350	9.27
Nov. 6	0130	1,050	5.11	June 14	0400	4,680	7.43
Dec. 27	1000	324	4.33	July 18	0700	1,680	5.41
May 15	0500	331	4.32	Aug. 29	0830	7,100	9.12
May 21	0330	394	4.41	Sept. 16	0030	10,700	10.83
May 29	1400	*67,200	*16.54				

Minimum daily discharge, 37 ft³/s Oct. 5.

DISCHARGE, IN 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	63	234	165	312	145	159	145	143	8770	742	338	483
2	51	221	158	300	142	161	142	140	2580	711	329	427
3	43	210	153	287	139	159	139	139	2610	689	318	391
4	39	212	151	276	135	158	137	141	5970	657	311	367
5	37	420	154	276	151	157	139	158	3910	636	303	351
6	52	925	152	270	164	154	140	191	2830	609	298	344
7	57	716	150	264	168	153	140	190	2270	587	290	340
8	978	592	150	259	167	149	136	170	1910	570	284	330
9	652	506	150	253	162	147	133	159	1740	557	279	323
10	425	440	157	248	155	149	131	150	1790	546	272	315
11	588	407	168	232	149	161	129	172	2010	528	272	319
12	2380	385	164	227	146	156	127	154	3620	511	265	311
13	2310	357	161	227	145	153	123	145	3160	491	271	305
14	1460	327	164	217	143	150	118	220	3730	487	267	299
15	1070	310	176	212	143	150	116	305	2590	484	262	1940
16	837	293	180	208	137	151	114	282	2090	507	259	4390
17	656	279	185	212	132	171	111	253	1810	504	257	1660
18	570	264	185	206	129	194	108	239	1640	1290	252	1120
19	472	250	176	200	127	204	107	274	1510	904	248	914
20	396	238	172	194	129	200	105	281	1390	696	245	747
21	362	230	172	185	127	194	112	347	1280	581	240	660
22	381	221	203	179	124	191	154	289	1220	521	240	584
23	369	213	227	176	125	182	204	264	1160	484	234	532
24	338	207	259	174	141	172	197	255	1080	450	233	491
25	312	208	287	171	139	168	189	260	998	432	228	469
26	289	199	312	166	153	167	179	255	957	417	227	443
27	299	194	324	161	153	165	169	249	916	411	223	426
28	303	188	324	159	156	163	160	246	853	388	327	405
29	285	179	324	153	---	157	152	15700	823	380	2240	413
30	266	173	318	149	---	152	146	2970	767	362	755	393
31	249	---	318	149	---	150	---	5390	---	353	566	---
TOTAL	16589	9598	6339	6702	4026	5097	4202	30131	67984	17485	11133	20492
MEAN	535	320	204	216	144	164	140	972	2266	564	359	683
MAX	2380	925	324	312	168	204	204	15700	8770	1290	2240	4390
MIN	37	173	150	149	124	147	105	139	767	353	223	299
AC-FT	32900	19040	12570	13290	7990	10110	8330	59760	134800	34680	22080	40650

CAL YR 1986 TOTAL 44305 MEAN 121 MAX 2380 MIN 22 AC-FT 87880
WTR YR 1987 TOTAL 199778 MEAN 547 MAX 15700 MIN 37 AC-FT 396300

08193000 NUECES RIVER NEAR ASHERTON, TX

LOCATION.--Lat 28°30'00", long 99°40'54", Dimmit County, Hydrologic Unit 12110103, on right bank 28 ft downstream from bridge on Farm Road 190, 0.1 mi downstream from El Moro Creek, 5.8 mi northeast of Asherton, and at mile 266.0.

DRAINAGE AREA.--4,082 mi².

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WSP 1118: 1944.

GAGE.--Water-stage recorder. Datum of gage is 470.92 ft above National Geodetic Vertical Datum of 1929. Prior to Feb. 2, 1940, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Part of flow of the Nueces River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Since March 1948, flow slightly regulated by Upper Nueces Reservoir (capacity, 7,590 acre-ft), 13 mi upstream. Many small diversions above station for irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--48 years, 189 ft³/s (136,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,500 ft³/s Oct. 6, 1959 (gage height, 30.88 ft); no flow for many days most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 33 ft June 17, 1935; flood of June 30, 1913, reached about same stage, 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)
Oct. 15	1500	4,830	23.93	June 8	0400	*8,580	*27.98
May 31	1200	4,840	23.95	Sept. 17	2100	2,520	17.48

Minimum daily discharge, 0.04 ft³/s Oct. 3, 4.

DISCHARGE, IN 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	.0	262	164	272	137	175	131	123	3980	982	394	674
2	.0	250	155	265	133	161	131	116	5060	997	370	524
3	.0	239	145	258	129	153	125	117	6370	922	351	451
4	.0	229	139	252	129	155	118	129	6440	820	334	401
5	.1	216	139	246	138	154	116	145	6780	750	300	375
6	17	203	140	242	176	151	127	143	7820	703	276	348
7	98	233	140	240	169	151	128	139	8380	671	258	331
8	44	396	141	237	165	151	119	146	8470	636	248	319
9	13	424	138	235	165	151	113	161	8080	603	239	313
10	4.4	421	137	229	163	150	108	159	7980	579	240	307
11	167	376	136	223	161	170	100	168	7390	561	231	308
12	1010	343	135	216	153	176	94	165	6180	533	212	303
13	2780	331	136	210	147	170	88	162	5290	508	200	296
14	4120	311	142	208	143	168	79	172	5290	502	188	286
15	4760	294	156	206	136	165	76	265	5120	514	182	278
16	4480	282	155	204	128	162	67	761	4760	507	187	281
17	3300	270	153	205	119	158	62	1290	3930	504	190	1840
18	1920	258	155	205	111	154	54	1400	3360	502	186	2040
19	929	245	156	195	106	156	46	1260	2820	547	174	1170
20	624	233	155	190	107	161	49	880	2270	789	161	850
21	509	221	162	186	103	173	67	599	1840	710	151	711
22	471	207	218	182	100	183	105	473	1650	600	152	625
23	420	196	275	179	96	182	91	425	1580	529	151	560
24	382	190	274	178	99	171	80	437	1560	495	152	506
25	349	194	267	176	110	161	102	444	1700	467	153	467
26	365	192	255	172	136	156	134	386	1650	459	148	436
27	378	185	253	165	157	148	154	353	1410	465	143	410
28	351	177	256	162	169	140	146	387	1210	463	166	391
29	295	172	263	159	---	143	134	377	1090	450	238	378
30	285	169	276	152	---	138	129	1050	1010	432	499	359
31	275	---	277	142	---	132	---	4570	---	413	1040	---
TOTAL	28346.5	7719	5693	6391	3785	4919	3073	17402	130470	18613	7914	16538
MEAN	914	257	184	206	135	159	102	561	4349	600	255	551
MAX	4760	424	277	272	176	183	154	4570	8470	997	1040	2040
MIN	.00	169	135	142	96	132	46	116	1010	413	143	278
AC-FT	56230	15310	11290	12680	7510	9760	6100	34520	258800	36920	15700	32800

CAL YR 1986 TOTAL 71148.2 MEAN 195 MAX 7100 MIN .00 AC-FT 141100
WTR YR 1987 TOTAL 250863.5 MEAN 687 MAX 8470 MIN .00 AC-FT 497600

08194000 NUECES RIVER AT COTULLA, TX

LOCATION.--Lat 28°25'34", long 99°14'23", La Salle County, Hydrologic Unit 12110105, on left bank at downstream side of bridge on U.S. Highway 81, 0.4 mi upstream from Missouri Pacific Railroad Co. bridge, 0.8 mi southwest of Cotulla, 1.0 mi upstream from Lind Dam, and at mile 216.9.

DRAINAGE AREA.--5,171 mi².

PERIOD OF RECORD.--November 1923 to current year. November 1923 to September 1926 monthly discharge only, published in WSP 1312; figures of daily discharge for Oct. 31, 1923, to Sept. 30, 1926, published in WSP 588, 608, and 628, have been found to be unreliable and should not be used. Gage-height records collected in this vicinity in 1914-17 and since 1922 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1732: 1957(M). WDR TX-83-3: Drainage area. See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 368.08 ft above National Geodetic Vertical Datum of 1929. From Oct. 31, 1923, to Aug. 3, 1924, nonrecording gage at approximate site of present gage at datum 7.28 ft higher. Aug. 4, 1924, to Nov. 19, 1934, nonrecording gage at site 5,000 ft downstream at datum 8.42 ft higher. From Nov. 20, 1934, to July 14, 1938, water-stage recorder, and July 15, 1938, to Apr. 30, 1963, nonrecording gage, at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Part of flow of Nueces River and its headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Considerable loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Low flow is slightly regulated by small storage reservoirs above station, with most diverted above station by pumping (see REMARKS for Nueces River near Asherton, station 08193000). Satellite telemeter at station.

AVERAGE DISCHARGE.--63 years (water years 1925-87), 274 ft³/s (198,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,600 ft³/s June 18, 1935 (gage height, 32.4 ft, from floodmark), from rating curve extended above 43,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times each year.
Maximum stage since at least 1879, that of June 18, 1935.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 19, 1899, reached a stage of 29.7 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 18	1600	4,970	14.90	June 14	1600	*9,780	*17.95

Minimum daily discharge, no flow Oct. 5.

DISCHARGE, IN 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	.24	323	162	310	155	141	126	136	737	1790	456	503
2	.13	301	155	304	144	161	120	131	1310	1600	431	931
3	.06	279	155	288	137	166	117	127	1660	1440	411	961
4	.10	258	151	270	133	159	116	124	3200	1340	388	644
5	.00	238	139	258	133	150	114	120	4910	1290	368	487
6	1.9	224	133	252	131	147	112	122	6080	1190	348	446
7	110	211	131	246	131	147	108	139	6910	1060	314	487
8	55	196	131	241	153	146	105	148	7820	938	284	447
9	57	224	131	235	165	146	111	142	8720	853	263	396
10	180	359	131	230	162	144	114	142	8890	788	250	363
11	220	424	131	224	160	150	110	164	9110	720	239	360
12	350	424	128	222	160	146	104	167	9250	667	238	335
13	500	392	128	216	160	148	99	168	9300	629	228	323
14	1000	352	128	211	158	162	93	171	9680	591	209	312
15	1640	333	146	201	148	164	86	167	9340	556	196	296
16	3500	314	139	201	142	158	82	175	8080	549	184	281
17	4580	295	144	198	133	154	73	249	7190	550	174	269
18	4920	279	148	196	125	148	69	466	6600	547	176	364
19	4650	264	146	191	118	145	62	868	5980	540	179	910
20	3700	249	144	191	112	142	55	1110	5260	537	175	1250
21	2600	235	160	186	106	139	49	1270	4560	603	164	1490
22	1850	222	385	179	102	140	46	1320	3970	815	151	1560
23	1210	209	350	177	102	148	48	1200	3450	886	140	1320
24	740	194	432	175	99	157	67	768	2960	760	138	947
25	532	184	616	173	99	162	93	523	2580	617	139	719
26	445	181	629	171	103	162	90	483	2340	566	135	605
27	399	179	539	169	103	155	83	480	2210	531	137	542
28	410	176	427	169	117	147	106	431	2180	504	136	496
29	410	174	365	167	---	139	138	394	2130	506	138	456
30	396	167	330	162	---	132	143	418	1980	496	149	427
31	349	---	314	160	---	126	---	475	---	477	235	---
TOTAL	34805.43	7860	7348	6573	3691	4631	2839	12798	158387	24936	7173	18927
MEAN	1123	262	237	212	132	149	94.6	413	5280	804	231	631
MAX	4920	424	629	310	165	166	143	1320	9680	1790	456	1560
MIN	.00	167	128	160	99	126	46	120	737	477	135	269
AC-FT	69040	15590	14570	13040	7320	9190	5630	25380	314200	49460	14230	37540

CAL YR 1986 TOTAL 85541.28 MEAN 234 MAX 6240 MIN .00 AC-FT 169700
WTR YR 1987 TOTAL 289968.37 MEAN 794 MAX 9680 MIN .00 AC-FT 575200

08194200 SAN CASIMIRO CREEK NEAR FREER, TX

LOCATION.--Lat 27°57'53", long 98°58'00", Webb County, Hydrologic Unit 12110105, at downstream side of bridge on State Highway 44, 11.4 mi upstream from mouth, and 22 mi northwest of Freer.

DRAINAGE AREA.--469 mi².

PERIOD OF RECORD.--January 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 298 ft, from State Department of Highways and Public Transportation datum.

REMARKS.--No estimated daily discharges. Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years, 63.4 ft³/s (45,930 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,000 ft³/s Oct. 17, 1971 (gage height, 26.87 ft), from rating curve extended above 21,000 ft³/s on basis of flow-through-culverts, contracted opening, and flow-over-road determination of 82,000 ft³/s; no flow for many days each year.
Maximum stage since at least 1946, that of Oct. 17, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Second highest stage, 26 ft (discharge 65,200 ft³/s), occurred in 1954, 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)
June 2	1600	*3,410	*19.88	June 6	1900	1,480	17.19
June 4	1300	1,720	17.70	June 8	2400	1,700	17.66

Minimum daily discharge, no flow for many days.

DISCHARGE, IN 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	.0	.09	.08	1.4	.17	9.9	.12	.08	107	.67	.10	164
2	.0	.08	.06	.97	.15	3.6	.12	.09	2230	.61	.1	318
3	.0	.07	.06	.60	.14	1.4	.12	.08	1600	.54	.1	314
4	.0	.07	.05	.40	.14	.83	.10	.07	1590	.47	.1	86
5	.0	.06	.06	.32	.39	.59	.16	.07	876	.39	.1	15
6	7.8	.06	.06	.28	.97	.45	.18	.10	1200	.33	.1	4.8
7	356	.07	.06	.24	2.7	.37	.19	.10	1050	.30	.1	2.0
8	197	.07	.06	.23	1.1	.33	.19	.10	1200	.29	.0	1.2
9	19	.06	.06	.22	.53	.30	.16	.09	1610	.42	.0	.86
10	5.0	.55	.05	.17	.40	.26	.13	.07	852	.31	.0	.55
11	1.5	1.4	.06	.14	.34	.41	.11	.10	476	.27	.0	.37
12	75	.39	.05	.13	.32	.42	.12	.10	210	.25	.0	.31
13	246	.29	.05	.13	.29	.38	.12	.10	321	.23	.0	.23
14	7.7	.19	.10	.14	.26	.40	.10	.73	153	.22	.0	.16
15	1.6	.35	.19	.14	.21	.36	.10	.57	32	.25	.00	.13
16	.81	.42	.19	3.3	.17	.33	.10	.34	18	.28	.00	.12
17	.54	.29	.16	9.0	.14	.29	.09	.19	17	.25	.00	.11
18	.40	.22	.14	1.5	.14	.25	.11	.06	12	.23	.00	.1
19	.31	.16	.11	.68	.15	.21	.12	.05	7.4	.21	.00	.1
20	.25	.12	.10	.44	.17	.19	.12	.03	4.6	.19	.00	.1
21	.33	.10	5.9	.35	.17	.19	.13	.01	3.3	.34	.00	.1
22	.55	.09	127	1.2	.17	.19	.13	.0	2.4	.51	.00	.1
23	.59	.07	73	.81	.18	.18	.13	.0	1.9	.66	.00	.1
24	2.9	.10	11	.45	.19	.16	.12	.0	1.6	.68	.00	.1
25	.85	.12	2.7	.36	.61	.14	.12	.0	1.4	.42	.00	.1
26	.51	.12	1.2	.29	91	.14	.12	.0	1.2	.31	.00	.1
27	.92	.11	.74	.24	57	.14	.09	.0	1.1	.26	.00	.1
28	.47	.20	.53	.21	17	.14	.08	.00	.93	.22	.00	4.9
29	.26	.14	.51	.19	---	.13	.09	.00	.83	.18	.0	13
30	.16	.10	15	.17	---	.12	.09	.0	.75	.16	.0	33
31	.11	---	4.0	.17	---	.11	---	.78	---	.13	28	---
TOTAL	926.56	6.16	243.33	24.87	175.20	22.91	3.66	3.91	13581.40	10.58	28.70	959.74
MEAN	29.9	.21	7.85	.80	6.26	.74	.12	.13	453	.34	.93	32.0
MAX	356	1.4	127	9.0	91	9.9	.19	.78	2230	.68	28	318
MIN	.00	.06	.05	.13	.14	.11	.08	.00	.75	.13	.00	.10
AC-FT	1840	12	483	49	348	45	7.3	7.8	26940	21	57	1900

CAL YR 1986 TOTAL 8589.81 MEAN 23.5 MAX 1710 MIN .00 AC-FT 17040
WTR YR 1987 TOTAL 15986.95 MEAN 43.8 MAX 2230 MIN .00 AC-FT 31710

08194500 NUECES RIVER NEAR TILDEN, TX

LOCATION.--Lat 28°18'31", long 98°33'25", McMullen County, Hydrologic Unit 12110105, on right bank at downstream side of pier of bridge on State Highway 16, 1.8 mi upstream from Kings Branch, 10.5 mi south of Tilden, and at mile 135.4.

DRAINAGE AREA.--8,093 mi².

PERIOD OF RECORD.--November 1942 to current year.

REVISED RECORDS.--WSP 1512: 1947. WSP 1732: 1951(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 183.5 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Part of flow of Nueces River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Laguna and Uvalde (stations 08190000 and 08192000, respectively). Some loss of flow into various permeable formations occurs downstream from the Balcones Fault Zone. Some diversions for irrigation above station. Satellite telemeter at station.

AVERAGE DISCHARGE.--44 years (water years 1944-87), 434 ft³/s (314,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,500 ft³/s Sept. 24, 1967 (gage height, 26.57 ft); no flow at times.
Maximum stage since about 1902, that of Sept. 24, 1967. Flood of Oct. 11, 1946, reached a stage of 26.46 ft (discharge, 70,000 ft³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in June 1935 reached a stage of 23.7 ft and in July 1942 about 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 28	1300	2,610	16.61	June 14	1600	*11,200	*20.04
June 4	2200	3,260	17.40				

Minimum daily discharge, 0.38 ft³/s Oct. 5.

DISCHARGE, IN 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	.99	395	191	459	160	269	137	74	1810	2950	427	227
2	.66	371	188	386	153	174	127	100	2380	2750	419	257
3	.47	338	181	343	149	142	120	128	2890	2540	403	548
4	.40	313	174	327	147	134	115	134	3150	2310	384	718
5	.38	294	172	315	142	147	115	129	3070	2120	366	815
6	.62	275	169	310	142	156	114	122	2480	1960	348	861
7	147	260	166	300	140	157	116	115	2530	1800	327	763
8	425	246	157	282	146	149	117	111	2850	1630	313	520
9	618	235	147	268	134	136	117	133	3200	1410	297	418
10	601	243	140	255	126	128	109	195	3330	1180	272	410
11	318	236	136	250	136	127	102	185	3590	978	250	381
12	156	232	136	244	156	128	102	149	4220	809	233	341
13	131	312	137	238	158	127	102	139	7460	694	221	320
14	419	368	141	223	154	127	102	138	10800	623	210	306
15	636	386	148	219	154	128	97	147	10900	574	206	286
16	561	374	147	218	154	123	92	147	10400	542	199	275
17	660	344	150	216	152	126	85	149	9790	522	184	264
18	735	328	159	219	142	135	78	149	9350	493	170	254
19	788	314	159	220	130	137	72	149	9250	473	160	244
20	838	298	156	208	126	135	67	197	9100	469	152	237
21	902	286	185	199	120	131	62	299	8270	465	151	332
22	978	273	541	194	115	125	58	434	7000	458	154	540
23	1070	260	800	191	111	122	55	546	5910	457	153	660
24	1190	252	829	189	103	120	50	613	5180	488	147	748
25	1380	296	916	184	99	121	46	674	4650	561	135	814
26	1770	247	944	177	126	120	44	718	4260	621	124	867
27	2240	224	786	173	217	129	44	742	3990	624	120	907
28	2570	207	601	170	338	139	56	675	3700	556	120	850
29	2470	197	585	169	---	146	71	488	3430	499	140	609
30	1840	191	562	168	---	146	75	422	3170	458	223	482
31	568	---	515	165	---	143	---	836	---	435	157	---
TOTAL	24014.52	8595	10418	7479	4130	4327	2647	9237	162110	32449	7165	15254
MEAN	775	286	336	241	147	140	88.2	298	5404	1047	231	508
MAX	2570	395	944	459	338	269	137	836	10900	2950	427	907
MIN	.38	191	136	165	99	120	44	74	1810	435	120	227
AC-FT	47630	17050	20660	14830	8190	8580	5250	18320	321500	64360	14210	30260

CAL YR 1986 TOTAL 71076.33 MEAN 195 MAX 2780 MIN .00 AC-FT 141000
WTR YR 1987 TOTAL 287825.50 MEAN 789 MAX 10900 MIN .38 AC-FT 570900

08195000 FRIO RIVER AT CONCAN, TX

LOCATION.--Lat 29°29'18", long 99°42'16", Uvalde County, Hydrologic Unit 12110106, on left bank 0.7 mi southeast of Concan Post Office, 15 mi upstream from Dry Frio River, and 222.8 mi upstream from mouth.

DRAINAGE AREA.--389 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to September 1929, October 1930 to current year.

REVISED RECORDS.--WSP 1342: Drainage area. WSP 1512: 1926, 1931-32, 1934(M), 1935-36. WSP 1712: 1958. WSP 1923: 1954(M), 1957(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,203.71 ft above National Geodetic Vertical Datum of 1929. Oct. 26, 1923, to July 28, 1924, nonrecording gage at site 86 ft upstream at datum 5.08 ft lower. July 29, 1924, to Oct. 3, 1930, nonrecording gage, and Oct. 4, 1930, to May 18, 1939, water-stage recorder, at site 130 ft downstream at present datum.

REMARKS.--No estimated daily discharges. Records good. Many small diversions for irrigation above station.

AVERAGE DISCHARGE.--62 years (water years 1925-29, 1931-87), 118 ft³/s (4.12 in/yr), 85,490 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 162,000 ft³/s July 1, 1932 (gage height, 34.44 ft, from floodmarks), from rating curve extended above 44,000 ft³/s on basis of flow-over-dam measurement of 56,600 ft³/s and slope-area measurement of 162,000 ft³/s; no flow Aug. 5, 1956, to Jan 6, 1957.
Maximum stage since at least 1869, that of July 1, 1932.

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)
Oct. 12	0800	5,290	7.93	June 11	1330	6,730	8.62
May 29	0830	*35,800	*18.36	June 13	1830	8,440	9.37
May 31	2000	2,910	6.64	July 17	1230	11,200	10.40
June 3	2300	10,400	10.11	Sept. 15	1330	14,100	11.37

Minimum daily discharge, 64 ft³/s Oct. 4.

DISCHARGE, IN 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	70	204	168	347	204	222	199	145	1690	639	299	262
2	67	200	167	339	199	218	195	141	1170	608	286	242
3	65	196	166	330	196	213	192	143	4050	579	280	228
4	64	266	164	323	194	208	191	158	4410	556	271	219
5	67	379	165	319	217	208	200	159	2460	535	264	213
6	113	301	165	314	219	204	203	153	1890	516	259	209
7	127	276	176	309	212	204	196	148	1580	500	253	207
8	157	262	174	305	204	204	187	145	1430	497	247	204
9	141	249	167	303	196	202	185	142	1390	497	239	201
10	127	244	179	294	193	204	180	137	2020	485	233	201
11	344	237	182	287	190	213	179	153	3360	473	230	214
12	2290	235	180	281	190	208	176	221	3930	458	239	203
13	780	229	176	277	185	203	174	231	3160	449	289	195
14	455	224	186	274	185	199	167	175	2950	445	244	189
15	357	219	197	270	181	199	170	171	1960	494	230	2850
16	309	220	203	265	179	204	167	158	1700	479	222	840
17	278	215	204	268	176	279	166	153	1520	2200	217	459
18	259	212	204	258	173	269	162	145	1380	812	211	421
19	246	206	204	254	170	255	162	164	1250	536	208	381
20	233	201	204	248	173	244	158	177	1160	463	202	331
21	238	199	206	244	171	238	164	181	1080	425	198	308
22	265	194	271	240	167	234	168	167	1040	413	188	291
23	253	191	413	234	167	230	163	160	953	392	184	278
24	250	189	427	231	181	231	163	255	897	377	180	268
25	241	194	396	225	187	225	175	220	842	366	179	259
26	257	189	397	220	220	221	174	197	838	354	176	252
27	244	184	380	218	220	218	163	188	763	355	176	246
28	228	180	373	213	226	216	157	185	724	345	260	243
29	219	176	366	211	---	208	153	9460	693	330	264	238
30	212	173	361	208	---	205	150	1360	662	319	289	234
31	207	---	353	206	---	204	---	1750	---	309	285	---
TOTAL	9163	6644	7574	8315	5375	6790	5239	17342	52952	16206	7302	10886
MEAN	296	221	244	268	192	219	175	559	1765	523	236	363
MAX	2290	379	427	347	226	279	203	9460	4410	2200	299	2850
MIN	64	173	164	206	167	199	150	137	662	309	176	189
AC-FT	18170	13180	15020	16490	10660	13470	10390	34400	105000	32140	14480	21590
CFSM	.76	.57	.63	.69	.49	.56	.45	1.44	4.54	1.34	.61	.93
IN.	.88	.64	.72	.80	.51	.65	.50	1.66	5.06	1.55	.70	1.04

CAL YR 1986 TOTAL 45250 MEAN 124 MAX 2290 MIN 44 AC-FT 89750 CFSM .32 IN. 4.33
WTR YR 1987 TOTAL 153788 MEAN 421 MAX 9460 MIN 64 AC-FT 305000 CFSM 1.08 IN. 14.7

08195000 FRIO RIVER AT CONCAN, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: June 1952, December 1964 to July 1965. Chemical, biochemical, and pesticide analyses: August 1968 to current year. Pesticide analyses: August 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
JAN											
21...	1000	258	422	8.10	10.5	1	0.10	10.3	95	0.5	55
MAY											
06...	1155	146	415	8.20	22.5	3	0.60	8.6	104	0.6	K16
SEP											
02...	1040	244	437	8.10	23.5	2	0.20	8.3	100	0.8	K100

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
JAN											
21...	53	230	27	68	14	6.5	0.2	0.80	200	17	20
MAY											
06...	K14	200	20	59	14	7.0	0.2	0.70	185	15	14
SEP											
02...	44	220	25	64	14	8.6	0.3	1.0	193	15	15

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
JAN											
21...	0.10	11	260	1	<1	<0.010	1.30	0.020	0.88	0.90	<0.010
MAY											
06...	0.10	12	230	<1	<1	<0.010	0.800	0.020	1.9	1.9	0.020
SEP											
02...	0.20	13	250	1	<1	<0.010	1.30	<0.010	--	<0.20	<0.010

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
JAN											
21...	1.1	<1	32	<1	<10	<1	5	<5	<1	<0.1	<1
MAY											
06...	1.0	--	--	--	--	--	--	--	--	--	--
SEP											
02...	1.3	<1	43	<1	<10	1	11	<5	<1	<0.1	2

DATE	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN										
21...	<1	22	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	<1	14	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	0.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JAN										
21...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01

08195000 FRIO RIVER AT CONCAN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JAN										
21...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX

LOCATION.--Lat 29°30'16", long 99°46'52", Uvalde County, Hydrologic Unit 12110106, on right bank 2.3 mi upstream from bridge on U.S. Highway 83, 3.1 mi upstream from Rocky Creek, 4.3 mi southeast of Reagan Wells, and 25.9 mi upstream from mouth.

DRAINAGE AREA.--126 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1712: 1953. WSP 1923: 1955(M). WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,335.2 ft above National Geodetic Vertical Datum of 1929, from State Department of Highways and Public Transportation datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. There are several small diversions above station.

AVERAGE DISCHARGE.--35 years, 36.7 ft³/s (3.96 in/yr), 26,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft³/s Aug. 13, 1966 (gage height, 27.6 ft, from floodmark), from rating curve extended above 900 ft³/s on basis of slope-area measurements of 11,400, 30,700, 64,700, and 123,000 ft³/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875 occurred in 1880 (about 33 ft). Flood of June 14, 1935, reached a stage of 26.0 ft (discharge, 64,700 ft³/s, determined at site 2.6 mi upstream), and flood of July 1, 1932, reached a stage of 23 ft (discharge, 30,700 ft³/s, determined at site 2.0 mi upstream), from information by local residents.

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

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 12	0615	4,100	8.67	May 29	0500	*26,200	a*21.31
May 13	0800	1,910	5.95	May 31	b1400	6,100	a10.6
May 15	0700	282	3.68	bJune 12	1500	4,320	a8.9
May 24	0145	1,080	4.74	Sept. 15	1130	2,600	6.93

a From inside floodmark.
b Estimated.

Minimum daily discharge, 12 ft³/s Oct. 4.

DISCHARGE, IN 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	13	57	39	62	43	76	26	27	e1200	167	53	62
2	13	54	36	59	41	78	27	27	e800	158	51	56
3	13	51	34	56	40	64	29	27	e900	148	50	53
4	12	88	33	54	41	60	40	30	e1000	143	48	48
5	13	124	33	60	62	64	40	31	e600	137	47	46
6	20	100	33	59	79	64	40	30	e450	123	46	44
7	21	88	37	56	101	59	29	28	e400	113	43	41
8	21	79	36	54	67	61	29	26	e370	110	41	40
9	23	75	34	53	57	74	28	26	e350	108	40	38
10	22	72	39	51	59	e76	28	25	e500	106	38	37
11	38	69	43	48	58	e78	29	26	e700	101	38	38
12	1130	63	43	47	54	80	29	25	e1000	94	40	36
13	316	58	41	47	55	84	29	290	e800	90	80	35
14	138	57	46	47	56	83	30	171	e700	88	51	32
15	100	56	54	46	50	82	31	174	e550	90	46	442
16	84	55	56	44	52	71	31	108	e470	90	43	274
17	76	56	56	46	47	84	31	78	e400	96	41	161
18	68	54	56	44	38	83	30	65	e370	94	40	78
19	63	59	54	44	33	74	29	84	e350	84	38	78
20	56	51	53	48	34	58	29	83	e325	78	37	64
21	57	50	53	48	31	39	31	78	e300	74	35	59
22	79	49	99	43	29	48	32	66	e280	74	34	54
23	69	45	182	42	27	47	32	63	e260	70	32	53
24	76	44	176	42	34	63	32	343	e240	67	31	51
25	72	44	134	44	39	42	35	164	230	64	30	48
26	74	49	115	42	71	40	36	131	211	62	29	47
27	70	45	101	41	76	34	33	105	198	62	28	47
28	67	45	86	41	77	33	30	94	185	62	81	46
29	63	42	78	37	---	29	28	5100	179	60	90	46
30	59	41	70	40	---	30	27	e1160	173	57	78	44
31	56	---	65	42	---	26	---	e1800	---	54	78	---
TOTAL	2982	1820	2015	1487	1451	1884	930	10485	14491	2924	1457	2198
MEAN	96.2	60.7	65.0	48.0	51.8	60.8	31.0	338	483	94.3	47.0	73.3
MAX	1130	124	182	62	101	84	40	5100	1200	167	90	442
MIN	12	41	33	37	27	26	26	25	173	54	28	32
AC-FT	5910	3610	4000	2950	2880	3740	1840	20800	28740	5800	2890	4360
CFSM	.76	.48	.52	.38	.41	.48	.25	2.68	3.83	.75	.37	.58
IN.	.88	.54	.59	.44	.43	.56	.27	3.10	4.28	.86	.43	.65

CAL YR 1986 TOTAL 14466 MEAN 39.6 MAX 1150 MIN 6.3 AC-FT 28690 CFSM .31 IN. 4.27
WTR YR 1987 TOTAL 44124 MEAN 121 MAX 5100 MIN 12 AC-FT 87520 CFSM .96 IN. 13.0

e Estimated.

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1966 to current year. Pesticide analyses: January 1974 to current year. Sediment analyses: January 1966.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
JAN											
21...	1234	49	412	8.10	10.5	1	0.10	10.2	94	0.4	K79
MAY											
06...	1326	30	400	8.10	24.5	2	0.30	7.3	92	0.5	K14
SEP											
02...	1315	56	415	8.00	26.5	2	0.20	8.2	105	0.8	K30

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
JAN											
21...	K12	220	22	67	13	6.1	0.2	0.50	199	16	17
MAY											
06...	K32	200	20	57	13	7.0	0.2	0.50	176	16	14
SEP											
02...	K12	200	18	60	13	8.0	0.3	0.70	185	14	13

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
JAN											
21...	0.10	8.9	250	3	<1	<0.010	1.20	0.010	0.39	0.40	<0.010
MAY											
06...	<0.10	10	220	<1	<1	<0.010	0.600	0.010	0.99	1.0	0.010
SEP											
02...	0.10	12	230	4	2	<0.010	1.10	<0.010	--	0.40	<0.010

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
JAN											
21...	1.2	<1	37	1	<10	<1	3	<5	<1	<0.1	<1
MAY											
06...	1.5	--	--	--	--	--	--	--	--	--	--
SEP											
02...	1.5	<1	49	<1	20	<1	7	<5	<1	<0.1	<1

DATE	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN										
21...	<1	23	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	<1	6	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JAN										
21...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01

08196000 DRY FRIO RIVER NEAR REAGAN WELLS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JAN										
21...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
02...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01

08197500 FRIO RIVER BELOW DRY FRIO RIVER NEAR UVALDE, TX

LOCATION.--Lat 29°14'44", long 99°40'27", Uvalde County, Hydrologic Unit 12110106, on right bank 1.1 mi upstream from Farm Road 1023, 5.7 mi downstream from Dry Frio River, 6.3 mi downstream from bridge on U.S. Highway 90, 7.2 mi northeast of Uvalde, and 194.5 mi upstream from mouth.

DRAINAGE AREA.--631 mi².

PERIOD OF RECORD.--September 1952 to current year. Sum of records published as Frio River at Knippa and Dry Frio River at Knippa for period September 1952 to September 1953 is equivalent to record for this station.

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 882.47 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Part of flow of Frio River enters the Edwards and associated limestones in the Balcones Fault Zone, which crosses basin between Concan (station 08195000) and this station. Most of low flow enters this formation. Many diversions for irrigation above station. Satellite telemeter at station.

AVERAGE DISCHARGE.--35 years, 35.0 ft³/s (25,360 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 99,600 ft³/s May 29, 1987 (gage height, 25.05 ft, from floodmark), from rating curve extended above 12,000 ft³/s on basis of slope-area measurements of 24,400, 53,000, and 88,500 ft³/s; no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, about 35 ft in 1894. Flood of July 1, 1932, reached a stage of about 30 ft. A higher flood than that of 1894 occurred prior to 1887. Above 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)
Oct. 12	1600	3,060	7.34	June 12	--	Unknown	Unknown
May 29	1200	*99,600	a*25.05	July 17	1900	6,160	9.03
June 4	Unknown	13,000	a11.61	Sept. 15	2030	8,000	9.84

a From floodmark.

Minimum daily discharge, no flow most of year.

DISCHARGE, IN 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	.0	.0	.0	2.0	.0	.0	.0	.00	e1200	289	6.0	2.0
2	.0	.0	.0	.77	.0	.0	.0	.00	e1000	257	5.5	2.0
3	.0	.0	.0	.30	.0	.0	.0	.00	e4000	224	5.2	1.9
4	.0	.0	.0	.12	.0	.0	.0	.00	e4500	198	4.9	1.9
5	.0	.0	.0	.01	.0	.0	.0	.00	e2000	172	4.5	1.9
6	.0	.0	.0	.0	.0	.0	.0	.00	e1500	150	4.2	1.7
7	.0	.0	.0	.0	.0	.0	.0	.00	e1300	128	4.1	1.8
8	.0	.0	.0	.0	.0	.0	.0	.00	e1200	117	3.9	1.9
9	.0	.0	.0	.0	.0	.0	.0	.00	e1100	108	3.8	1.7
10	.0	.0	.0	.0	.0	.0	.0	.00	e1700	101	3.8	1.7
11	.0	.0	.0	.0	.0	.0	.0	.00	e3000	85	3.8	1.7
12	966	.0	.0	.0	.0	.0	.0	.00	e4000	77	4.4	1.7
13	863	.0	.0	.0	.0	.0	.0	.00	e2500	65	5.3	1.7
14	197	.0	.0	.0	.0	.0	.0	.00	e2000	56	4.2	1.7
15	61	.0	.0	.0	.0	.0	.0	.00	e1700	67	3.5	1150
16	17	.0	.0	.0	.0	.0	.0	.00	e1400	110	3.2	1010
17	2.6	.0	.0	.0	.0	.0	.0	.00	1260	1080	3.0	194
18	.49	.0	.0	.0	.0	.0	.0	.00	1130	852	2.8	96
19	.15	.0	.0	.0	.0	.0	.0	.00	1010	244	2.7	111
20	.0	.0	.0	.0	.0	.0	.0	.00	900	137	2.4	44
21	.0	.0	.0	.0	.0	.0	.0	.00	822	92	2.2	18
22	.0	.0	.0	.0	.0	.0	.0	.00	765	71	2.0	6.4
23	.0	.0	.0	.0	.0	.0	.0	.00	684	58	1.9	4.2
24	.0	.0	.0	.0	.0	.0	.0	.00	603	41	1.8	3.5
25	.0	.0	27	.0	.0	.0	.0	.00	538	31	1.7	3.0
26	.0	.0	36	.0	.0	.0	.0	.00	507	24	1.6	2.7
27	.0	.0	28	.0	.0	.0	.0	.00	440	19	1.5	3.0
28	.0	.0	17	.0	.0	.0	.0	.00	389	14	1.6	3.1
29	.0	.0	12	.0	---	.0	.0	24100	360	9.0	1.6	2.9
30	.0	.0	8.1	.0	---	.0	.00	e1200	320	7.2	1.7	2.6
31	.0	---	4.6	.0	---	.0	---	e1500	---	6.4	1.9	---
TOTAL	2107.24	.0	132.7	3.20	.0	.0	.00	26800.00	43828	4889.6	100.7	2679.7
MEAN	68.0	.00	4.28	.10	.00	.00	.00	865	1461	158	3.25	89.3
MAX	966	.00	36	2.0	.00	.00	.00	24100	4500	1080	6.0	1150
MIN	.00	.00	.00	.00	.00	.00	.00	.00	320	6.4	1.5	1.7
AC-FT	4180	.0	263	6.3	.0	.0	.0	53160	86930	9700	200	5320

CAL YR 1986	TOTAL	3123.67	MEAN	8.56	MAX	966	MIN	.00	AC-FT	6200
WTR YR 1987	TOTAL	80540.72	MEAN	221	MAX	24100	MIN	.00	AC-FT	159800

e Estimated.

08198000 SABINAL RIVER NEAR SABINAL, TX

LOCATION.--Lat 29°29'27", long 99°29'33", Uvalde County, Hydrologic Unit 12110106, on right bank 108 ft upstream from concrete dam, 2.3 mi downstream from mouth of Onion Creek, 12.5 mi north of Sabinal, and 41.6 mi upstream from mouth.

DRAINAGE AREA.--206 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WSP 1312: 1943(M), 1944(M), 1947(M).

GAGE.--Water-stage recorder. Datum of gage is 1,131.20 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 9, 1971, at site 0.3 mi downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. There are several small diversions above station for irrigation.

AVERAGE DISCHARGE.--45 years, 60.9 ft^3/s (4.01 in/yr), 44,120 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,200 ft^3/s June 17, 1958 (gage height, 28.3 ft, from floodmark, at present site), from rating curve extended above 6,900 ft^3/s on basis of slope-area measurement of 55,200 ft^3/s; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1892, about 33 ft July 2, 1932, from information by local residents. There is a legend that a flood in the middle 1800's reached a stage of nearly 63 ft, see flood history for station 08198500.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 12	0930	4,930	9.02	June 3	1000	16,500	16.05
May 29	1030	*20,200	*18.01	June 11	1400	11,000	12.62
May 31	1800	2,070	7.47	June 13	1730	6,870	10.09

Minimum daily discharge, 23 ft^3/s Oct. 2-4.

DISCHARGE, IN 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	24	151	105	280	135	148	130	88	1220	480	158	150
2	23	145	100	268	132	145	129	88	971	450	154	136
3	23	142	99	263	130	145	124	88	5050	422	151	127
4	23	164	99	250	130	143	124	93	3020	401	147	121
5	25	212	99	246	136	143	126	94	2020	381	141	118
6	60	180	99	243	139	143	130	87	1610	360	138	116
7	51	175	101	237	131	142	127	85	1380	342	135	115
8	50	168	105	231	126	142	121	82	1270	326	130	114
9	46	161	102	228	124	141	115	81	1260	318	127	112
10	42	154	106	217	121	141	114	79	1600	305	124	108
11	94	152	113	210	121	148	113	80	4420	290	121	116
12	1300	148	113	205	118	147	110	81	2750	279	118	115
13	321	143	110	202	115	142	109	93	2880	267	116	108
14	204	141	115	200	115	141	105	96	1980	268	118	104
15	178	141	128	193	114	141	103	88	1620	315	115	102
16	158	138	130	189	109	141	104	86	1430	303	112	122
17	143	136	130	186	107	192	102	101	1290	285	107	112
18	134	132	132	182	105	164	100	86	1160	263	104	122
19	128	128	134	175	105	155	99	84	1070	237	102	150
20	122	127	138	174	105	154	99	101	983	225	99	120
21	124	123	139	168	105	154	99	94	906	217	97	107
22	156	121	258	164	105	152	99	89	873	227	97	102
23	198	120	355	157	102	150	99	81	786	211	94	98
24	200	115	333	157	114	145	102	111	736	201	92	96
25	183	121	316	152	113	145	102	111	680	196	89	94
26	182	119	339	149	163	141	100	98	645	189	87	92
27	173	115	319	145	158	141	94	93	599	186	85	92
28	165	113	309	144	151	138	92	92	560	182	114	92
29	163	109	302	142	---	133	90	7130	540	174	172	91
30	158	105	292	138	---	132	90	1150	511	168	200	87
31	154	---	286	135	---	132	---	1260	---	161	176	---
TOTAL	5005	4199	5506	6030	3429	4521	3251	12070	45820	8629	3820	3339
MEAN	161	140	178	195	122	146	108	389	1527	278	123	111
MAX	1300	212	355	280	163	192	130	7130	5050	480	200	150
MIN	23	105	99	135	102	132	90	79	511	161	85	87
AC-FT	9930	8330	10920	11960	6800	8970	6450	23940	90880	17120	7580	6620
CFSM	.78	.68	.86	.94	.59	.71	.53	1.89	7.41	1.35	.60	.54
IN.	.90	.76	.99	1.09	.62	.82	.59	2.18	8.27	1.56	.69	.60

CAL YR 1986 TOTAL 23434 MEAN 64.2 MAX 1300 MIN 11 AC-FT 46480 CFSM .31 IN. 4.23
WTR YR 1987 TOTAL 105619 MEAN 289 MAX 7130 MIN 23 AC-FT 209500 CFSM 1.40 IN. 19.1

08198000 SABINAL RIVER NEAR SABINAL, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1964 to July 1965. Chemical and biochemical analyses: February 1970 to current year. Pesticide analyses: August 1971 to current year. Sediment analyses: November 1965.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
JAN											
23...	1000	166	483	7.90	10.5	1	0.10	10.1	93	1.0	28
MAY											
06...	1725	79	459	8.20	23.0	1	0.50	8.4	103	0.8	39
SEP											
03...	1105	127	464	8.10	23.5	2	0.20	8.4	101	0.7	K63

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
JAN											
23...	22	260	29	82	13	7.8	0.2	0.80	229	24	10
MAY											
06...	45	230	26	69	13	7.9	0.2	0.80	200	24	14
SEP											
03...	21	230	30	72	13	9.0	0.3	1.1	203	21	14

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
JAN											
23...	0.20	12	290	<1	<1	<0.010	1.20	0.020	0.28	0.30	<0.010
MAY											
06...	0.20	13	260	<1	<1	<0.010	0.600	0.020	0.28	0.30	0.020
SEP											
03...	0.20	14	270	2	<1	<0.010	1.20	0.010	0.29	0.30	<0.010

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
JAN											
23...	1.1	<1	36	<1	<10	1	5	<5	<1	<0.1	<1
MAY											
06...	1.2	--	--	--	--	--	--	--	--	--	--
SEP											
03...	1.2	<1	41	<1	20	<1	5	<5	<1	<0.1	1

DATE	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN										
23...	<1	5	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
03...	<1	58	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JAN										
23...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
03...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01

08198000 SABINAL RIVER NEAR SABINAL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JAN										
23...	<0.01	<0.01	<0.01	<0.1	--	<1	<0.01	--	--	--
MAY										
06...	--	--	--	--	--	--	--	--	--	--
SEP										
03...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01

08198500 SABINAL RIVER AT SABINAL, TX

LOCATION.--Lat 29°18'05", long 99°28'46", Uvalde County, Hydrologic Unit 12110106, on left bank 80 ft downstream from bridge on U.S. Highway 90, 1,100 ft downstream from Southern Pacific Lines railroad bridge, 0.8 mi west of Sabinal, 5.8 mi upstream from Ranchero Creek, and 223 mi upstream from mouth.

DRAINAGE AREA.--241 mi².

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

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 882.17 ft above National Geodetic Vertical Datum of 1929. Prior to July 29, 1958, nonrecording gage, and July 29, 1958, to Mar. 19, 1964, water-stage recorder at site 80 ft upstream at same datum.

REMARKS.--Records good. Several small diversions for irrigation above station. Most of low flow of the Sabinal River enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses basin upstream from this station and downstream from Sabinal River near Sabinal (station 08198000). Several observations of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--35 years, 35.3 ft³/s (25,570 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 73,300 ft³/s June 17, 1958 (gage height, 33.3 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 40 ft Aug. 24, 1919, from information by local residents. Flood of July 2, 1932, reached a stage of 31 ft (discharge, 60,000 ft³/s), from information by Southern Pacific Lines. There is a legend that a flood in 1858 covered the townsite of Sabinal. The stage would have been 70 to 80 ft, which seems unlikely. However, it is possible that a flood occurred in 1858 that covered part of the townsite and was higher than any flood since that date.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 12	1630	2,440	10.46	June 3	1400	15,200	20.64
Dec. 23	1600	258	6.23	June 11	1800	9,840	17.40
May 29	1330	*34,100	*26.61	July 16	0700	287	6.27
May 31	2330	1,980	9.79	Aug. 31	0130	206	5.96

Minimum daily discharge, 0.71 ft³/s Oct. 1-4.

DISCHARGE, IN 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	.71	30	11	169	51	63	47	10	1390	389	61	60
2	.71	28	10	159	47	60	43	9.6	987	366	57	48
3	.71	26	9.2	155	46	58	40	9.2	4550	338	54	41
4	.71	26	8.8	143	44	56	37	e9.0	3260	311	50	37
5	2.8	54	8.7	138	48	56	37	e8.9	2140	279	48	33
6	8.2	56	8.1	133	53	55	38	e8.8	1650	257	45	31
7	5.3	50	8.0	125	51	55	38	e8.7	1400	240	41	29
8	4.3	45	7.9	117	47	55	34	e8.6	1270	227	39	28
9	3.1	40	7.7	114	43	54	31	e8.6	1230	221	37	27
10	2.4	37	8.1	108	40	54	29	e8.5	1410	211	35	24
11	9.1	37	8.3	103	38	58	27	e8.4	4070	195	33	24
12	576	34	12	100	36	59	25	e8.4	2880	185	32	26
13	367	34	16	97	35	56	24	e8.3	2550	174	34	24
14	104	33	17	96	33	54	22	e8.3	2210	167	32	21
15	57	33	23	90	34	53	20	e8.2	1640	187	31	19
16	39	31	26	86	32	55	20	e8.2	1440	238	29	18
17	30	29	27	85	29	76	20	e8.2	1280	184	26	16
18	24	26	28	87	28	78	18	e8.1	1160	186	24	17
19	19	22	29	83	27	68	17	e8.1	1060	150	23	23
20	15	19	30	80	27	63	16	e8.1	959	135	22	32
21	14	18	32	77	29	61	16	e8.1	881	124	22	24
22	19	16	61	76	29	59	16	e8.1	838	127	21	19
23	39	15	236	72	28	59	17	e8.1	755	120	21	16
24	59	14	241	72	34	56	17	e8.1	686	108	20	15
25	50	17	216	70	37	54	16	e8.1	620	102	19	13
26	48	20	221	66	51	53	16	8.1	581	96	19	12
27	46	18	217	63	70	53	14	8.1	523	93	18	11
28	40	15	200	60	67	52	12	8.1	486	89	22	11
29	37	14	196	57	---	49	11	9600	458	80	22	11
30	35	12	187	54	---	46	10	2320	422	72	55	10
31	32	---	178	52	---	47	---	1080	---	67	101	---
TOTAL	1688.04	849	2288.8	2987	1134	1775	728	13237.0	44786	5718	1093	720
MEAN	54.5	28.3	73.8	96.4	40.5	57.3	24.3	427	1493	184	35.3	24.0
MAX	576	56	241	169	70	78	47	9600	4550	389	101	60
MIN	.71	12	7.7	52	27	46	10	8.1	422	67	18	10
AC-FT	3350	1680	4540	5920	2250	3520	1440	26260	88830	11340	2170	1430

CAL YR 1986 TOTAL 5171.83 MEAN 14.2 MAX 576 MIN .35 AC-FT 10260
WTR YR 1987 TOTAL 77003.81 MEAN 211 MAX 9600 MIN .71 AC-FT 152700

e Estimated.

08200000 HONDO CREEK NEAR TARPLEY, TX

LOCATION.--Lat 29°34'10", long 99°14'47", Medina County, Hydrologic Unit 12110107, on left bank 460 ft downstream from bridge on Ranch Road 462, 6.3 mi southeast of Tarpley, and 16.6 mi northwest of Hondo.

DRAINAGE AREA.--95.6 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1712: 1957. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,169.1 ft, from Magnolia Oil Company datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. There are several small diversions for irrigation above station.

AVERAGE DISCHARGE.--35 years, 41.9 ft³/s (5.95 in/yr), 30,360 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,800 ft³/s June 17, 1958 (gage height, 28.2 ft, from floodmark), from rating curve extended above 2,600 ft³/s on basis of slope-area measurements of 18,600 and 69,800 ft³/s; no flow at times in 1952-57, 1962-64, 1967, 1971, and 1984.
Maximum stage since at least 1907, that of June 17, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1932 reached a stage of about 26 ft (discharge, 58,500 ft³/s), from information by local resident.

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)
Oct. 12	0715	988	3.97	June 3	Unknown	18,200	a15.17
May 14	0230	988	3.97	June 12	Unknown	5,430	a7.8
May 29	0800	*43,800	a*22.7				

a From floodmark.

Minimum daily discharge, 11 ft³/s Sept. 30.

DISCHARGE, IN 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	19	77	52	174	60	114	61	36	e1500	e190	56	37
2	19	74	51	172	58	112	59	36	e2500	180	54	25
3	19	72	51	166	57	109	57	37	e4500	167	52	22
4	18	107	51	151	55	105	56	51	e2500	153	50	20
5	23	89	51	143	65	103	63	42	e1500	143	48	19
6	91	82	52	136	59	99	60	38	e1100	136	46	19
7	62	81	61	129	54	96	55	35	e900	131	44	20
8	53	77	56	125	53	94	53	34	e800	122	42	20
9	44	73	54	119	51	91	52	33	e900	122	41	18
10	39	72	83	111	51	90	51	33	e1100	112	39	17
11	93	70	85	107	50	99	50	33	e1400	105	37	18
12	311	69	85	103	50	86	50	32	e1700	101	36	17
13	146	66	87	99	49	83	49	32	e1500	97	36	16
14	122	65	115	97	49	81	47	122	e1300	96	33	16
15	100	64	132	93	49	80	46	49	e1100	169	31	15
16	86	64	139	89	48	83	45	45	e1000	124	30	15
17	75	62	142	103	47	109	44	43	e900	101	29	15
18	69	61	145	91	46	83	44	42	e800	91	27	22
19	66	60	132	83	46	80	43	114	e700	87	26	24
20	63	58	128	80	47	80	42	78	e630	83	25	18
21	71	57	129	82	45	80	42	78	e560	92	25	16
22	94	57	204	76	45	78	42	70	e480	87	24	15
23	135	55	199	74	44	83	42	65	e420	76	23	14
24	135	56	188	72	55	73	58	62	e370	75	23	13
25	120	70	180	69	65	72	54	59	e320	72	22	13
26	110	56	194	67	136	71	46	56	e290	71	21	12
27	104	54	179	66	111	70	42	55	e260	72	20	13
28	96	54	179	65	117	68	40	54	e240	67	31	13
29	90	54	179	63	---	65	38	7600	e220	63	29	12
30	85	53	177	62	---	63	36	e1700	202	61	30	11
31	81	---	177	61	---	62	---	e1700	---	58	26	---
TOTAL	2639	2009	3737	3128	1662	2662	1467	12464	31692	3304	1056	525
MEAN	85.1	67.0	121	101	59.4	85.9	48.9	402	1056	107	34.1	17.5
MAX	311	107	204	174	136	114	63	7600	4500	190	56	37
MIN	18	53	51	61	44	62	36	32	202	58	20	11
AC-FT	5230	3980	7410	6200	3300	5280	2910	24720	62860	6550	2090	1040
CFSM	.89	.70	1.26	1.06	.62	.90	.51	4.21	11.1	1.11	.36	.18
IN.	1.03	.78	1.45	1.22	.65	1.04	.57	4.85	12.3	1.29	.41	.20

CAL YR 1986 TOTAL 15162 MEAN 41.5 MAX 888 MIN 6.6 AC-FT 30070 CFSM .43 IN. 5.90
WTR YR 1987 TOTAL 66345 MEAN 182 MAX 7600 MIN 11 AC-FT 131600 CFSM 1.90 IN. 25.8

e Estimated.

08200000 HONDO CREEK NEAR TARPLEY, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1965 to September 1969. Chemical and biochemical analyses: February 1970 to current year. Pesticide analyses: August 1971 to current year. Sediment analyses: November to December 1965.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
JAN 20...	1516	79	468	7.80	11.0	1	0.20	10.8	101	0.7	K8
MAY 05...	1607	42	435	8.00	27.5	1	0.50	9.0	120	1.3	56
SEP 01...	1252	42	424	8.00	25.0	2	0.40	8.5	105	1.0	52

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
JAN 20...	K19	250	29	85	10	6.8	0.2	0.90	224	28	17
MAY 05...	K20	220	32	70	10	7.4	0.2	1.1	184	31	13
SEP 01...	K26	210	36	67	10	9.0	0.3	1.2	173	32	13

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
JAN 20...	0.20	11	290	1	<1	<0.010	0.800	0.020	0.48	0.50	<0.010
MAY 05...	0.20	12	260	<1	<1	<0.010	0.300	0.020	0.78	0.80	0.010
SEP 01...	0.20	13	250	2	<1	<0.010	0.400	0.010	0.29	0.30	<0.010

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
JAN 20...	1.0	<1	38	1	<10	<1	6	<5	2	<0.1	<1
MAY 05...	1.6	--	--	--	--	--	--	--	--	--	--
SEP 01...	1.2	<1	36	<1	10	<1	8	<5	<1	<0.1	1

DATE	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN 20...	<1	81	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01
MAY 05...	--	--	--	--	--	--	--	--	--	--
SEP 01...	<1	<3	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JAN 20...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY 05...	--	--	--	--	--	--	--	--	--	--
SEP 01...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01

08200000 HONDO CREEK NEAR TARPLEY, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JAN										
20...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01
MAY										
05...	--	--	--	--	--	--	--	--	--	--
SEP										
01...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	0.02	<0.01	<0.01

08200700 HONDO CREEK AT KING WATERHOLE NEAR HONDO, TX

LOCATION.--Lat 29°23'26", long 99°09'04", Medina County, Hydrologic Unit 12110107, on left bank 0.3 mi downstream from county road low-water crossing, 3.1 mi north of Hondo, 7.8 mi upstream from Verde Creek, and 55.4 mi upstream from mouth.

DRAINAGE AREA.--149 mi².

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

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 897.87 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Most of the low flow of Hondo Creek enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses the basin between Tarpley (station 08200000) and this station. There are several small diversions above station for irrigation. Satellite telemeter at station.

AVERAGE DISCHARGE.--27 years, 17.0 ft³/s (12,320 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,800 ft³/s May 29, 1987 (gage height, 17.19 ft), from rating curve extended above 16.0 ft; no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 21 ft in September 1919, from information provided by local resident. Other floods occurred in July 1932, stage 18 ft, and June 17, 1958, stage 17 ft.

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 29	1030	*51,800	*17.19	June 10	2330	4,380	6.16
May 31	2000	3,600	5.75	June 12	0300	4,900	6.41
June 3	1330	22,800	11.78	June 13	1830	3,080	5.47

Minimum daily discharge, no flow most of year.

DISCHARGE, IN 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	.00	.00	.00	.00	.00	.00	1820	e19	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	1580	14	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	6250	e10	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	4590	e7.0	.00	.00
5	.13	.00	.00	.00	.00	.00	.00	.00	1700	e4.5	.00	.00
6	3.9	.00	.00	.00	.00	.00	.00	.00	1230	e3.5	.00	.00
7	.31	.00	.00	.00	.00	.00	.00	.00	1000	e2.5	.00	.00
8	.01	.00	.00	.00	.00	.00	.00	.00	910	e1.5	.00	.00
9	.11	.00	.00	.00	.00	.00	.00	.00	875	.75	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	1420	e.70	.00	.00
11	6.4	.00	.00	.00	.00	.00	.00	.00	1690	e.65	.00	.00
12	5.3	.00	.00	.00	.00	.00	.00	.00	1910	e.64	.00	.00
13	73	.00	.00	.00	.00	.00	.00	.00	1500	e.63	.00	.00
14	8.6	.00	.00	.00	.00	.00	.00	.00	1270	e.62	.00	.00
15	.59	.00	.00	.00	.00	.00	.00	.00	e900	e.61	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	e700	e.61	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	e550	.60	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	e450	e.50	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	5.2	e350	e.40	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.53	e250	.25	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	e200	.11	.00	.00
22	1.5	.00	3.5	.00	.00	.00	.00	.00	e150	.14	.00	.00
23	.99	.00	13	.00	.00	.13	.00	.00	e125	.10	.00	.00
24	.38	.00	88	.00	.00	.00	.00	.00	e100	.03	.00	.00
25	.00	.00	53	.00	.00	.00	.00	.00	e80	.00	.00	.00
26	.00	.00	36	.00	.00	.00	.00	.00	e60	.00	.00	.00
27	.00	.00	36	.00	.00	.00	.00	.00	e45	.00	.00	.00
28	.00	.00	10	.00	.00	.00	.00	.00	e35	.00	.00	.00
29	.00	.00	1.9	.00	---	.00	.00	10500	e30	.00	.00	.00
30	.00	.00	.35	.00	---	.00	.00	1990	e25	.00	.00	.00
31	.00	---	.03	.00	---	.00	---	2000	---	.00	.00	---
TOTAL	101.22	.00	241.78	.00	.00	.13	.00	14495.73	31795	69.34	.00	.00
MEAN	3.27	.00	7.80	.00	.00	.0	.00	468	1060	2.24	.00	.00
MAX	73	.00	88	.00	.00	.13	.00	10500	6250	19	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	25	.00	.00	.00
AC-FT	201	.0	480	.0	.0	.3	.0	28750	63070	138	.0	.0

CAL YR 1986	TOTAL	1208.40	MEAN	3.31	MAX	754	MIN	.00	AC-FT	2400
WTR YR 1987	TOTAL	46703.15	MEAN	128	MAX	10500	MIN	.00	AC-FT	92640

e Estimated.

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX

LOCATION.--Lat 29°34'23", long 99°24'10", Medina County, Hydrologic Unit 12110107, on right bank 200 ft upstream from county road crossing, 4.5 mi downstream from Cascade Creek, 7.9 mi southeast of Utopia, and 58.0 mi upstream from mouth.

DRAINAGE AREA.--45.0 mi².

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder, crest-stage gages, and concrete control. Datum of gage is 1,265.8 ft, from Magnolia Oil Company datum, adjustment unknown.

REMARKS.--Estimated daily discharges: Dec. 10 to Jan. 22. Records good except those for estimated daily discharges, which are poor. No known diversion above station.

AVERAGE DISCHARGE.--26 years, 20.3 ft³/s (6.13 in/yr), 14,710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,500 ft³/s July 15, 1973 (gage height, 14.4 ft, from floodmark), from rating curve extended above 910 ft³/s on basis of field estimate of flow over and around end of dam, 14,100 ft³/s, and slope-area measurement of 52,600 ft³/s; no flow for many days in 1963-64.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1901, 16.4 ft June 17, 1958, from floodmarks (discharge 52,600 ft³/s, by slope-area measurement of peak flow).

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)
Oct. 12	0500	1,200	3.88	June 3	0830	*14,400	*9.51
May 29	0700	8,330	7.57	June 11	0900	3,010	5.10
May 31	1530	928	3.62	June 13	1400	3,690	5.47

Minimum daily discharge, 5.3 ft³/s Oct. 3, Sept. 30.

DISCHARGE, IN 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	5.6	65	27	66	28	48	28	14	377	91	25	11
2	5.5	61	27	62	27	46	26	14	303	84	24	10
3	5.3	61	26	58	27	46	27	14	2870	80	23	10
4	5.6	88	25	56	25	44	25	20	1240	77	23	9.6
5	14	70	25	54	31	44	27	15	820	74	23	9.6
6	51	65	24	52	27	42	28	13	605	69	21	9.0
7	44	64	30	50	25	42	25	13	502	66	20	9.3
8	42	61	26	49	25	42	24	12	461	64	20	9.5
9	38	58	25	48	24	42	23	12	457	61	19	8.5
10	36	57	26	47	24	40	22	14	693	60	18	8.5
11	82	55	25	46	21	44	21	12	877	56	18	8.8
12	297	51	24	45	23	39	21	12	577	54	17	7.4
13	143	49	23	44	23	38	20	14	776	52	16	7.4
14	114	50	23	43	23	38	19	41	522	54	16	7.0
15	99	49	22	43	20	36	19	14	408	57	15	7.2
16	90	46	22	42	19	37	19	13	343	51	15	7.4
17	82	44	24	41	19	46	18	13	295	45	14	7.4
18	75	43	27	40	19	38	18	12	258	45	13	11
19	74	40	32	40	19	36	18	20	228	43	13	9.6
20	66	39	45	40	21	35	18	16	202	40	12	7.4
21	71	38	68	40	20	35	20	13	178	43	12	6.9
22	84	38	170	39	19	35	19	13	164	44	11	6.5
23	122	36	140	38	18	33	18	14	144	38	11	6.5
24	105	37	120	38	25	31	18	14	132	35	10	6.2
25	95	38	100	36	29	31	18	14	127	34	9.9	6.1
26	96	35	130	35	53	31	17	13	135	33	9.5	6.1
27	87	33	110	32	46	31	15	12	108	32	9.3	6.1
28	81	33	96	31	50	30	15	12	102	31	14	6.1
29	76	31	86	30	---	28	14	2380	96	29	13	5.8
30	71	30	78	30	---	30	14	441	117	28	11	5.3
31	67	---	70	28	---	28	---	471	---	26	12	---
TOTAL	2324.0	1465	1696	1343	730	1166	614	3705	14117	1596	487.7	237.2
MEAN	75.0	48.8	54.7	43.3	26.1	37.6	20.5	120	471	51.5	15.7	7.91
MAX	297	88	170	66	53	48	28	2380	2870	91	25	11
MIN	5.3	30	22	28	18	28	14	12	96	26	9.3	5.3
AC-FT	4610	2910	3360	2660	1450	2310	1220	7350	28000	3170	967	470
CFSM	1.67	1.09	1.22	.96	.58	.84	.45	2.66	10.5	1.14	.35	.18
IN.	1.92	1.21	1.40	1.11	.60	.96	.51	3.06	11.7	1.32	.40	.20

CAL YR 1986 TOTAL 9329.9 MEAN 25.6 MAX 399 MIN 2.6 AC-FT 18510 CFSM .57 IN. 7.71
WTR YR 1987 TOTAL 29480.9 MEAN 80.8 MAX 2870 MIN 5.3 AC-FT 58480 CFSM 1.79 IN. 24.4

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1965 to September 1969. Chemical and biochemical analyses: March 1970 to current year. Pesticide analyses: January 1974 to current year. Sediment analyses: November 1965.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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)
JAN											
23...	1200	39	463	8.00	10.0	2	0.20	10.8	99	0.6	K6
MAY											
07...	1122	13	420	8.30	23.0	2	0.50	9.2	112	1.1	56
SEP											
01...	1630	11	404	8.10	28.5	3	0.20	8.3	111	0.7	K6

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
JAN											
23...	K8	250	35	82	11	7.4	0.2	0.80	215	29	10
MAY											
07...	K10	210	39	65	11	7.6	0.2	0.90	169	35	15
SEP											
01...	68	200	43	61	11	9.4	0.3	1.1	155	33	15

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
JAN											
23...	0.20	12	280	3	2	<0.010	0.800	0.010	0.79	0.80	<0.010
MAY											
07...	0.20	13	250	<1	<1	<0.010	0.200	0.010	0.19	0.20	0.010
SEP											
01...	0.20	14	240	3	<1	<0.010	0.300	<0.010	--	<0.20	0.010

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	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)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)
JAN											
23...	1.1	<1	31	<1	<10	<1	6	<5	4	<0.1	<1
MAY											
07...	1.7	--	--	--	--	--	--	--	--	--	--
SEP											
01...	1.3	<1	34	<1	<10	<1	4	<5	<1	0.4	1

DATE	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)	PCB, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)
JAN										
23...	<1	7	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01
MAY										
07...	--	--	--	--	--	--	--	--	--	--
SEP										
01...	<1	6	<0.1	<0.10	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01

DATE	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
JAN										
23...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01
MAY										
07...	--	--	--	--	--	--	--	--	--	--
SEP										
01...	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01

08201500 SECO CREEK AT MILLER RANCH NEAR UTOPIA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JAN										
23...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01
MAY										
07...	--	--	--	--	--	--	--	--	--	--
SEP										
01...	<0.01	<0.01	<0.01	<0.1	<0.01	<1	<0.01	<0.01	<0.01	<0.01

08202700 SECO CREEK AT ROWE RANCH NEAR D'HANIS, TX

LOCATION.--Lat 29°21'43", long 99°17'05", Medina County, Hydrologic Unit 12110107, on left bank 2.9 mi north of D'Hanis and 8.0 mi downstream from Rocky Creek.

DRAINAGE AREA.--168 mi².

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

GAGE.--Water-stage recorder. Datum of gage is 900.88 ft above National Geodetic Vertical Datum of 1929. Prior to October 1970, published as "at Crook Ranch, near D'Hanis".

REMARKS.--No estimated daily discharges. Records good. All of the low flow of Seco Creek enters the Edwards and associated limestones in the Balcones Fault Zone, that crosses the basin between Miller Ranch (station 08201500) and this station. No known diversion above station.

AVERAGE DISCHARGE.--26 years (water years 1962-87), 9.45 ft³/s (6,850 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,800 ft³/s May 29, 1987 (gage height, 28.20 ft), from rating curve extended above 25,100 ft³/s on basis of slope-area measurement of 35,800 ft³/s; no flow most of time each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 35.7 ft May 31, 1935, from information by local resident. Other floods occurred Aug. 31, 1894, 33 ft; September 1919, 28 ft; July 2, 1932, 28.2 ft (discharge, 35,800 ft³/s), by slope-area measurement; and June 17, 1958, 32.4 ft.

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)
May 29	1100	*35,800	*28.20	June 10	2300	3,530	12.73
June 3	1300	24,800	23.55				

Minimum daily discharge, no flow most of year.

DISCHARGE, IN 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	.0	.0	.0	.0	.0	.0	.0	.00	111	2.4	.00	.00
2	.0	.0	.0	.0	.0	.0	.0	.00	9.0	2.1	.00	.00
3	.0	.0	.0	.0	.0	.0	.0	.00	4170	2.1	.00	.00
4	.0	.0	.0	.0	.0	.0	.0	.00	1480	1.8	.00	.00
5	.0	.0	.0	.0	.0	.0	.0	.00	596	1.5	.00	.00
6	.0	.0	.0	.0	.0	.0	.0	.00	353	1.2	.00	.00
7	.0	.0	.0	.0	.0	.0	.0	.00	235	1.1	.00	.00
8	.0	.0	.0	.0	.0	.0	.0	.00	188	1.0	.00	.00
9	.0	.0	.0	.0	.0	.0	.0	.00	166	.89	.00	.00
10	.0	.0	.0	.0	.0	.0	.0	.00	561	.97	.00	.00
11	.0	.0	.0	.0	.0	.0	.0	.00	761	.71	.00	.00
12	.0	.0	.0	.0	.0	.0	.0	.00	385	.62	.00	.00
13	.0	.0	.0	.0	.0	.0	.0	.00	460	.53	.00	.00
14	.0	.0	.0	.0	.0	.0	.0	.00	335	.49	.00	.00
15	.0	.0	.0	.0	.0	.0	.0	.00	190	.62	.00	.00
16	.0	.0	.0	.0	.0	.0	.0	.00	131	.61	.00	.00
17	.0	.0	.0	.0	.0	.0	.0	.00	84	.45	.00	.00
18	.0	.0	.0	.0	.0	.0	.0	.00	45	.32	.00	.00
19	.0	.0	.0	.0	.0	.0	.0	.00	22	.22	.00	.00
20	.0	.0	.0	.0	.0	.0	.0	.00	14	.16	.00	.00
21	.0	.0	.0	.0	.0	.0	.0	.00	11	.13	.00	.00
22	.0	.0	.0	.0	.0	.0	.0	.00	9.1	.15	.00	.00
23	.0	.0	.0	.0	.0	.0	.0	.00	8.2	.11	.00	.00
24	.0	.0	.0	.0	.0	.0	.0	.00	6.7	.10	.00	.00
25	.0	.0	.0	.0	.0	.0	.0	.00	5.4	.05	.00	.00
26	.0	.0	.0	.0	.0	.0	.0	.00	5.1	.04	.00	.00
27	.0	.0	.0	.0	.0	.0	.0	.00	3.7	.10	.00	.00
28	.0	.0	.0	.0	.0	.0	.0	.00	3.2	.04	.00	.00
29	.0	.0	.0	.0	---	.0	.0	8310	3.0	.00	.00	.00
30	.0	.0	.0	.0	---	.0	.00	226	2.5	.00	.00	.00
31	.0	---	.0	.0	---	.0	---	42	---	.00	.00	---
TOTAL	.0	.0	.0	.0	.0	.0	.00	8578.00	10353.9	20.51	.00	.00
MEAN	.00	.00	.00	.00	.00	.00	.00	277	345	.66	.00	.00
MAX	.00	.00	.00	.00	.00	.00	.00	8310	4170	2.4	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	2.5	.00	.00	.00
AC-FT	.0	.0	.0	.0	.0	.0	.0	17010	20540	41	.0	.0

CAL YR 1986 TOTAL 28.31 MEAN .08 MAX 18 MIN .00 AC-FT 56
WTR YR 1987 TOTAL 18952.35 MEAN 51.9 MAX 8310 MIN .00 AC-FT 37590

08205500 FRIO RIVER NEAR DERBY, TX

LOCATION.--Lat 28°44'11", long 99°08'40", Frio County, Hydrologic Unit 12110106, on right bank 17 ft downstream from centerline of railroad tracks, 35 ft right of the Missouri Pacific Railroad Co. bridge abutment, 167 ft downstream from Interstate Highway 35, 917 ft downstream from Leona River, 2.5 mi south of Derby, and 115.1 mi upstream from mouth.

DRAINAGE AREA.--3,429 mi².

PERIOD OF RECORD.--August 1915 to current year.

REVISED RECORDS.--WSP 568: 1915-16, 1918-22. WSP 1312: 1917-18(M). WSP 1923: 1954. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum gage is 449.11 ft above National Geodetic Vertical Datum of of 1929. Aug. 1, 1915, to Apr. 21, 1931, nonrecording gage, and Apr. 22, 1931, to Mar. 6, 1940, water-stage recorder at same site and datum. Mar. 7, 1940, to May 4, 1972, water-stage recorder, and May 5 to Nov. 1, 1972, nonrecording gage at site 167 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Part of flow of Frio River and its headwater tributaries enters the Edwards and associated limestones in the Balcones Fault Zone upstream from U.S. Highway 90 (see REMARKS for stations 08197500, 08198500, 08200700, and 08202700). There is considerable loss of flow into various permeable formations downstream from the Balcones Fault Zone. There are many small diversions for irrigation above station. Two observations of water temperature were made during the year. Satellite telemeter at station.

AVERAGE DISCHARGE.--72 years, 145 ft³/s (105,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft³/s July 4, 1932 (gage height, 29.45 ft, from floodmarks), from rating curve extended above 76,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times most years.

Maximum stage since at least 1860, that of July 4, 1932.

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)
Oct. 7	2300	1,370	4.42	June 5	2400	29,600	16.46
Oct. 14	1900	3,620	8.19	June 13	2100	12,600	12.10
May 31	1800	*33,800	*17.29	July 19	19	1,340	4.36

Minimum daily discharge, 3.7 ft³/s Oct. 2.

DISCHARGE, IN 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	5.0	100	75	267	109	154	123	78	14500	1100	315	246
2	3.7	96	72	253	109	155	120	76	6210	1050	300	304
3	5.1	93	72	239	103	149	117	74	5890	981	286	273
4	4.9	92	70	226	102	139	127	80	4960	907	271	236
5	5.2	91	68	220	102	130	123	84	19600	819	263	215
6	47	88	66	215	100	122	116	81	24900	776	253	202
7	859	87	66	211	105	120	113	117	12700	740	243	190
8	932	108	66	205	142	116	115	157	7390	703	232	182
9	337	119	65	198	153	116	117	139	5210	666	227	186
10	189	113	64	190	126	115	121	113	4240	645	217	187
11	186	113	66	184	115	125	118	96	4230	634	208	183
12	1310	108	66	177	112	122	113	87	6270	609	201	183
13	2530	107	66	172	107	118	109	81	11600	573	196	182
14	3300	107	67	168	102	123	103	78	11900	539	188	176
15	2620	105	76	166	99	130	100	199	11100	518	182	173
16	1090	105	75	166	92	133	96	164	6200	507	179	169
17	574	105	83	166	92	133	90	130	4460	521	175	878
18	317	105	97	157	92	147	85	128	3850	565	170	698
19	196	105	95	148	92	179	84	129	3380	1180	163	450
20	154	102	95	147	91	251	81	120	3120	896	160	356
21	128	93	97	146	87	216	80	124	2860	647	152	346
22	121	87	134	143	85	168	78	173	2640	549	149	299
23	112	82	195	137	85	153	76	322	2390	499	147	255
24	139	77	466	134	85	147	76	267	2210	470	147	229
25	142	77	431	133	86	145	77	220	1960	433	147	215
26	160	83	392	130	94	141	80	181	1750	402	145	204
27	148	81	359	130	104	138	86	167	1550	388	144	194
28	134	78	336	123	136	137	91	148	1460	384	144	189
29	128	78	308	116	---	132	89	113	1290	367	171	184
30	118	78	294	113	---	130	83	876	1180	348	204	184
31	106	---	283	110	---	127	---	21000	---	331	231	---
TOTAL	16100.9	2863	4765	5290	2907	4411	2987	25802	191000	19747	6210	7968
MEAN	519	95.4	154	171	104	142	99.6	832	6367	637	200	266
MAX	3300	119	466	267	153	251	127	21000	24900	1180	315	878
MIN	3.7	77	64	110	85	115	76	74	1180	331	144	169
AC-FT	31940	5680	9450	10490	5770	8750	5920	51180	378800	39170	12320	15800

CAL YR 1986 TOTAL 45085.8 MEAN 124 MAX 7370 MIN .00 AC-FT 89430
WTR YR 1987 TOTAL 290050.9 MEAN 795 MAX 24900 MIN 3.7 AC-FT 575300

08206600 FRIO RIVER AT TILDEN, TX

LOCATION.--Lat 28°28'02", long 98°32'50", McMullen County, Hydrologic Unit 12110108, on left end at downstream side of bridge on State Highway 16 in Tilden, 300 ft downstream from Leoncita Creek, 1.3 mi upstream from Salt Branch, 1.8 mi downstream from Big Slough, and 44.2 mi upstream from mouth.

DRAINAGE AREA.--4,493 mi².

PERIOD OF RECORD.--July 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 216.04 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: June 18, 20, 21. Records good. Part of flow of Frio River and its headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone, that crosses basin upstream from U.S. Highway 90 (see REMARKS for station 08205500). Considerable loss of flow into various permeable formations also occurs downstream from the Balcones Fault Zone. There are many small diversions above station for irrigation. Satellite telemeter at station.

AVERAGE DISCHARGE.--9 years, 242 ft³/s (175,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,900 ft³/s June 9, 1987 at 1600 hours (gage height, 29.18 ft); no flow for many days in 1984-85.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 1932 reached a stage of 38.44 ft, from information by local resident.

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)
Oct. 12	0300	1,900	17.42	June 5	0900	18,400	28.41
Oct. 14	0900	1,640	16.36	June 9	1600	*20,900	*29.18
Oct. 18	1600	2,790	19.80	June 17	0400	16,000	a27.61
May 20	1900	1,770	16.88				

a From floodmark.

Minimum daily discharge, 1.8 ft³/s Oct. 4, 5.

DISCHARGE, IN 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	2.4	123	78	364	118	147	127	90	2560	1720	368	240
2	2.3	113	77	310	114	143	126	89	3880	1620	350	243
3	2.0	105	75	278	110	152	123	84	3690	1480	330	243
4	1.8	100	75	257	110	160	119	82	14600	1370	315	277
5	1.8	96	74	238	111	160	117	81	17900	1280	301	300
6	5.9	94	73	226	109	150	117	80	16400	1190	286	270
7	190	93	71	216	111	141	123	85	14100	1090	272	235
8	370	92	71	209	111	131	122	89	14000	1010	260	217
9	208	89	69	204	105	125	116	85	20100	933	249	204
10	386	87	67	197	111	122	112	103	19300	876	240	201
11	937	98	67	191	140	118	113	141	15400	809	230	198
12	1540	108	67	185	146	118	115	136	10500	753	222	200
13	1180	106	66	178	125	121	116	115	8260	706	212	197
14	1440	105	68	173	112	125	113	103	6640	680	204	192
15	1110	103	74	169	105	126	109	91	6820	657	198	188
16	1530	102	72	172	100	123	105	84	12800	627	208	186
17	2200	102	75	167	96	127	101	88	15400	593	200	182
18	2700	99	77	166	93	130	99	152	e14300	562	178	178
19	2460	98	76	164	91	131	96	155	13400	539	174	282
20	1700	97	80	160	91	129	91	1070	e9650	535	169	472
21	935	96	127	152	92	141	88	1180	e5880	562	166	602
22	364	97	980	148	93	172	86	538	4200	704	162	524
23	212	95	1040	146	91	212	85	182	3500	938	155	343
24	202	93	861	146	89	197	84	170	3030	906	150	295
25	261	102	768	141	90	160	83	189	2740	693	146	255
26	208	90	689	137	143	144	81	241	2500	576	144	225
27	162	82	642	135	180	140	81	226	2310	518	142	206
28	153	79	573	133	176	138	83	191	2130	463	142	194
29	155	82	463	129	---	134	84	164	1960	427	145	184
30	144	81	432	126	---	131	87	159	1820	405	152	175
31	130	---	395	121	---	130	---	439	---	388	181	---
TOTAL	20893.2	2907	8422	5738	3163	4378	3102	6682	269770	25610	6651	7708
MEAN	674	96.9	272	185	113	141	103	216	8992	826	215	257
MAX	2700	123	1040	364	180	212	127	1180	20100	1720	368	602
MIN	1.8	79	66	121	89	118	81	80	1820	388	142	175
AC-FT	41440	5770	16710	11380	6270	8680	6150	13250	535100	50800	13190	15290

CAL YR 1986 TOTAL 50623.3 MEAN 139 MAX 3140 MIN .00 AC-FT 100400
WTR YR 1987 TOTAL 365024.2 MEAN 1000 MAX 20100 MIN 1.8 AC-FT 724000

e Estimated.

08206700 SAN MIGUEL CREEK NEAR TILDEN, TX

LOCATION.--Lat 28°35'14", long 98°32'44", McMullen County, Hydrologic Unit 12110109, on left bank 25 ft downstream from State Highway 16, 0.3 mi upstream from mouth of Bruce Branch, 0.9 mi downstream from mouth of Far Live Oak Creek, 3 mi upstream from San Patricio Creek, 7 mi downstream from Clear Creek, 8.7 mi north of Tilden, and 12.9 mi upstream from mouth.

DRAINAGE AREA.--783 mi².

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

REVISED RECORDS.--WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 242.95 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. There are five diversions above station (amounts unknown). At times, excess water from Bexar-Medina-Atascosa Counties Water Improvement District No. 1 system enters San Miguel Creek basin via Chacon Creek 52 mi upstream (amounts unknown). Satellite telemeter at station.

AVERAGE DISCHARGE.--23 years, 66.0 ft³/s (47,820 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s May 16, 1980 (gage height, 27.31 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1919, 32.6 ft in 1942; stage of 1919 flood not known, from information by local residents.

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)
Oct. 7	2400	1,130	12.75	June 8	0500	1,150	12.86
Oct. 12	0800	3,240	18.22	June 14	0600	*4,720	*19.53
Dec. 23	0600	3,380	18.42	June 16	1400	3,340	17.79
June 5	1800	3,380	17.85				

Minimum daily discharge, 0.25 ft³/s Aug. 27.

DISCHARGE, IN 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	3.8	29	14	49	11	161	8.1	8.7	385	25	15	131
2	3.6	25	13	44	11	122	7.8	11	329	23	13	303
3	3.4	21	11	38	13	91	7.4	9.8	716	23	11	172
4	3.2	19	10	33	13	52	7.5	7.8	1650	22	8.8	44
5	3.0	16	9.2	31	14	36	14	6.8	2170	21	7.8	30
6	19	14	8.8	29	28	27	14	6.0	1460	20	6.8	20
7	737	14	8.7	27	85	22	12	5.5	955	18	6.0	15
8	1010	13	8.3	25	50	19	11	16	933	17	5.3	12
9	584	12	7.7	24	44	17	9.9	103	372	19	4.5	9.6
10	155	11	6.9	21	30	15	9.4	58	330	19	4.3	8.2
11	769	11	6.5	20	23	15	8.9	31	246	16	3.9	8.0
12	2850	11	6.5	19	19	14	9.6	20	544	14	3.6	6.6
13	2370	10	6.5	19	17	19	8.8	49	1340	13	3.3	5.9
14	1700	10	7.0	18	16	15	6.5	13	3900	21	2.9	6.3
15	912	10	12	18	14	14	4.8	8.3	1200	22	2.6	5.6
16	253	9.9	37	20	13	13	5.4	6.6	2280	21	2.3	4.7
17	119	9.8	27	18	12	12	6.5	23	1060	21	2.0	4.0
18	79	9.5	32	21	11	12	6.3	23	166	20	1.8	3.3
19	59	9.1	37	37	11	11	6.2	104	119	17	1.4	3.0
20	47	8.5	27	26	11	10	6.2	305	92	15	1.2	3.0
21	40	7.2	110	25	10	9.9	6.2	389	74	15	.75	2.7
22	43	7.1	995	22	10	9.9	6.2	153	63	15	.74	2.3
23	40	7.1	2760	20	11	10	6.2	55	55	14	.74	2.0
24	60	13	990	19	11	10	6.2	115	48	12	.74	2.0
25	45	12	831	17	23	9.3	6.1	55	43	11	.56	2.0
26	58	6.9	520	15	115	9.1	5.7	30	38	27	.50	1.7
27	45	6.9	144	14	106	9.1	5.6	20	35	11	.25	1.2
28	35	6.5	99	14	196	9.6	5.0	15	32	11	30	1.2
29	32	6.3	98	14	---	9.8	4.8	14	29	11	226	1.2
30	60	9.5	103	13	---	9.4	4.9	15	27	12	197	.97
31	39	---	63	11	---	8.5	---	49	---	15	119	---
TOTAL	12177.0	355.3	7009.1	721	928	801.6	227.2	1725.5	20691	541	683.78	812.47
MEAN	393	11.8	226	23.3	33.1	25.9	7.57	55.7	690	17.5	22.1	27.1
MAX	2850	29	2760	49	196	161	14	389	3900	27	226	303
MIN	3.0	6.3	6.5	11	10	8.5	4.8	5.5	27	11	.25	.97
AC-FT	24150	705	13900	1430	1840	1590	451	3420	41040	1070	1360	1610

CAL YR 1986 TOTAL 37843.98 MEAN 104 MAX 5190 MIN .01 AC-FT 75060
WTR YR 1987 TOTAL 46672.73 MEAN 128 MAX 3900 MIN .25 AC-FT 92580

08206900 CHOKE CANYON RESERVOIR NEAR THREE RIVERS, TX

LOCATION.--Lat 28°29'01", long 98°14'44", Live Oak County, Hydrologic Unit 12110108, at Choke Canyon Dam on Frio River, 3.9 mi upstream from Atascosa River, and 4.0 mi west of Three Rivers.

DRAINAGE AREA.--5,490 mi².

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

GAGE.--Nonrecording gage read twice daily. Supplemental water-stage recorder operated by city of Corpus Christi. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Choke Canyon Dam was completed and deliberate impoundment began on Oct. 12, 1982. Choke Canyon Dam is a rolled earthfill dam, 3.5 mi long. The spillway has seven radial gates, each 50 ft long and 24 ft high. Water for municipal and industrial use to meet the needs of the Coastal Bend area is released downstream through a 5.0- x 5.0-foot square slide gate. 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	241.1	-
Top of spillway gates	222.5	743,900
Crest of spillway	199.5	269,600
Lowest gated outlet (invert)	136.3	52

COOPERATION.--Capacity table computed June 1, 1983, provided by the city of Corpus Christi. Elevation record provided by the city of Corpus Christi and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 733,100 acre-ft June 21, 1987 (elevation, 222.1 ft); minimum, 4,500 acre-ft Oct. 1-9, 1984 (elevation, 156.9 ft).

EXTREMES (AT 0600 HOURS) FOR CURRENT YEAR.--Maximum contents, 773,100 acre-ft June 21 (elevation, 222.1 ft); minimum, 212,100 acre-ft Oct. 5 (elevation, 195.3 ft).

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

195.0	208,400	210.0	452,600	220.0	678,300
200.0	277,100	215.0	558,600	223.0	757,500
205.0	358,700				

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
OBSERVATION AT 06:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	213400	278600	278600	309800	318000	322900	324600	321300	336300	696300	696300	693700
2	213400	278600	277100	309800	318000	322900	322900	321300	339700	696300	696300	693700
3	213400	278600	277100	311500	318000	322900	322900	321300	346500	696300	693700	693700
4	213400	278600	277100	311500	318000	321300	322900	321300	355200	696300	693700	693700
5	212100	278600	277100	311500	318000	321300	322900	321300	372900	696300	693700	693700
6	213400	277100	277100	311500	319600	321300	322900	322900	404000	693700	693700	693700
7	214700	278600	277100	311500	319600	321300	324600	324600	438700	693700	693700	693700
8	215900	278600	277100	313100	319600	321300	324600	322900	464700	693700	693700	693700
9	218500	278600	277100	313100	319600	321300	324600	322900	489500	693700	691100	693700
10	221100	278600	277100	313100	319600	321300	324600	322900	519100	693700	691100	693700
11	223700	277100	277100	313100	319600	322900	324600	324600	554200	691100	691100	696300
12	227600	277100	277100	313100	319600	322900	324600	324600	583700	691100	691100	696300
13	235600	277100	277100	313100	319600	322900	324600	324600	607100	691100	691100	696300
14	243800	277100	277100	314700	319600	322900	324600	324600	623900	691100	691100	696300
15	250800	277100	278600	314700	319600	322900	322900	324600	640900	691100	691100	696300
16	253600	277100	278600	316300	319600	322900	322900	324600	653200	693700	688600	696300
17	257900	277100	278600	316300	319600	322900	322900	324600	673300	693700	688600	696300
18	260800	277100	278600	316300	319600	322900	322900	324600	701500	693700	688600	696300
19	265200	277100	278600	316300	318000	322900	322900	324600	719800	693700	688600	696300
20	269600	278600	278600	316300	319600	322900	322900	324600	730400	696300	688600	693700
21	272600	277100	278600	316300	319600	322900	322900	326200	733100	696300	688600	696300
22	275500	277100	281600	318000	319600	322900	322900	329600	730400	696300	688600	696300
23	277100	277100	287700	316300	319600	324600	322900	331200	725100	696300	688600	693700
24	277100	277100	295500	316300	319600	324600	322900	331200	719800	698900	686000	693700
25	277100	278600	298700	318000	319600	324600	322900	331200	714500	698900	686000	693700
26	277100	278600	301800	318000	322900	324600	322900	331200	709300	698900	686000	693700
27	277100	278600	305000	318000	322900	324600	322900	331200	704100	698900	686000	693700
28	277100	277100	305000	318000	322900	324600	322900	331200	701500	698900	686000	693700
29	278600	277100	306600	318000	---	324600	322900	331200	698900	698900	686000	693700
30	278600	277100	308200	318000	---	324600	321300	332900	698900	698900	688600	693700
31	278600	---	309800	318000	---	324600	---	332900	---	698900	688600	---
MAX	278600	278600	309800	318000	322900	324600	324600	332900	733100	698900	696300	696300
MIN	212100	277100	277100	309800	318000	321300	321300	321300	336300	691100	686000	693700
(†)	200.1	200.0	202.1	202.6	202.9	203.0	202.8	203.5	220.8	220.8	220.4	220.6
(ϕ)	+63900	-1500	+32700	+8200	+4900	+1700	-3300	+11600	+366000	0	-10300	+5100

CAL YR 1986 MAX 309800 MIN 185500 (ϕ) +110000
WTR YR 1987 MAX 733100 MIN 212100 (ϕ) +479000

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

08208000 ATASCOSA RIVER AT WHITSETT, TX

LOCATION.--Lat 28°37'19", long 98°16'52", Live Oak County, Hydrologic Unit 12110110, on right bank at downstream side of bridge on Farm Road 99, 1.1 mi southwest of Whitsett, 4.2 mi downstream from La Parita Creek, and 12.9 mi upstream from mouth.

DRAINAGE AREA.--1,171 mi².

PERIOD OF RECORD.--September 1924 to May 1926, May 1932 to current year.

GAGE.--Water-stage recorder. Datum of gage is 159.04 ft above National Geodetic Vertical Datum of 1929. Prior to May 8, 1926, nonrecording gage at bridge at site 200 ft upstream at 1.38 ft higher datum. May 8, 1926, to Feb. 16, 1983, water-stage recorder at site 1,000 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Considerable loss of flow into various permeable formations occurs upstream from this station. The Campbellton water wells discharge into the Atascosa River 12 mi upstream from this station to supplement streamflow during dry periods, however, records furnished by the city of Corpus Christi indicate that during the current year, the Campbellton water wells did not discharge into the Atascosa River. There are several small diversions above station.

AVERAGE DISCHARGE.--56 years (water years 1925, 1933-87), 129 ft³/s (93,460 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft³/s Sept. 23, 1967 (gage height, 41.3 ft, from floodmark), from rating curve extended above 24,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times. Maximum stage since at least 1881, that of Sept. 23, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Second highest stage, 41 ft (discharge 106,000 ft³/s), occurred in September 1919.

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)
Oct. 13	0600	2,970	20.94	June 5	1600	*6,460	*25.49
Dec. 24	0500	4,530	23.61	June 13	2000	2,500	19.70
Feb. 27	2200	3,090	21.20				

Minimum daily discharge, no flow Oct. 3-5.

DISCHARGE, IN 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	.04	19	14	119	21	825	17	9.1	186	34	13	75
2	.02	18	11	88	20	414	17	8.4	644	32	12	100
3	.0	16	9.5	71	20	171	16	8.4	1040	31	11	46
4	.0	16	8.7	59	20	114	17	8.4	2440	28	9.7	33
5	.0	15	8.1	51	23	87	17	8.7	5580	26	9.0	26
6	2.2	13	8.0	44	44	72	17	8.3	5620	25	8.2	20
7	252	13	8.0	41	43	62	17	7.8	4340	23	7.5	16
8	711	13	8.1	38	49	54	17	7.2	1820	22	7.3	16
9	384	13	8.2	36	55	48	17	8.1	434	20	6.9	12
10	149	13	8.1	34	42	43	17	19	490	19	6.6	9.1
11	356	13	8.0	32	32	43	16	17	1620	18	6.6	19
12	1380	12	7.8	30	27	50	16	12	2070	18	6.1	15
13	2540	12	8.0	29	23	65	16	11	2240	18	4.6	12
14	1190	11	8.9	28	21	58	15	9.3	1820	16	3.5	9.4
15	1180	12	37	28	20	48	15	8.1	1870	16	3.3	9.0
16	431	12	167	37	18	40	15	17	1760	16	3.1	7.1
17	133	12	224	68	18	37	15	12	923	16	2.9	6.4
18	85	12	94	87	17	33	14	10	205	15	3.0	5.4
19	61	12	56	142	17	31	13	10	125	14	2.6	7.0
20	48	12	39	90	17	29	13	9.9	102	13	2.4	7.5
21	39	11	40	59	17	29	12	8.5	87	13	2.2	6.2
22	37	11	715	45	18	27	12	161	76	13	2.3	5.3
23	52	10	2810	39	17	25	12	206	67	12	2.2	5.6
24	104	11	4260	34	18	23	11	84	60	11	2.3	4.9
25	71	39	3010	31	87	22	11	44	55	11	2.3	4.3
26	51	89	1180	29	510	21	11	29	50	11	2.3	4.1
27	39	74	211	27	2170	21	11	19	44	13	2.1	4.1
28	32	43	121	25	2230	19	10	14	42	15	8.6	4.1
29	28	27	97	24	---	19	9.8	13	39	15	6.7	4.5
30	25	19	127	22	---	18	9.6	23	36	13	11	3.8
31	22	---	184	22	---	18	---	117	---	11	27	---
TOTAL	9402.26	603	13496.4	1509	5614	2566	426.4	928.2	35885	558	198.3	497.8
MEAN	303	20.1	435	48.7	200	82.8	14.2	29.9	1196	18.0	6.40	16.6
MAX	2540	89	4260	142	2230	825	17	206	5620	34	27	100
MIN	.00	10	7.8	22	17	18	9.6	7.2	36	11	2.1	3.8
AC-FT	18650	1200	26770	2990	11140	5090	846	1840	71180	1110	393	987

CAL YR 1986 TOTAL 29410.18 MEAN 80.6 MAX 4260 MIN .00 AC-FT 58340
WTR YR 1987 TOTAL 71684.03 MEAN 196 MAX 5620 MIN .00 AC-FT 142200

08210000 NUECES RIVER NEAR THREE RIVERS, TX
(National stream-gaging accounting network)

LOCATION.--Lat 28°25'38", long 98°10'40", Live Oak County, Hydrologic Unit 12110111, on right bank at U.S. Highway 281, 1.0 mi downstream from Frio River, 2.2 mi south of Three Rivers, and at mile 100.2.

DRAINAGE AREA.--15,427 mi², of which 5,490 mi² is above Choke Canyon Dam. See Remarks.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1915 to current year. Monthly discharge only for November 1919 to January 1920, published in WSP 1312.

REVISED RECORDS.--WSP 548: 1920-21. WSP 1562: 1916, 1918-21, 1922(M), 1923, 1929. WDR TX-83-3: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 99.26 ft above National Geodetic Vertical Datum of 1929. Prior to Apr. 5, 1932, nonrecording gage at railroad bridge 0.8 mi upstream at datum 1.87 ft higher. Apr. 5, 1932, to Aug. 9, 1983, recording gage at a site 0.8 mi upstream at datum 1.87 ft higher.

REMARKS.--Records good. Flow of the Frio River is impounded in Choke Canyon Reservoir (conservation-pool storage of 696,800 acre-ft), about 11 mi upstream on the Frio River. Part of flow of the Nueces and Frio Rivers and their headwater tributaries enter the Edwards and associated limestones in the Balcones Fault Zone upstream from U.S. Highway 90 (see REMARKS for station 08205500). Considerable loss of flow into various permeable formations also occurs downstream from the Balcones Fault Zone. There are many small diversions for irrigation and municipal supply above station. There is minor upstream regulation by small reservoirs and by ground-water supplements (see station 08208000 Atascosa River at Whitsett). Satellite telemeter at station.

AVERAGE DISCHARGE.--72 years, 833 ft³/s (603,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 141,000 ft³/s Sept. 23, 1967 (gage height, 49.21 ft), site and datum then in use; no flow at times. Maximum stage since about 1875, that of Sept. 23, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,900 ft³/s June 22 at 1200 hours (gage height, 37.29 ft, from floodmark); minimum daily, 12 ft³/s Oct. 5.

DISCHARGE, IN 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	18	889	212	682	223	2600	195	120	1460	6140	953	283
2	15	463	204	563	219	1510	189	124	1970	5590	940	417
3	14	430	199	477	214	860	182	140	3590	4530	886	428
4	13	394	182	428	213	660	177	169	5550	3910	655	604
5	12	356	181	405	213	457	175	177	5920	3530	632	752
6	26	332	183	388	220	285	174	185	7720	3250	613	838
7	65	312	179	378	228	267	176	180	9340	2990	582	876
8	693	291	175	362	233	255	175	166	9230	2800	491	779
9	1250	271	168	343	240	238	176	162	7210	2630	469	570
10	964	261	158	324	232	224	176	174	4780	2440	391	480
11	997	266	152	311	214	221	169	345	4440	2020	365	479
12	1340	251	150	303	217	219	160	314	5290	1620	343	448
13	1920	259	151	297	301	228	156	212	5900	1270	326	411
14	2340	344	158	294	307	233	157	193	6550	1060	310	390
15	1920	404	170	288	302	227	158	189	7830	729	299	373
16	1740	420	221	321	294	219	155	195	9650	666	293	356
17	910	402	486	322	278	210	e150	203	10600	626	283	344
18	741	370	393	358	266	207	e150	200	10400	601	266	333
19	755	346	257	392	228	209	e150	199	11300	568	253	319
20	780	330	218	409	198	206	e140	199	12700	545	239	310
21	814	310	209	328	192	202	e140	244	13600	549	230	307
22	865	298	698	291	189	198	e140	368	13800	539	230	415
23	947	282	2180	273	186	193	e140	675	13600	535	233	634
24	1130	270	3560	265	183	187	e130	722	12900	796	231	740
25	1190	285	4730	257	184	184	e130	655	12100	1010	224	753
26	1280	401	3900	249	497	182	e130	679	11300	1070	210	807
27	1430	373	1880	242	1420	185	e130	706	10400	1120	199	860
28	1660	300	912	237	2680	192	e120	721	9380	1110	193	896
29	1960	248	701	233	---	196	e120	674	8100	1050	251	838
30	2230	224	668	228	---	200	e120	537	6920	1010	242	623
31	2210	---	728	226	---	198	---	566	---	977	310	---
TOTAL	32229	10382	24363	10474	10371	11652	4640	10393	253530	57281	12142	16663
MEAN	1040	346	786	338	370	376	155	335	8451	1848	392	555
MAX	2340	889	4730	682	2680	2600	195	722	13800	6140	953	896
MIN	12	224	150	226	183	182	120	120	1460	535	193	283
AC-FT	63930	20590	48320	20780	20570	23110	9200	20610	502900	113600	24080	33050

CAL YR 1986 TOTAL 104210 MEAN 286 MAX 4730 MIN 11 AC-FT 206700
WTR YR 1987 TOTAL 454120 MEAN 1244 MAX 13800 MIN 12 AC-FT 900700

e Estimated.

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued
(National stream-gaging accounting network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: August 1941 to September 1952. Chemical and biochemical analyses: May 1965 to current year. Pesticide analyses: January 1968 to May 1982. Sediment analyses: October 1941 to August 1945, March 1951 to September 1952, October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1941 to September 1952, October 1974 to September 1981.
WATER TEMPERATURE: October 1950 to September 1952, October 1974 to September 1981.
SUSPENDED-SEDIMENT DISCHARGE: October 1950 to September 1951.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,310 microsiemens Jan. 17, 1977; minimum daily, 157 microsiemens May 26, 1975.
WATER TEMPERATURE: Maximum daily, 32.0°C on several days during summer of 1977-78 and 1981; minimum daily, 7.0°C Jan. 2, 3, 1979.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 21...	1110	310	515	8.10	19.0	69	8.6	92	0.9	88	71
JAN 13...	1045	163	678	8.40	12.0	33	10.1	93	2.8	K48	80
MAR 11...	1135	216	877	8.20	15.0	16	9.3	92	1.7	K130	2500
MAY 11...	1300	284	660	8.10	24.0	87	6.4	76	1.3	K660	K540
JUL 06...	1045	2900	474	7.80	30.0	24	5.7	75	1.0	K48	92
AUG 31...	1030	268	515	8.10	27.0	35	6.8	85	0.3	K390	K400

DATE	HARD-NESS (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 WH WAT TOTAL 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 21...	210	32	64	12	30	0.9	4.0	178	32	40	0.20
JAN 13...	230	47	72	13	52	2	4.8	186	63	71	0.20
MAR 11...	250	83	78	14	81	2	5.0	170	85	130	0.20
MAY 11...	210	59	64	13	43	1	11	155	53	78	0.20
JUL 06...	190	26	62	8.5	23	0.8	7.1	164	25	36	<0.10
AUG 31...	200	55	57	13	27	0.9	3.8	141	37	48	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
NOV 21...	10	308	300	--	--	<0.010	<0.010	0.600	0.570	0.040
JAN 13...	9.9	405	410	0.390	--	0.010	<0.010	0.400	0.430	0.040
MAR 11...	7.8	495	500	0.090	--	0.010	<0.010	0.100	0.110	0.040
MAY 11...	8.1	354	360	0.070	0.100	0.030	0.030	0.100	0.130	0.060
JUL 06...	12	294	270	--	--	<0.010	<0.010	<0.100	<0.100	0.040
AUG 31...	9.0	293	280	--	--	<0.010	<0.010	0.500	0.480	0.040

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 21...	0.020	0.36	0.40	0.130	0.050	0.060	0.18	98	82	99
JAN 13...	0.020	0.66	0.70	0.120	0.070	0.080	0.25	56	25	97
MAR 11...	0.020	0.96	1.0	0.090	0.040	0.030	0.09	39	23	98
MAY 11...	0.060	1.3	1.4	0.130	0.020	0.030	0.09	192	147	97
JUL 06...	0.060	1.1	1.1	0.160	0.110	0.070	0.21	74	579	94
AUG 31...	0.040	0.56	0.60	0.060	0.090	0.110	0.34	106	77	98

08210000 NUECES RIVER NEAR THREE RIVERS, TX--Continued
(National stream-gaging accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 21...	<10	2	87	<0.5	<1	<1	<3	2	7	<5
JAN 13...	--	--	--	--	--	--	--	--	--	--
MAR 11...	20	2	92	<0.5	<1	<1	<3	2	4	<5
MAY 11...	<10	2	120	<0.5	<1	<1	<3	<1	11	<5
JUL 06...	--	--	--	--	--	--	--	--	--	--
AUG 31...	<10	2	94	<0.5	1	<1	<3	1	15	<5

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 21...	16	2	0.1	<10	<1	<1	<1	350	6	<3
JAN 13...	--	--	--	--	--	--	--	--	--	--
MAR 11...	32	6	<0.1	<10	1	<1	<1	550	<6	4
MAY 11...	20	2	<0.1	<10	<1	<1	<1	410	6	38
JUL 06...	--	--	--	--	--	--	--	--	--	--
AUG 31...	8	2	2.2	<10	4	<1	<1	320	7	9

08210400 LAGARTO CREEK NEAR GEORGE WEST, TX

LOCATION.--Lat 28°03'34", long 98°05'48", Live Oak County, Hydrologic Unit 12110111, near right bank 75 ft downstream from bridge on U.S. Highway 281, 0.6 mi upstream from Dix Hollow, and 19.3 mi south of George West.

DRAINAGE AREA.--155 mi².

PERIOD OF RECORD.--April 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 197.77 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. No known regulation or diversion.

AVERAGE DISCHARGE.--15 years, 1.88 ft³/s (1,360 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,350 ft³/s Aug. 11, 1980 (gage height, 16.50 ft); no flow most of time.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1887, 25.1 ft Oct. 17, 1971 (discharge, 33,500 ft³/s). Second highest stage, 24.3 ft occurred Sept. 12, 1971 (discharge, 29,500 ft³/s). The third and fourth highest floods occurred in 1914 and September 1967 (stage and discharge unknown).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 50 ft³/s and maximum (*):
No flow for year.

DISCHARGE, IN 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	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00
3	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
4	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
5	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
6	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
7	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
8	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
9	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
10	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
11	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
12	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
13	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
14	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
15	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
16	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
17	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
18	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
19	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
20	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
21	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
22	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
23	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
24	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
25	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
26	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
27	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
28	.0	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00
29	.0	.0	.0	.0	---	.0	.0	.0	.00	.00	.00	.00
30	.0	.0	.0	.0	---	.0	.0	.0	.00	.00	.00	.00
31	.0	---	.0	.0	---	.0	---	.00	---	.00	.00	---
TOTAL	.0	.0	.0	.0	.0	.0	.0	.00	.00	.00	.00	.00
MEAN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

CAL YR 1986	TOTAL	20.94	MEAN	.06	MAX	16	MIN	.00	AC-FT	42
WTR YR 1987	TOTAL	.00	MEAN	.00	MAX	.00	MIN	.00	AC-FT	.00

08210500 LAKE CORPUS CHRISTI NEAR MATHIS, TX

LOCATION.--Lat 28°02'17", long 97°52'15", San Patricio-Jim Wells County line, Hydrologic Unit 12[illegible]0111, on right upstream corner of outlet tower at right end of Wesley E. Seale Dam on Nueces River, 0.6 mi upstream from bridge on State Highway 359, and 4.5 mi southwest of Mathis.

DRAINAGE AREA.--16,656 mi².

PERIOD OF RECORD.--September 1948 to current year. Prior to October 1960, month end records only. The Soil Conservation Service, U.S. Department of Agriculture, in cooperation with the Texas Board of Water Engineers (now Texas Department of Water Resources), collected fragmentary gage-height records in connection with sedimentation studies from Feb. 2, 1942, to July 10, 1947.

REVISED RECORDS.--WSP 1923: 1953(M), 1957(M).

GAGE.--Nonrecording gage read twice daily. Supplemental water-stage recorder operated by city of Corpus Christi. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1957, nonrecording gage at various sites 0.2 mi upstream at datum 0.52 ft higher. Oct. 1, 1957, to Apr. 3, 1961, nonrecording gage near left end of Mathis Dam 0.2 mi upstream at present datum.

REMARKS.--Mathis Dam was completed and storage began July 24, 1934. The original capacity at spillway crest (elevation, 74.5 ft) was 54,000 acre-ft, but by March 1948 had decreased to 39,400 acre-ft because of sedimentation. Wesley E. Seale Dam was completed and deliberate impoundment began on Apr. 26, 1958, submerging the old Mathis Dam. Wesley E. Seale Dam is a rolled earthfill dam, 5,930 ft long, including two spillways. The 1,320-foot north spillway has 33 gates that are operated by movable hydraulic lifts. The 1,080-foot south spillway has 27 gates that are electrically operated from the control tower. The gates were repaired and modified in August 1966. All gates in both spillways are 37.5 by 8.75 ft wide. Water for municipal supply for the city of Corpus Christi is released downstream through a 4.0-foot-diameter cylinder valve and three 2.5- by 4.0-foot rectangular openings. The releases are diverted from the river at Calallen 35 mi downstream for domestic, municipal, irrigation, mining, and industrial uses in the Corpus Christi area. The city of Alice withdrew 1,720 acre-ft from the lake during the current year for municipal use. 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	106.0	-
Top of north spillway gates	94.46	281,300
Top of south spillway gates	94.0	272,000
Crest of spillways	88.0	170,200
Lowest gated outlet (invert)	55.5	646

COOPERATION.--The capacity curve is from an October 1972 survey. Elevation record provided by the city of Corpus Christi and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 320,000 acre-ft Sept. 22, 1967, and Sept. 12, 1971; maximum elevation, 94.82 ft Sept. 22, 1967; minimum contents, 14,740 acre-ft May 5, 1951 (elevation, 67.62 ft).

EXTREMES (AT 0600) FOR CURRENT YEAR.--Maximum contents, 280,200 acre-ft June 1 (elevation, 94.4 ft); minimum, 207,900 acre-ft Oct. 3-6 (elevation 90.4 ft).

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

90.0	201,400	94.0	272,400
92.0	235,300	95.0	292,100

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
OBSERVATION AT 06:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211200	259000	264700	272400	272400	274300	266600	259000	280200	272400	272400	268500
2	209600	260900	264700	274300	272400	272400	266600	259000	274300	272400	272400	268500
3	207900	260900	264700	274300	272400	274300	266600	259000	274300	272400	272400	268500
4	207900	260900	264700	272400	272400	274300	266600	259000	272400	272400	274300	268500
5	207900	262800	264700	272400	272400	274300	264700	259000	274300	274300	272400	268500
6	207900	260900	264700	272400	276200	274300	266600	259000	274300	274300	272400	268500
7	209600	260900	264700	272400	272400	274300	266600	259000	274300	274300	272400	268500
8	209600	260900	264700	272400	272400	272400	266600	259000	270400	274300	272400	270400
9	209600	260900	264700	274300	272400	272400	264700	259000	272400	272400	272400	272400
10	211200	262800	266600	274300	270400	274300	264700	259000	274300	274300	272400	272400
11	212900	266600	264700	274300	270400	272400	264700	259000	274300	274300	272400	272400
12	214600	262800	264700	272400	270400	272400	264700	259000	272400	272400	272400	272400
13	219600	270400	264700	272400	270400	272400	264700	259000	272400	272400	272400	272400
14	219600	262800	262800	274300	270400	272400	264700	259000	274300	272400	272400	272400
15	224800	262800	264700	274300	270400	272400	264700	259000	272400	272400	272400	272400
16	226500	262800	264700	274300	270400	272400	264700	259000	272400	272400	270400	270400
17	230000	262800	264700	274300	270400	272400	262800	259000	272400	272400	270400	272400
18	230000	262800	264700	276200	270400	272400	262800	257100	272400	274300	270400	272400
19	231700	264700	266600	272400	270400	272400	262800	257100	272400	274300	270400	272400
20	233500	264700	266600	272400	272400	272400	262800	257100	272400	274300	270400	272400
21	233500	264700	266600	274300	270400	272400	262800	257100	272400	274300	268500	272400
22	235300	264700	268500	274300	270400	272400	262800	257100	272400	274300	268500	272400
23	237000	264700	270400	270400	268500	272400	262800	257100	272400	272400	268500	270400
24	238800	266600	270400	272400	270400	272400	262800	257100	272400	272400	268500	270400
25	240600	264700	272400	272400	270400	272400	262800	257100	272400	274300	268500	270400
26	242400	264700	272400	272400	272400	270400	260900	257100	274300	272400	266600	272400
27	244200	264700	272400	272400	274300	270400	260900	257100	272400	274300	266600	272400
28	246100	264700	272400	272400	276200	270400	260900	259000	272400	274300	264700	274300
29	249700	264700	272400	272400	---	274300	260900	259000	272400	272400	266600	274300
30	251600	264700	274300	272400	---	268500	259000	264700	272400	272400	266600	274300
31	255300	---	272400	272400	---	266600	---	276200	---	272400	268500	---
MAX	255300	270400	274300	276200	276200	274300	266600	276200	280200	274300	274300	274300
MIN	207900	259000	262800	270400	268500	266600	259000	257100	270400	272400	264700	268500
(†)	93.1	93.6	94.0	94.0	94.2	93.7	93.3	94.2	94.0	94.0	93.8	94.1
(ϕ)	+44100	+9400	+7700	0	+3800	-9600	-7600	+17200	-3800	0	-3900	+5800

CAL YR 1986 MAX 274300 MIN 207900 (ϕ) +7700
WTR YR 1987 MAX 280200 MIN 207900 (ϕ) +63100

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

08211000 NUECES RIVER NEAR MATHIS, TX

LOCATION (revised).--Lat 28°02'17", long 97°51'36", San Patricio-Jim Wells County line, Hydrologic Unit 12110111, at downstream side of bridge on State Highway 359, 209 ft downstream from Texas and New Orleans Railroad Co. bridge, 0.6 mi downstream from Wesley E. Seale Dam, 4 mi southwest of Mathis, and at mile 46.7. Prior to Aug. 5, 1987, at site 154 ft downstream.

DRAINAGE AREA.--16,660 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1939 to current year.

GAGE.--Water-stage recorder. Datum of gage is 26.53 ft above National Geodetic Vertical Datum of 1929. Aug. 5, 1939, to Aug. 29, 1984, on left bank 9 ft upstream at datum 1.0 ft higher. Aug. 29, 1984, to Nov. 5, 1984, on left bank 9 ft upstream at present datum. Nov. 5, 1984 to Aug. 5, 1987, on left bank 154 ft downstream at present datm.

REMARKS.--No estimated daily discharges. Records good. Flow is regulated by Lake Corpus Christi (station 08210500) 0.6 mi upstream. Upstream from Lake Corpus Christi, flow is affected by recharge to permeable formations, small diversions, and minor regulation. Water for municipal and industrial uses at Corpus Christi is released from Lake Corpus Christi above gage and is diverted from river at Calallen 34 mi downstream. Satellite telemeter at station.

AVERAGE DISCHARGE.--48 years, 806 ft³/s (583,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft³/s Sept. 24, 1967 (gage height, 48.7 ft, from floodmark), present datum; minimum daily, 6.8 ft³/s Aug. 15, 1940.
Maximum stage since at least 1888, that of Sept. 24, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of about 41 ft, present datum, occurred Sept. 20, 1919, from information by Texas and New Orleans Railroad Co. and is the second highest known.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,300 ft³/s June 23 at about 2200 hours (gage height, 29.34 ft, from floodmark); minimum daily, 79 ft³/s Dec. 14.

DISCHARGE, IN 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	142	106	127	624	183	2840	104	171	8850	6670	602	159
2	141	106	111	546	174	2090	177	156	4710	6210	602	146
3	141	117	107	908	161	695	140	169	4050	5300	597	142
4	151	138	99	186	165	708	107	170	6790	4320	605	142
5	141	150	104	181	342	542	109	170	5730	3590	441	136
6	142	90	94	210	995	265	134	154	7390	3760	516	136
7	97	99	102	231	450	228	132	143	8900	3330	468	137
8	121	111	114	245	173	221	117	141	8320	3050	344	152
9	121	105	146	364	145	188	119	148	7990	2630	286	163
10	118	105	203	313	108	250	115	153	7400	2300	227	150
11	112	181	183	229	118	387	118	156	7210	2360	208	172
12	107	121	106	203	123	192	131	122	6270	2220	201	153
13	112	402	86	207	126	162	187	161	5910	1420	185	156
14	133	109	79	247	128	135	226	172	7400	851	180	153
15	128	100	107	255	1000	136	131	177	7420	654	171	156
16	126	92	94	622	229	121	153	183	7860	310	171	151
17	136	101	96	855	185	447	161	159	7880	234	171	152
18	133	119	140	1290	100	162	131	166	8450	231	170	152
19	124	121	106	199	105	125	160	155	8560	386	170	215
20	130	126	90	178	473	118	126	155	9070	516	170	185
21	121	104	99	396	192	127	175	159	9860	888	170	168
22	112	115	393	344	256	130	139	196	10200	894	170	236
23	112	182	820	105	96	439	155	175	11400	577	170	196
24	112	292	1320	112	98	119	150	167	11800	549	170	148
25	115	234	3510	156	112	106	148	167	11200	713	170	137
26	110	119	4530	129	208	171	147	184	11200	926	170	159
27	107	159	3320	112	958	173	149	172	9690	1190	170	209
28	111	186	991	112	2260	117	150	177	8550	1300	166	642
29	106	129	648	150	---	823	168	148	8470	992	162	875
30	120	117	906	162	---	619	153	150	7590	597	151	547
31	107	---	566	134	---	122	---	3870	---	546	151	---
TOTAL	3789	4236	19397	10005	9663	12958	4312	8746	246120	59514	8305	6425
MEAN	122	141	626	323	345	418	144	282	8204	1920	268	214
MAX	151	402	4530	1290	2260	2840	226	3870	11800	6670	605	875
MIN	97	90	79	105	96	106	104	122	4050	231	151	136
AC-FT	7520	8400	38470	19840	19170	25700	8550	17350	488200	118000	16470	12740

CAL YR 1986 TOTAL 64327 MEAN 176 MAX 4530 MIN 68 AC-FT 127600
WTR YR 1987 TOTAL 393470 MEAN 1078 MAX 11800 MIN 79 AC-FT 780400

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1947 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1947 to current year.
WATER TEMPERATURE: October 1947 to current year.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression 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, 1,580 microsiemens Apr. 19, 20, 1977; minimum daily, 216 microsiemens Sept. 19, 1971.
WATER TEMPERATURE: Maximum daily, 36.0°C Aug. 8, 1964; minimum daily, 3.0°C Jan. 19, 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 740 microsiemens Dec. 5; minimum daily, 400 microsiemens June 22, 23.
WATER TEMPERATURE: Maximum daily, 34.5°C June 28; minimum daily, 12.0°C Jan. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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									
24...	0903	112	--	22.0	150	0	50	5.7	47
JAN									
15...	1415	270	567	13.0	170	11	57	6.3	48
29...	0918	152	562	11.5	160	9	54	6.1	47
MAR									
09...	1531	194	514	17.5	150	5	52	6.1	43
MAY									
13...	1730	151	521	25.5	150	31	48	6.9	47
AUG									
31...	1215	195	479	28.0	170	18	56	7.4	28

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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								
24...	2	14	--	28	67	0.30	10	--
JAN								
15...	2	9.6	157	31	69	0.30	15	330
29...	2	8.8	151	31	58	0.20	14	310
MAR								
09...	2	7.5	150	32	61	0.20	13	300
MAY								
13...	2	8.1	117	34	66	<0.10	13	290
AUG								
31...	1	9.0	152	26	39	0.20	15	270

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	3792	605	349	3580	81	833	46	473	180
NOV.	1986	4237	611	353	4030	83	946	47	533	180
DEC.	1986	19404	588	340	17800	78	4080	45	2350	170
JAN.	1987	10006	577	334	9030	76	2050	44	1190	170
FEB.	1987	9663	561	325	8480	73	1890	43	1120	170
MAR.	1987	12958	550	319	11200	70	2460	42	1480	160
APR.	1987	4312	569	329	3830	74	862	44	507	170
MAY	1987	8746	544	315	7440	69	1630	42	984	160
JUNE	1987	246120	461	269	179000	54	36200	36	23600	140
JULY	1987	59514	445	260	41700	51	8250	34	5520	140
AUG.	1987	8305	469	273	6130	55	1240	36	811	140
SEPT	1987	6425	488	284	4930	59	1020	38	651	150
TOTAL		393483	**	**	297000	**	61400	**	39200	**
WTD.AVG.		1078	480	279	**	58	**	37	**	150

08211000 NUECES RIVER NEAR MATHIS, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	579	588	600	571	607	545	560	567	522	444	466	475
2	579	590	604	572	577	548	560	567	522	408	463	480
3	586	601	608	576	571	547	567	571	516	443	461	476
4	578	600	672	571	575	546	570	570	516	425	460	478
5	579	603	740	620	559	544	568	569	525	455	480	478
6	615	680	644	586	558	552	565	568	525	434	466	476
7	605	645	642	602	566	550	566	568	535	422	465	477
8	588	633	620	584	566	545	562	552	540	447	465	481
9	604	633	612	575	569	550	561	559	545	456	468	479
10	682	730	605	577	569	552	562	553	548	456	466	481
11	643	610	596	580	565	545	560	556	530	457	468	488
12	649	709	630	582	577	543	562	556	518	462	469	490
13	621	599	602	578	588	543	562	556	495	464	469	489
14	608	610	608	576	562	547	560	548	488	462	471	483
15	644	603	600	593	561	551	565	554	445	466	475	488
16	586	637	596	574	565	544	567	541	440	473	476	486
17	598	602	622	570	563	541	576	592	420	457	470	483
18	591	598	590	572	628	584	568	556	420	463	470	484
19	593	600	598	575	574	561	565	560	413	468	472	484
20	604	595	594	581	557	613	573	552	413	467	474	491
21	600	600	596	567	553	541	573	545	403	465	477	485
22	599	596	590	568	552	544	573	546	400	466	476	487
23	598	593	588	579	665	547	577	546	400	467	472	490
24	594	604	590	567	618	559	578	547	403	467	472	509
25	595	606	588	588	555	643	579	544	411	466	474	497
26	598	593	584	593	556	549	581	545	423	465	474	491
27	595	595	582	592	563	574	572	552	436	467	478	489
28	600	595	578	590	544	557	571	545	436	467	478	500
29	599	587	576	587	---	559	576	552	442	467	482	489
30	652	589	574	575	---	555	576	551	450	469	487	493
31	615	---	572	609	---	560	---	528	---	472	481	---
MEAN	606	614	606	582	574	556	569	555	469	457	472	486

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.0	24.0	16.5	14.5	14.0	16.0	18.5	24.0	27.5	33.0	31.5	29.5
2	30.0	24.0	16.5	14.5	14.0	16.0	17.0	24.5	28.0	31.0	31.5	30.0
3	31.0	23.0	16.5	14.0	14.0	16.0	18.0	24.5	26.0	30.5	31.0	30.0
4	31.0	23.0	16.5	14.0	14.0	16.0	18.0	25.0	26.5	31.5	30.0	29.5
5	30.0	23.0	17.0	14.0	15.0	18.0	18.0	25.5	26.0	31.5	31.0	30.0
6	30.0	23.0	17.0	14.0	14.0	19.0	17.0	25.5	26.0	31.0	30.0	30.0
7	29.0	22.0	17.0	14.0	14.0	19.0	18.0	27.0	26.0	31.0	31.0	30.0
8	29.0	22.0	17.0	14.5	15.0	19.0	20.0	25.5	26.0	31.0	31.0	30.0
9	29.0	22.0	17.0	14.5	15.0	18.0	19.0	25.5	26.0	31.0	30.5	30.0
10	29.0	22.0	16.0	14.0	15.0	18.0	19.0	---	26.5	31.0	31.0	30.0
11	29.0	21.0	13.0	14.5	15.0	17.5	19.5	26.0	26.5	31.0	31.0	30.0
12	28.5	21.0	14.0	13.0	16.0	18.0	19.5	---	26.5	31.5	31.0	30.0
13	28.0	19.0	15.0	13.0	17.0	18.0	20.5	26.5	26.5	31.5	30.5	30.0
14	28.5	18.0	15.0	13.5	17.0	17.0	20.0	27.0	26.5	31.5	30.5	30.0
15	28.5	19.0	15.0	14.0	17.0	17.0	21.0	28.0	26.5	31.0	30.5	30.5
16	28.5	18.0	15.0	13.5	18.0	18.0	23.0	28.0	26.5	30.0	30.5	30.5
17	28.5	18.0	15.0	13.0	17.5	18.0	23.0	30.0	26.5	30.5	31.0	30.0
18	28.0	19.0	15.0	13.5	17.5	18.5	23.5	26.0	28.0	31.0	31.0	30.0
19	28.0	20.0	15.0	14.0	15.0	18.5	24.0	27.5	28.0	30.0	31.0	30.0
20	27.0	19.0	14.5	13.0	15.0	21.0	22.5	27.5	28.0	30.0	31.0	25.5
21	26.5	19.0	15.0	13.0	15.0	20.5	22.5	28.0	28.0	30.0	31.0	29.5
22	25.0	19.0	15.0	12.0	15.0	21.0	24.0	28.0	28.5	30.0	32.0	29.5
23	28.0	19.0	16.0	13.0	15.5	18.0	24.0	28.0	28.5	31.0	32.0	28.0
24	24.0	17.0	15.0	13.0	16.0	20.0	24.0	28.0	29.0	30.0	31.5	29.0
25	24.0	18.0	15.0	13.5	16.0	20.0	24.0	28.0	29.0	30.0	31.0	29.0
26	24.0	17.5	15.0	14.0	15.0	19.0	24.0	28.5	32.0	30.0	31.0	29.0
27	24.0	17.0	15.0	14.0	16.0	19.0	24.0	28.5	33.0	31.0	31.0	29.0
28	24.0	17.0	15.0	14.0	15.5	19.0	24.5	28.0	34.5	30.0	30.0	28.0
29	24.0	17.0	15.0	14.0	---	18.0	24.5	25.0	33.5	30.0	30.0	28.0
30	24.0	17.0	15.0	14.0	---	17.5	24.0	26.0	33.0	32.0	30.0	29.0
31	25.0	---	15.0	14.0	---	18.0	---	26.0	---	32.5	29.0	---
MEAN	27.5	20.0	15.5	13.5	15.5	18.5	21.5	26.5	28.0	31.0	31.0	29.5

08211520 OSO CREEK AT CORPUS CHRISTI, TX

LOCATION.--Lat 27°42'40", long 97°30'06", Nueces County, Hydrologic Unit 12110202, on left downstream end of bridge on Farm Road 763, 1.5 mi south of intersection of Farm Roads 763 and 665, 1.6 mi downstream from mouth of West Oso Creek, and 1.9 mi southwest of intersection of Farm Road 665 and State Highway 357.

DRAINAGE AREA.--90.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1.91 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Oct. 24 to Nov. 12, Nov. 15 to Dec. 3, and Sept. 1-30. Records good except those for estimated daily discharges, which are fair. No known diversions above station. An undetermined amount of water from oilfield operations enters stream upstream at various points.

AVERAGE DISCHARGE.--15 years, 33.4 ft³/s (24,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,100 ft³/s Aug. 10, 1980 (gage height, 29.37 ft); minimum, 0.25 ft³/s Aug. 26, 27, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 24.5 ft occurred in May 1968, 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)
Feb. 26	1500	1,510	18.35	June 11	2300	*2,290	*20.91

Minimum daily discharge, 0.42 ft³/s May 26.

DISCHARGE, IN 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	1.6	3.3	2.4	81	2.4	59	2.1	1.8	69	4.9	3.5	24
2	1.4	3.0	2.2	40	2.4	32	2.1	1.9	307	7.7	2.5	12
3	1.2	2.7	2.1	26	2.4	17	2.2	2.2	234	6.6	1.9	5.0
4	1.1	2.5	2.0	16	2.4	10	2.3	2.3	139	4.6	1.7	3.4
5	1.0	2.4	2.0	11	82	7.2	2.7	2.0	76	4.0	1.6	2.4
6	1.2	2.3	2.0	8.7	154	5.4	3.5	3.6	32	3.4	1.6	2.0
7	2.1	2.2	2.0	7.9	62	4.5	3.6	2.2	35	3.3	1.3	1.6
8	3.0	2.1	1.9	6.4	21	3.7	3.8	2.6	58	4.8	1.1	1.4
9	2.1	5.0	1.9	7.6	8.7	3.4	3.5	3.7	77	7.5	1.4	1.3
10	2.0	367	1.9	6.3	5.4	3.2	2.9	2.1	454	9.8	1.6	1.1
11	1.9	170	2.0	5.1	3.9	3.6	2.6	2.8	1430	6.2	1.5	1.0
12	11	92	2.0	4.6	3.1	3.7	2.5	4.2	1580	4.3	1.4	1.0
13	72	82	2.0	4.7	2.7	3.8	2.4	6.3	540	4.2	1.1	.96
14	30	165	2.0	7.7	2.5	3.8	1.9	5.0	650	3.7	1.1	.92
15	13	74	2.4	7.7	2.4	3.6	1.9	2.8	602	3.5	.77	.89
16	7.4	35	2.5	80	2.1	3.4	1.8	1.9	318	3.4	1.0	.86
17	5.3	18	2.5	85	2.1	3.6	1.7	1.6	100	3.7	1.2	.83
18	4.4	8.0	2.5	63	2.1	3.2	1.8	1.4	43	2.8	.89	.82
19	3.6	5.5	2.2	28	5.9	3.0	1.8	1.4	27	2.8	.97	.80
20	111	4.4	2.1	13	13	3.2	1.8	1.3	17	2.6	.98	.78
21	418	3.9	11	9.6	12	3.6	1.9	1.2	13	2.0	.96	.76
22	109	3.5	74	8.7	10	3.3	1.7	1.2	11	5.4	1.0	.76
23	95	3.2	143	6.9	6.1	3.4	1.7	1.1	10	17	.91	.74
24	45	3.0	47	5.0	4.5	2.9	1.8	1.1	7.7	13	.99	.74
25	22	40	16	4.3	115	2.7	1.7	.99	7.0	8.2	.93	.74
26	11	17	7.7	3.8	1320	2.6	1.9	.42	7.1	9.9	.80	.74
27	6.7	6.6	4.8	3.2	580	2.5	1.9	.56	5.9	32	.96	.74
28	5.5	3.6	3.6	3.0	156	2.5	1.9	.50	4.3	65	1.0	2.7
29	4.7	3.0	371	2.9	---	2.5	2.1	8.9	4.4	43	1.3	17
30	4.0	2.6	867	2.7	---	2.2	1.9	12	4.4	15	2.2	7.0
31	3.6	---	301	2.7	---	2.1	---	8.6	---	5.8	41	---
TOTAL	1000.8	1132.8	1888.7	562.5	2586.1	210.6	67.4	89.67	6862.8	310.1	81.16	94.98
MEAN	32.3	37.8	60.9	18.1	92.4	6.79	2.25	2.89	229	10.0	2.62	3.17
MAX	418	367	867	85	1320	59	3.8	12	1580	65	41	24
MIN	1.0	2.1	1.9	2.7	2.1	2.1	1.7	.42	4.3	2.0	.77	.74
AC-FT	1990	2250	3750	1120	5130	418	134	178	13610	615	161	188

CAL YR 1986 TOTAL 6168.27 MEAN 16.9 MAX 867 MIN 1.0 AC-FT 12230
WTR YR 1987 TOTAL 14887.47 MEAN 40.8 MAX 1580 MIN .42 AC-FT 29530

08211520 OSO CREEK AT CORPUS CHRISTI, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: July 1972 to current year. Pesticide analyses: July 1972 to July 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3
OCT 15...	1730	8.5	3020	7.80	21.5	7.4	84	2.1	--	--
DEC 05...	0946	2.0	6490	7.60	15.5	8.6	88	2.2	1100	910
FEB 05...	1110	2.4	8970	8.00	19.0	9.1	101	1.5	1400	1200
MAY 13...	1230	6.0	4890	7.70	27.0	7.9	100	5.1	750	580
JUL 07...	1515	2.5	6730	7.80	31.0	6.3	86	2.4	1100	890
AUG 31...	1430	20	3450	7.80	27.0	5.7	72	3.0	630	490

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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT 15...	--	--	--	--	--	128	--	--	--	--
DEC 05...	340	56	900	12	15	166	290	1900	0.50	17
FEB 05...	410	88	1400	17	22	211	380	2700	0.50	6.1
MAY 13...	230	42	750	12	20	163	230	1500	0.60	14
JUL 07...	330	64	1100	15	15	194	360	2200	0.30	1.1
AUG 31...	200	31	490	9	17	138	180	970	0.40	22

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 15...	--	3.85	0.050	3.90	0.130	1.2	1.3	3.00	--	--
DEC 05...	3600	9.28	0.520	9.80	0.510	1.8	2.3	3.50	--	--
FEB 05...	5100	2.53	0.070	2.60	0.220	1.2	1.4	3.20	12	<100
MAY 13...	2900	1.93	0.370	2.30	0.270	2.4	2.7	2.40	--	--
JUL 07...	4200	0.720	0.080	0.800	0.180	1.4	1.6	2.20	--	--
AUG 31...	2000	0.740	0.060	0.800	0.180	1.5	1.7	3.80	13	200

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 15...	--	--	--	--	--	--	--	--	--	--
DEC 05...	--	--	--	--	--	--	--	--	--	--
FEB 05...	<1	10	3	40	<5	610	0.2	<1	1	20
MAY 13...	--	--	--	--	--	--	--	--	--	--
JUL 07...	--	--	--	--	--	--	--	--	--	--
AUG 31...	1	<10	1	20	<5	230	0.2	1	<1	10

08211800 SAN DIEGO CREEK AT ALICE, TX

LOCATION.--Lat 27°45'59", long 98°04'31", Jim Wells County, Hydrologic Unit 12110204, at bridge on Edith Drive in Alice, 540 ft downstream from Texas and New Orleans Railroad Co. bridge, and 3.2 mi upstream from confluence with Chiltipin Creek.

DRAINAGE AREA.--319 mi².

PERIOD OF RECORD.--September 1963 to current year.

REVISED RECORDS.--WDR TX-72-1: 1971.

GAGE.--Water-stage recorder. Datum of gage is 189.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow is affected at times by discharge from the flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 35,980 acre-ft. These structures control runoff from 170 mi² in the San Diego-Rosita drainage basins.

AVERAGE DISCHARGE.--24 years, 8.14 ft³/s (5,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft³/s Oct. 17, 1971 (gage height, 17.70 ft); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1928, 18.2 ft April 1949, equivalent gage height in channel modified in 1955, 17.2 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 6	1700	379	6.50	May 31	2200	*2,740	*9.24

Minimum daily discharge, no flow for many days.

DISCHARGE, IN 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	.00	.84	.01	1.0	.09	.00	1270	.62	.31	.00
2	.00	.00	.00	.29	.02	.65	.06	.00	103	.26	.25	.00
3	.00	.00	.00	.10	.02	.49	.05	.00	35	.18	.19	.00
4	.00	.00	.00	.02	.02	.41	.04	.00	24	.23	.15	.00
5	.00	.00	.00	.00	.77	.35	.89	.00	14	.23	.12	.00
6	.00	.00	.00	.00	2.2	.31	1.0	94	8.6	.22	.11	.00
7	.00	.00	.00	.00	.75	.32	.78	42	14	.23	.06	.00
8	.00	.00	.00	.00	.72	.27	1.2	13	33	.22	.04	.00
9	.00	.00	.00	.00	.45	.26	.68	4.5	37	.40	.03	.00
10	.00	.00	.00	.00	.26	.23	.43	1.6	17	.71	.02	.00
11	.00	.00	.00	.00	.19	.36	.30	2.7	16	.85	.01	.00
12	.00	.00	.00	.00	.13	.38	.19	1.4	17	.71	.00	.00
13	.00	.00	.00	.00	.11	.40	.15	1.6	6.7	.49	.00	.00
14	.00	.00	.00	.00	.10	.37	.06	.76	34	.33	.00	.00
15	.00	.00	.00	.00	.10	.39	.05	.36	6.4	.24	.00	.00
16	.00	.00	.00	.04	.07	.41	.06	.23	2.9	.16	.00	.00
17	.00	.00	.00	.07	.05	.41	.06	.32	2.2	.19	.00	.00
18	.00	.00	.00	.06	.03	.32	.05	.32	2.3	.29	.00	.00
19	.00	.00	.00	.04	.05	.28	.03	.13	1.5	.16	.00	.00
20	.00	.00	.00	.02	.28	.24	.02	.03	1.4	.13	.00	.00
21	.00	.00	.00	.02	.22	.24	.01	.02	1.7	.15	.00	.00
22	.00	.00	.00	.04	.19	.26	.02	.05	1.2	.12	.00	.00
23	.00	.00	.00	.02	.20	.29	.02	.10	1.2	.10	.00	.00
24	.00	.00	.00	.02	.23	.25	.01	.08	.99	.27	.00	.00
25	.00	.00	.00	.00	.96	.19	.04	.05	.75	.95	.00	.00
26	.00	.00	.00	.00	2.7	.17	.16	.02	.52	1.1	.00	.00
27	.00	.00	.00	.00	4.2	.15	.06	.00	.78	1.6	.00	.00
28	.00	.00	.00	.00	2.2	.14	.04	.00	.33	1.5	.00	.00
29	.00	.00	.05	.00	---	.14	.02	.00	.59	.77	.00	.00
30	.00	.00	.19	.01	---	.12	.00	.05	.84	.66	.00	.00
31	.00	---	1.3	.01	---	.11	---	974	---	.45	.00	---
TOTAL	.00	.00	1.54	1.60	17.23	9.91	6.57	1137.32	1654.90	14.52	1.29	.00
MEAN	.00	.00	.05	.05	.62	.32	.22	36.7	55.2	.47	.04	.00
MAX	.00	.00	1.3	.84	4.2	1.0	1.2	974	1270	1.6	.31	.00
MIN	.00	.00	.00	.00	.01	.11	.00	.00	.33	.10	.00	.00
AC-FT	.0	.0	3.1	3.2	34	20	13	2260	3280	29	2.6	.0

CAL YR 1986	TOTAL	289.98	MEAN	.79	MAX	88	MIN	.00	AC-FT	575
WTR YR 1987	TOTAL	2844.86	MEAN	7.79	MAX	1270	MIN	.00	AC-FT	5640

08211900 SAN FERNANDO CREEK AT ALICE, TX

LOCATION.--Lat 27°46'20", long 98°02'00", Jim Wells County, Hydrologic Unit 12110204, on left bank 34 ft downstream from downstream bridge of two bridges on State Highways 44 and 359, 0.5 mi downstream from confluence of San Diego and Chiltipin Creeks, 2.3 mi upstream from head of Pintas Creek, and 2.7 mi northeast of Alice.

DRAINAGE AREA.--507 mi².

PERIOD OF RECORD.--December 1964 to March 1987 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 161.68 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. San Diego Creek joins Chiltipin Creek below Lake Alice to form San Fernando Creek. Flow is regulated by Lake Alice (station 08211850) 2.3 mi upstream from Chiltipin Creek since Oct. 26, 1964. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08211800. Records furnished by city of Alice show that 354 acre-ft of sewage effluent was discharged into San Diego Creek 1.3 mi upstream, which comprises most of the low flow.

AVERAGE DISCHARGE.--21 years (water years 1966-86), 22.5 ft³/s (16,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,800 ft³/s Sept. 12, 1971 (gage height, 16.51 ft); minimum daily, 0.2 ft³/s Aug. 2 and Sept. 16, 1965.
Maximum stage since at least 1949, that of Sept. 12, 1971. Another high stage for this period was 15.86 ft Sept. 23, 1967 (discharge, 16,900 ft³/s).

EXTREMES OUTSIDE PERIOD OF RECORD.--Other high stages since at least 1949 are 15.5 ft Sept. 9, 1962 (discharge, 14,600 ft³/s from field estimate), and 14.2 ft Sept. 14, 1951. Discharge for flood of Sept. 14, 1951, may have exceeded that for 1962 as the highway was raised between 1952 and 1962. Flood in 1951 was higher at site of discontinued station "San Fernando Creek near Alice." Flood in 1962 was higher than that of 1967 at site of discontinued station; there is a diversion into the Pintas Creek basin between the two gaging sites, and apparently this diversion was greater in 1967 than in 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1986 to March 1987, 52 ft³/s Feb. 26 at 1600 hours (gage height, 2.20 ft); minimum daily, 0.83 ft³/s Feb. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1986 TO MARCH 1987
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	1.1	1.2	1.2	.90	2.7	---	---	---	---	---	---
2	2.5	1.2	1.2	1.1	.93	2.2	---	---	---	---	---	---
3	2.3	1.2	1.2	1.2	.83	1.8	---	---	---	---	---	---
4	2.2	1.2	1.1	1.2	.93	1.6	---	---	---	---	---	---
5	2.2	1.1	1.1	1.4	1.3	1.7	---	---	---	---	---	---
6	2.2	1.1	1.1	1.3	6.4	---	---	---	---	---	---	---
7	2.4	1.2	1.1	1.1	2.2	---	---	---	---	---	---	---
8	2.0	1.2	1.2	1.2	1.6	---	---	---	---	---	---	---
9	1.9	1.3	1.2	1.1	1.5	---	---	---	---	---	---	---
10	1.8	1.6	1.2	1.1	1.4	---	---	---	---	---	---	---
11	1.7	1.4	1.2	.97	1.4	---	---	---	---	---	---	---
12	1.7	1.6	1.3	1.0	1.3	---	---	---	---	---	---	---
13	1.5	2.0	1.2	1.0	1.3	---	---	---	---	---	---	---
14	1.5	1.3	1.2	1.2	1.2	---	---	---	---	---	---	---
15	1.5	1.2	1.4	1.1	1.2	---	---	---	---	---	---	---
16	1.3	1.1	1.3	1.1	1.2	---	---	---	---	---	---	---
17	1.3	1.2	1.3	1.1	1.1	---	---	---	---	---	---	---
18	1.1	1.0	1.3	.97	1.2	---	---	---	---	---	---	---
19	1.2	1.2	1.3	1.1	1.2	---	---	---	---	---	---	---
20	1.3	1.1	1.3	1.0	1.3	---	---	---	---	---	---	---
21	1.3	1.0	1.4	1.1	1.1	---	---	---	---	---	---	---
22	1.4	1.0	1.8	1.2	1.1	---	---	---	---	---	---	---
23	1.7	1.0	1.5	1.2	1.2	---	---	---	---	---	---	---
24	1.3	1.0	1.5	1.1	1.2	---	---	---	---	---	---	---
25	1.2	1.2	1.2	1.1	1.9	---	---	---	---	---	---	---
26	1.2	1.2	1.3	1.1	39	---	---	---	---	---	---	---
27	1.2	1.1	1.2	1.1	12	---	---	---	---	---	---	---
28	1.2	1.1	1.1	1.1	4.8	---	---	---	---	---	---	---
29	1.2	1.1	1.5	1.1	---	---	---	---	---	---	---	---
30	.98	1.2	2.2	1.0	---	---	---	---	---	---	---	---
31	.96	---	1.9	.91	---	---	---	---	---	---	---	---
TOTAL	49.84	36.2	41.0	34.45	92.69	---	---	---	---	---	---	---
MEAN	1.61	1.21	1.32	1.11	3.31	---	---	---	---	---	---	---
MAX	2.6	2.0	2.2	1.4	39	---	---	---	---	---	---	---
MIN	.96	1.0	1.1	.91	.83	---	---	---	---	---	---	---
AC-FT	99	72	81	68	184	---	---	---	---	---	---	---

CAL YR 1986 TOTAL 1967.05 MEAN 5.39 MAX 468 MIN .00 AC-FT 3900
WTR YR 1987 TOTAL -- MEAN -- MAX -- MIN -- AC-FT --

08364000 RIO GRANDE AT EL PASO, TX

LOCATION.--Lat 31°48'10", long 106°32'25", El Paso County, Hydrologic Unit 13030102, at gaging station on the downstream side of the Courchesne Bridge, 5.6 mi upstream from the Santa Fe Street-Juarez Avenue bridge between El Paso, Tex., and Cd. Juarez, Mex., and 1.7 mi upstream from the American Dam.

DRAINAGE AREA.--29,267 mi².

PERIOD OF RECORD.--Chemical analyses: February 1930 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1987 are given in International Boundary and Water Commission Water Bulletins Nos. 56 and 57.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 14...	0905	1650	680	7.60	14.5	180	46	52	11
NOV 18...	0830	347	1680	8.00	13.0	430	200	130	26
DEC 18...	0910	2400	625	7.90	8.0	170	33	50	10
JAN 22...	0925	369	766	7.80	3.0	190	53	58	12
FEB 17...	0835	2100	674	7.60	5.0	180	44	54	11
MAR 17...	0930	2190	701	7.60	9.0	180	45	54	11
APR 16...	0850	1100	824	7.90	15.5	210	49	62	13
MAY 19...	1000	1200	678	7.50	24.0	180	40	55	11
JUN 18...	0900	1010	987	7.90	24.0	240	69	73	15
JUL 14...	1100	2600	644	7.50	30.5	170	38	51	11
AUG 18...	1100	1100	1070	7.70	32.0	250	74	72	16
SEP 17...	0900	340	1330	7.80	19.0	290	100	85	19

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)
OCT 14...	70	2	4.8	129	130	47	14	410
NOV 18...	220	5	9.3	231	400	190	25	1100
DEC 18...	59	2	5.0	133	120	40	11	370
JAN 22...	74	2	4.8	141	140	51	12	440
FEB 17...	68	2	4.8	136	120	50	4.8	390
MAR 17...	65	2	5.0	135	120	44	3.0	380
APR 16...	89	3	6.2	159	160	69	15	510
MAY 19...	70	2	5.3	143	130	47	14	420
JUN 18...	110	3	6.4	175	200	84	17	610
JUL 14...	68	2	5.3	135	130	45	15	410
AUG 18...	130	4	5.7	172	220	110	18	670
SEP 17...	170	5	3.3	189	290	140	21	840

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX
(National stream-quality accounting network)

LOCATION.--Lat 29°46'50", long 101°45'20", Val Verde County, Hydrologic Unit 13040212, at gaging station 0.1 mi downstream from Terrell-Val Verde County line, 16.9 mi from Langtry, and 597.2 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--80,742 mi², United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: April 1944 to current year. Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: July 1975 to June 1982. Sediment analyses: October 1974 to current year.

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, 2,110 microsiemens Dec. 4, 1974; minimum daily, 225 microsiemens May 2, 1981.
WATER TEMPERATURE: Maximum daily, 32.0°C June 13, 1977, July 25, 26 1979, July 4, 1980, and June 8, 1981; minimum daily, 9.0°C Jan. 12, 1975, Jan. 8, 1976, and Jan. 18, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
NOV 19...	1140	4800	1420	8.00	19.0	140	8.5	96	1.6	60	110	310
JAN 07...	1415	4190	1350	8.00	14.5	130	12.4	127	1.2	K16	K120	320
MAY 13...	1350	4320	1430	8.30	25.0	390	8.9	113	3.2	480	600	310
AUG 25...	1455	3130	1580	7.50	28.0	410	9.2	123	1.5	K380	440	350

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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV 19...	140	92	19	180	5	6.4	172	290	170	0.80	15	865
JAN 07...	140	94	20	170	4	5.7	177	280	180	0.80	13	859
MAY 13...	130	93	19	190	5	6.9	179	310	170	1.1	19	931
AUG 25...	200	110	18	200	5	8.3	148	370	200	1.4	22	1030

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, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)
NOV 19...	880	<0.010	0.260	0.020	0.020	0.28	0.30	0.050	<0.010	<0.010	417
JAN 07...	870	<0.010	0.370	0.030	0.040	0.87	0.90	<0.010	0.010	<0.010	382
MAY 13...	920	<0.010	0.600	0.030	0.030	2.3	2.3	0.900	0.010	<0.010	1630
AUG 25...	1000	<0.010	0.790	0.030	0.010	--	<0.20	0.630	0.020	<0.010	1580

DATE	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 19...	5400	88	<10	5	79	<0.5	<1	<1	<3	1	<3
JAN 07...	4320	84	<10	6	71	<0.5	<1	<1	<3	2	8
MAY 13...	19000	84	20	9	75	<0.5	<1	<1	<3	2	13
AUG 25...	13400	87	<10	10	110	<0.5	<1	<1	<3	2	10

08377200 RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
NOV 19...	<5	92	<1	<0.1	<10	2	1	<1	1400	<6	13
JAN 07...	<5	95	3	<0.1	<10	2	1	<1	1400	<6	7
MAY 13...	<5	100	1	<0.1	10	1	1	<1	1600	9	16
AUG 25...	<5	91	2	<0.1	<10	<1	2	<1	1900	11	8

08407500 PECOS RIVER AT RED BLUFF, NM
(National stream-quality accounting network station)

LOCATION.--Lat 32°04'30", long 104°02'21", in SW1/4NW1/4NE1/4 sec.1, T.26 S., R.28 E., Eddy County, Hydrologic Unit 13060011, on right bank at Red Bluff, 0.2 mi downstream from Red Bluff Draw, 1.6 mi northwest of the El Paso Natural Gas (Pecos River) compressor station, 5.2 mi north of the New Mexico-Texas state line, 5.5 mi upstream from Delaware River, and at mile 411.2.

DRAINAGE AREA.--19,540 mi², approximately (contributing area).

PERIOD OF RECORD.--October 1937 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,850.05 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by many reservoirs and diversion dams. Diversions and ground-water withdrawals upstream from station for irrigation of about 202,000 acres, 1959 determination. Several observations of water temperatures were made during the year.

AVERAGE DISCHARGE.--50 years, 166 ft³/s (120,270 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 111,000 ft³/s Aug. 23, 1966 (gage height, 33.32 ft), from rating curve extended above 32,000 ft³/s on basis of slope-area measurement of peak flow; minimum, 0.19 ft³/s Aug. 1, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1904 reached a stage of 28.0 ft, from information by Panhandle and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft³/s May 28 (gage height, 7.20 ft); minimum, 64 ft³/s Aug. 3.

DISCHARGE, IN 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	75	289	521	430	398	402	204	160	523	283	76	100
2	70	317	326	413	402	365	252	401	537	285	79	87
3	70	464	210	406	406	347	258	439	533	353	66	95
4	77	491	170	398	408	304	238	446	542	360	87	90
5	85	464	154	411	409	282	218	471	555	369	81	93
6	75	490	147	428	399	275	244	471	522	395	73	107
7	100	571	214	440	359	240	249	452	516	377	69	104
8	86	587	551	385	340	227	234	422	621	306	69	80
9	90	588	589	291	338	198	198	407	901	228	81	81
10	364	593	593	317	358	209	165	418	827	176	115	91
11	152	593	565	359	369	212	145	438	595	137	133	97
12	129	583	529	400	371	219	122	444	568	114	165	85
13	112	590	419	371	367	278	104	409	552	121	131	82
14	104	587	408	346	352	357	101	349	551	111	102	103
15	104	595	370	328	338	416	95	309	569	93	95	114
16	100	604	293	338	328	428	89	283	548	98	99	116
17	109	606	259	332	321	415	86	303	523	108	95	97
18	100	604	291	333	234	392	93	335	472	102	87	117
19	100	533	335	340	263	372	88	346	431	102	97	126
20	133	431	365	361	295	363	86	343	418	99	94	145
21	209	445	458	356	316	362	90	348	419	99	90	129
22	166	577	553	340	331	356	97	341	424	96	88	118
23	145	610	583	342	345	365	85	504	397	91	91	111
24	124	614	542	350	355	329	84	542	344	84	95	101
25	121	615	514	328	391	232	86	515	302	76	135	105
26	266	623	503	283	408	194	84	522	288	85	111	90
27	300	650	495	350	419	157	86	509	354	78	105	92
28	305	800	489	407	414	108	88	776	331	74	160	87
29	318	836	448	444	---	89	91	518	354	84	111	84
30	306	772	422	448	---	91	87	499	323	94	112	92
31	303	---	423	402	---	130	---	507	---	75	116	---
TOTAL	4798	17122	12739	11477	10034	8714	4147	13227	14840	5153	3108	3019
MEAN	155	571	411	370	358	281	138	427	495	166	100	101
MAX	364	836	593	448	419	428	258	776	901	395	165	145
MIN	70	289	147	283	234	89	84	160	288	74	66	80
AC-FT	9520	33960	25270	22760	19900	17280	8230	26240	29440	10220	6160	5990

CAL YR 1986 TOTAL 135354 MEAN 371 MAX 28400 MIN 17 AC-FT 268500
WTR YR 1987 TOTAL 108378 MEAN 297 MAX 901 MIN 66 AC-FT 215000

08408500 DELAWARE RIVER NEAR RED BLUFF, NM

LOCATION.--Lat 32°01'23", long 104°03'15", in NE1/4SW1/4SE1/4 sec.23, T.26 S., R.28 E., Eddy County, Hydrologic Unit 13070002, near center of channel on downstream side of pier of bridge on U.S. Highway 285, 2.1 mi north of the New Mexico-Texas state line, 3.6 mi southwest of Red Bluff, 3.7 mi upstream from mouth and 14 mi south of Malaga. Mouth at Pecos River mile 405.6.

DRAINAGE AREA.--689 mi².

PERIOD OF RECORD.--April 1912 to September 1913, May 1914 to June 1915, October 1937 to current year. Published as "near Malaga" 1912-13, and as "near Angeles, Tex." 1914-15.

GAGE.--Water-stage recorder. Elevation of gage is 2,900.66 ft above National Geodetic Vertical Datum of 1929 (U.S. Boundary Commission post). Prior to May 1914, at site 3.0 mi upstream at different datum. May 1914 to June 1915 at site 2.5 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. One small upstream diversion. Several observations of water temperatures were made during the year.

AVERAGE DISCHARGE.--50 years (water years 1938-87), 12.9 ft³/s (9,350 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,400 ft³/s Oct. 2, 1955 (gage height, 27.0 ft), from floodmarks, from rating curve extended above 6,500 ft³/s on basis of slope-area measurements at gage heights, 12.84 ft, 17.55 ft, and 27.0 ft; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft³/s and maximum (*), from rating curve extended as explained above:

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Oct. 10	0030	*8,990	*11.40	No other peak greater than base discharge.			

Minimum discharge, 0.98 ft³/s Oct. 1, 2.

DISCHARGE, IN 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	7.4	6.9	8.7	8.7	9.1	9.7	9.6	6.9	8.1	4.1	10
2	1.1	7.5	6.7	8.7	8.6	9.0	9.5	9.2	6.4	7.3	4.0	8.9
3	1.4	26	6.8	8.6	8.6	9.1	9.4	8.7	6.0	7.1	3.9	7.6
4	1.2	43	6.5	8.5	8.7	9.0	9.2	8.3	9.3	6.5	3.8	7.8
5	1.3	15	6.7	8.7	8.4	9.1	9.5	8.3	7.2	6.0	3.7	8.2
6	1.4	9.0	6.7	8.7	8.1	9.1	9.7	8.7	5.9	5.7	3.6	7.8
7	1.4	8.2	6.7	8.7	8.2	9.0	9.7	8.8	12	5.5	3.6	7.5
8	1.2	7.8	7.0	8.5	8.3	9.1	9.8	8.6	39	5.2	3.6	7.5
9	25	7.3	6.8	8.3	8.4	9.1	9.8	8.3	77	5.3	4.1	10
10	1460	7.1	7.1	8.3	8.3	9.3	9.9	8.1	14	5.5	4.6	8.7
11	88	7.1	7.2	8.3	8.3	9.9	9.9	8.0	13	5.5	4.5	8.2
12	38	7.1	7.1	8.3	8.3	10	9.5	7.9	13	5.5	4.0	9.4
13	18	7.2	6.7	8.3	8.3	9.9	9.5	8.6	11	5.4	3.7	7.8
14	13	7.7	6.5	8.5	8.1	9.7	9.6	11	10	5.5	3.6	11
15	12	7.9	6.4	8.4	8.0	9.7	9.8	12	9.8	5.4	3.4	7.5
16	11	7.7	6.6	8.4	7.9	9.6	10	8.2	9.3	5.7	3.5	7.8
17	10	7.5	7.4	8.6	8.4	9.5	10	8.1	9.0	5.7	3.4	7.5
18	9.7	7.0	8.6	8.7	8.7	9.6	10	7.7	8.5	5.6	3.3	7.5
19	9.3	6.9	7.8	8.7	9.4	9.6	9.9	7.6	8.0	5.3	3.3	7.8
20	8.7	6.7	6.8	8.7	10	9.7	10	7.6	7.3	5.3	3.3	7.8
21	8.4	6.7	7.4	8.8	9.9	9.7	9.8	7.4	7.3	5.2	3.3	7.5
22	11	6.7	13	8.7	9.7	9.6	9.5	8.9	7.0	5.2	3.3	7.5
23	9.1	6.7	12	8.7	9.6	9.2	9.8	41	6.7	4.9	6.7	7.5
24	16	6.5	12	8.7	9.4	9.1	9.7	7.1	6.7	4.5	26	6.4
25	10	6.6	9.7	8.7	9.4	9.2	9.7	8.9	6.6	4.4	7.0	5.7
26	7.6	6.7	9.4	8.7	9.4	9.6	9.4	8.1	44	4.4	5.1	5.6
27	7.7	6.6	9.4	8.7	9.3	9.8	9.5	6.8	12	4.6	9.6	5.5
28	7.4	6.6	9.2	8.7	9.1	9.7	9.7	6.0	24	4.6	239	5.3
29	7.5	6.7	9.1	8.5	---	9.4	9.4	6.4	19	4.6	28	5.4
30	7.5	7.0	8.9	8.3	---	9.5	14	6.7	9.6	4.4	12	5.4
31	7.5	---	8.7	8.5	---	9.7	---	7.0	---	4.3	8.9	---
TOTAL	1812.5	277.9	247.8	265.6	245.5	292.6	294.9	287.6	425.5	168.2	423.9	228.1
MEAN	58.5	9.26	7.99	8.57	8.77	9.44	9.83	9.28	14.2	5.43	13.7	7.60
MAX	1460	43	13	8.8	10	10	14	41	77	8.1	239	11
MIN	1.1	6.5	6.4	8.3	7.9	9.0	9.2	6.0	5.9	4.3	3.3	5.3
AC-FT	3600	551	492	527	487	580	585	570	844	334	841	452

CAL YR 1986 TOTAL 7359.96 MEAN 20.2 MAX 1460 MIN .63 AC-FT 14600
WTR YR 1987 TOTAL 4970.10 MEAN 13.6 MAX 1460 MIN 1.1 AC-FT 9860

08410000 RED BLUFF RESERVOIR NEAR ORLA, TX

LOCATION.--Lat 31°54'04", long 103°54'35", Reeves County, Hydrologic Unit 13070001, at right end of Red Bluff Dam on the Pecos River, 2.8 mi upstream from Salt Creek, and 5.2 mi north of Orla.

DRAINAGE AREA.--20,720 mi², approximately (contributing area).

PERIOD OF RECORD.--February 1937 to current year. Monthly contents only for some periods, published in WSP 1312.

GAGE.--Nonrecording gage. Datum of gage is 0.43 ft below National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rock-faced earthfill dam 9,200 ft long. The dam was completed and storage began in September 1936. The dam and reservoir are owned and operated by the Red Bluff Water Power Control District. The water is used for power development and for irrigation from Mentone to Grandfalls. The uncontrolled emergency spillway, 790-foot wide, is a cut through natural ground located to the right of right end of dam. The controlled service spillway is equipped with 12 tainter gates that are 25- by 15-foot high. Inflow is regulated by many reservoirs and diversions dams. The capacity curve is based on Geological Survey topographic map, survey of 1925. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam	2,856.0	-
Crest of emergency spillway	2,845.0	340,000
Top of gates (top of conservation pool)	2,842.0	310,000
Crest of service spillway and bottom of tainter gates	2,827.0	166,500
Lowest gated outlet (invert)	2,764.0	3,000

COOPERATION.--Gage-height records and capacity curve were furnished by the Red Bluff Water Power and Control District.

EXTREMES (AT 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 352,000 acre-ft Sept. 27, 28, 1941 (gage height, 2,846.2 ft), observed on nonrecording gage at service spillway (affected by variable drawdown due to flow through tainter gates); minimum observed, 11,080 acre-ft May 13, 1948 (gage height, 2,781.4 ft).

EXTREMES (AT 0800) FOR CURRENT YEAR.--Maximum contents observed, 284,200 acre-ft Apr. 9 (gage height, 2,841.5 ft); minimum observed, 187,000 acre-ft Oct. 1 (gage height, 2,831.2 ft).

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

2,831.0	185,400	2,838.0	247,700
2,834.0	210,400	2,842.0	289,700

RESERVOIR STORAGE (AC-FT), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	187000	196800	222100	243800	259800	270100	282000	272300	261800	248700	233300	229500
2	187800	196800	223000	243800	260800	270100	282000	271200	261800	247700	233300	229500
3	187800	197700	223000	244800	260800	271200	282000	271200	261800	246700	232300	228500
4	187800	198500	223000	245800	261800	272300	282000	270100	261800	246700	232300	228500
5	187800	199300	223000	245800	261800	272300	282000	270100	257700	245800	232300	228500
6	187800	200100	223900	245800	262900	272300	282000	270100	257700	245800	231400	228500
7	187800	201000	223900	247700	263900	273400	283100	269100	257700	244800	231400	228500
8	187800	201800	223900	248700	263900	273400	283100	269100	258700	244800	230400	227600
9	187800	201800	224800	248700	264900	273400	284200	269100	259800	243800	230400	227600
10	190300	202700	225700	249700	264900	273400	282000	269100	260800	243800	230400	227600
11	192700	203500	226700	250700	265900	274400	282000	270100	261800	242900	230400	227600
12	192700	204400	227600	250700	265900	274400	282000	270100	258700	241900	230400	227600
13	192700	205200	228500	251700	265900	274400	282000	271200	258700	240900	230400	227600
14	192700	206100	228500	251700	267000	274400	282000	271200	258700	239900	230400	226700
15	192700	207000	229500	251700	267000	275500	282000	270100	258700	239900	229500	226700
16	192700	208700	230400	252700	268000	275500	282000	270100	258700	239000	229500	226700
17	209100	209500	230400	252700	268000	276600	282000	270100	258700	239000	228500	226700
18	209100	210400	231400	253700	268000	276600	282000	269100	258700	238000	228500	226700
19	209100	211300	232300	253700	268000	277600	282000	269100	254700	238000	228500	226700
20	209100	212200	232300	253700	268000	278700	280900	268000	254700	238000	227600	226700
21	209100	213100	233300	254700	268000	278700	280900	268000	254700	237100	227600	226700
22	209100	214000	235200	254700	269100	279800	279800	265900	253700	237100	227600	226700
23	210000	214900	237100	255700	269100	279800	278700	265900	253700	237100	226700	226700
24	211000	215700	238000	255700	269100	280900	277600	265900	253700	236100	227600	226700
25	194300	216600	238000	256700	269100	280900	276600	265900	252700	236100	227600	226700
26	195200	217500	239000	256700	269100	280900	276600	265900	249700	236100	227600	226700
27	195200	218400	239900	257700	269100	282000	275500	265900	249700	235200	228500	226700
28	195200	219300	240900	257700	269100	282000	275500	265900	249700	234200	229500	225700
29	195200	220200	241900	257700	---	282000	275500	262900	248700	234200	229500	225700
30	196000	221100	241900	258700	---	282000	274400	261800	248700	234200	229500	225700
31	196000	---	242900	259800	---	282000	---	261800	---	233300	229500	---
MAX	211000	221100	242900	259800	269100	282000	284200	272300	261800	248700	233300	229500
MIN	187000	196800	222100	243800	259800	270100	274400	261800	248700	233300	226700	225700
(†)	2832.3	2835.2	2837.5	2839.2	2840.1	2841.3	2840.6	2839.4	2838.1	2836.5	2836.1	2835.7
(ϕ)	+9000	+25100	+21800	+16900	+9300	+12900	-7600	-12600	-13100	-15400	-3800	-3800

CAL YR 1986 MAX 242900 MIN 62100 (ϕ) +174700
WTR YR 1987 MAX 284200 MIN 187000 (ϕ) +38700

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

08412500 PECOS RIVER NEAR ORLA, TX

LOCATION.--Lat 31°52'21", long 103°49'52", Reeves County, Hydrologic Unit 13070001, on right bank at bridge on Farm Road 652, 5.5 mi downstream from Salt Creek (Screw Bean Arroyo), 5.9 mi northeast of Orla, and 8.5 mi downstream from Red Bluff Reservoir.

DRAINAGE AREA.--21,210 mi², approximately (contributing area).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1937 to current year.

REVISED RECORDS.--WSP 928: 1937.

GAGE.--Water-stage recorder. Datum of gage is 2,730.86 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 16, 1969, at site 6.9 mi downstream at datum 12.81 ft lower.

REMARKS.--Estimated daily discharges: May 13 to July 7. Records fair. Most of flow is releases from storage in Red Bluff reservoir (station 08410000) 8.5 mi upstream. Occasional runoff occurs from draws between dam and station. There are many diversions above Red Bluff Reservoir for irrigation.

AVERAGE DISCHARGE.--50 years (water years 1938-87), 156 ft³/s (113,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,700 ft³/s Sept. 29, 1941 (gage height, 20.74 ft), site and datum then in use; no flow at times in 1946 and 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,410 ft³/s Apr. 30 at 2000 hours (gage height, 15.50 ft); minimum daily, 18 ft³/s Oct. 20-22.

DISCHARGE, IN 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	72	20	22	28	26	40	28	560	510	470	164	144
2	23	62	21	28	25	31	39	520	510	470	163	144
3	23	86	21	27	48	30	28	516	510	470	162	145
4	23	126	22	28	63	30	27	512	1350	470	159	155
5	23	82	23	28	64	30	26	517	1770	470	160	149
6	28	70	23	29	66	30	26	650	720	470	156	148
7	29	65	23	29	65	30	26	522	500	470	156	148
8	27	52	23	30	65	29	26	462	530	474	156	145
9	25	52	23	29	65	29	514	338	520	476	155	150
10	28	53	23	29	65	27	277	55	500	473	155	147
11	41	57	24	29	105	30	42	52	1140	479	155	147
12	36	56	25	29	117	32	42	70	1460	485	156	153
13	27	56	26	28	116	30	50	450	660	498	158	152
14	23	57	26	28	117	30	35	520	490	408	159	141
15	20	52	25	27	118	29	33	520	490	244	158	96
16	19	24	25	27	118	30	33	520	490	243	156	95
17	19	21	25	28	118	29	32	520	490	243	156	93
18	19	20	33	28	119	28	125	520	1250	241	155	91
19	19	20	35	28	123	28	332	520	1630	240	156	84
20	18	21	30	27	124	28	334	520	670	235	156	83
21	18	21	27	27	137	28	340	890	480	179	155	84
22	18	21	91	27	260	28	358	1020	480	164	155	83
23	100	20	88	26	269	27	901	640	480	164	156	89
24	44	20	55	26	269	205	482	520	480	163	183	128
25	33	21	37	24	269	52	385	520	1320	162	195	130
26	26	20	31	25	269	32	389	520	1740	167	181	130
27	22	21	30	24	268	32	389	520	680	165	167	133
28	48	22	30	24	246	32	387	1180	420	163	754	132
29	21	22	29	25	---	31	390	1400	420	165	397	130
30	20	23	28	25	---	30	933	740	470	164	187	136
31	20	---	28	27	---	30	---	550	---	164	154	---
TOTAL	912	1263	972	844	3714	1127	7029	17364	23160	9849	5835	3785
MEAN	29.4	42.1	31.4	27.2	133	36.4	234	560	772	318	188	126
MAX	100	126	91	30	269	205	933	1400	1770	498	754	155
MIN	18	20	21	24	25	27	26	52	420	162	154	83
AC-FT	1810	2510	1930	1670	7370	2240	13940	34440	45940	19540	11570	7510

CAL YR 1986 TOTAL 25527 MEAN 69.9 MAX 400 MIN 5.7 AC-FT 50630
WTR YR 1987 TOTAL 75854 MEAN 208 MAX 1770 MIN 18 AC-FT 150500

08412500 PECOS RIVER NEAR ORLA, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1937 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1937 to current year.
WATER TEMPERATURE: March 1953 to current year.

REMARKS.--October 1937 to September 1969, this station was published as 08410100 Pecos River below Red Bluff Dam, near Orla. 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, 29,400 microsiemens May 16, 1978; minimum daily, 1,600 microsiemens June 19, 1984.
WATER TEMPERATURE: Maximum daily, 31.0°C Aug. 13, 1978, and Aug. 13, 1982; minimum daily, 0.0°C on many days during winter months .

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 18,900 microsiemens Dec. 19; minimum daily, 5,160 microsiemens June 26.
WATER TEMPERATURE: Maximum daily, 26.0°C Sept. 3; minimum daily, 3.0°C Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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									
02...	1545	22	11600	25.0	2000	1900	500	180	1900
NOV									
24...	1515	21	13200	10.5	2100	2000	540	180	2300
JAN									
22...	1115	27	14600	4.0	2400	2300	620	200	2600
MAR									
10...	0910	27	12200	26.0	2100	2000	540	180	2100
MAY									
06...	1220	522	5870	15.0	1300	1200	350	110	850
JUL									
07...	1235	472	5430	22.0	1200	1100	310	99	850

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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								
02...	19	37	97	1900	3000	0.80	9.3	7600
NOV								
24...	23	24	135	2000	3700	1.0	10	8800
JAN								
22...	24	26	119	2200	4100	1.2	9.6	9800
MAR								
10...	21	26	130	2000	3300	0.90	6.5	8200
MAY								
06...	11	18	131	1100	1400	0.50	9.8	3900
JUL								
07...	11	3.6	131	1100	1300	0.60	5.6	3700

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	912	13700	9300	22900	3800	9470	2100	5290	*
NOV.	1986	1263	10600	7090	24200	2800	9710	1700	5930	*
DEC.	1986	972	13600	9230	24200	3800	10000	2100	5600	*
JAN.	1987	844	14000	9490	21600	3900	8940	2200	5010	*
FEB.	1987	3714	6670	4420	44300	1700	17100	1200	11700	1300
MAR.	1987	1127	11800	7920	24100	3200	9770	1900	5820	*
APR.	1987	7029	6610	4370	83000	1700	32100	1200	21900	1300
MAY	1987	17364	5850	3860	181000	1500	69200	1000	48600	1200
JUNE	1987	23160	5570	3670	230000	1400	87500	990	62100	1100
JULY	1987	9849	5680	3750	99600	1400	38000	1000	26900	1100
AUG.	1987	5835	6140	4060	63900	1600	24500	1100	17100	1200
SEPT	1987	3785	7000	4640	47400	1800	18300	1200	12500	1400
TOTAL		75854	**	**	866000	**	335000	**	228000	**
WTD.AVG.		208	6390	4230	**	1600	**	1100	**	1300

08412500 PECOS RIVER NEAR ORLA, TX--Continued

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10500	12700	13900	13900	12900	8800	12000	6340	5730	5640	6040	6500
2	11100	10500	13700	13900	13100	12400	12500	6180	5670	5610	5980	6580
3	12600	9650	13600	12200	8780	12500	11500	5860	5590	5570	6000	6620
4	13100	12000	13400	14300	8590	12500	11300	6080	5460	5510	5700	6520
5	13300	10200	13400	13300	8840	12400	11700	5800	5360	5510	5910	6570
6	13600	9000	13500	13200	8300	12400	11600	5870	5820	5480	5900	6490
7	17500	8920	13700	14300	8740	12300	12200	6070	5820	5440	5860	6440
8	17700	8840	14900	14300	8840	12300	12400	6080	6100	5400	5840	6430
9	16500	8910	13900	14200	8780	12300	7820	6090	6300	5400	5810	6380
10	15500	8890	13700	13800	8720	12200	8290	10200	5890	5380	5820	6400
11	17200	8770	13900	14400	7280	11800	12100	11200	5690	5380	5880	6350
12	18500	8760	14300	14200	7230	12400	12600	11200	5300	5360	5920	6560
13	17200	7920	15500	14200	7180	13900	12500	5850	5800	5330	5820	6900
14	15500	8580	15700	14200	7170	13600	10800	6030	5760	5930	5860	6920
15	14600	9070	15600	14300	6660	13200	12000	6030	5720	5850	6100	8200
16	14200	10900	15400	14100	6420	13000	11900	6050	5670	5820	6000	9300
17	13900	14400	15200	14000	6540	12700	11800	5940	5620	5810	5930	9370
18	13800	14800	14900	14000	6640	12500	9760	5860	5590	5850	5890	8550
19	14000	14100	18900	14900	6740	12100	7000	5800	5350	6000	5880	8360
20	14200	13600	17400	14600	7230	12200	5650	5620	5760	6120	5910	8320
21	14400	13300	16200	14800	8000	12100	5740	5740	5740	6440	6100	8270
22	14400	13200	15700	14700	5500	12100	5510	5490	5660	6420	6070	8400
23	14300	13200	8440	14700	5670	11900	5620	5730	5610	6360	6080	8350
24	14300	13400	9620	14400	5630	10600	5530	6010	5570	6300	8250	6700
25	10100	13500	10600	14400	5710	9020	5840	5910	5350	6240	9310	6690
26	9320	13500	11800	14200	5860	11000	5840	5760	5160	6170	6550	6820
27	10300	13600	12400	14000	5760	12000	5890	5700	5600	6120	6260	6780
28	11100	13500	13000	13900	5840	12400	6060	5450	5880	6100	5750	6840
29	9290	13600	13400	13800	---	12700	6030	5260	5820	6080	5720	6360
30	11800	13800	13800	13700	---	12000	6030	5810	5650	6040	6620	6450
31	12200	---	14000	11500	---	12000	---	5740	---	6020	6600	---
MEAN	13700	11500	14000	14000	7590	12100	9180	6350	5670	5830	6170	7180

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
ONCE-DAILY

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

08414500 REEVES COUNTY WATER IMPROVEMENT DISTRICT NO. 2 CANAL NEAR MENTONE, TX

LOCATION.--Lat 31°37'57", long 103°34'30", Loving County, Hydrologic Unit 13070001, on right bank 173 ft downstream from headgate, 5.3 mi south of Mentone, and 15 mi northwest of Pecos.

PERIOD OF RECORD.--February 1922 to July 1925, August 1939 to May 1941, March 1942 to September 1957, and March 1964 to September 1986 (continuous-record station), October 1986 to current year (seasonal records only). Records from August 1939 to October 1940, not equivalent because diversion was not included. Published as "Farmers Independent Canal near Porterville" 1922-25.

GAGE.--Water-stage recorder. Concrete weir since Mar. 1, 1964. Elevation of gage is 2,640 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to July 22, 1925, at site 250 ft downstream at different datum. Mar. 10, 1939, to Oct. 4, 1940, at site 2.5 mi downstream at different datum. Oct. 5, 1940, to Feb. 19, 1943, at site 123 ft upstream at datum 1.10 ft higher. Feb. 20, 1943, to Mar. 1, 1954, at site 123 ft upstream at present datum.

REMARKS.--No estimated daily discharge. Records good. At times, runoff is deleted from daily discharge record. Water is diverted from right bank of Pecos River and is used for irrigation between Mentone and Pecos. Discharges from April to September only, after September 1986.

AVERAGE DISCHARGE.--40 years (water years 1923-24, 1940, 1943-57, 1965-86), 7.46 ft^3/s (5,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 160 ft^3/s June 14, 1922; no flow at times each year.

DISCHARGE, IN 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	.00	.00	.01	.00
2	---	---	---	---	---	---	.00	1.7	.00	.00	.00	.00
3	---	---	---	---	---	---	.00	16	.00	.00	.00	.00
4	---	---	---	---	---	---	.00	10	.00	.00	.00	9.0
5	---	---	---	---	---	---	.00	12	.00	.00	.00	7.4
6	---	---	---	---	---	---	.00	12	.00	.00	.00	.07
7	---	---	---	---	---	---	.00	12	.00	.00	.00	.06
8	---	---	---	---	---	---	.00	13	.00	.00	.00	.01
9	---	---	---	---	---	---	.00	9.1	.00	.00	.00	.00
10	---	---	---	---	---	---	.00	4.9	.00	.00	.00	.00
11	---	---	---	---	---	.02	.00	.05	.02	.00	.00	.00
12	---	---	---	---	---	.07	.00	.05	.00	22	.00	.00
13	---	---	---	---	---	.07	.00	.01	.00	29	.00	.00
14	---	---	---	---	---	.07	.00	.01	.00	26	.00	.00
15	---	---	---	---	---	.01	.00	.00	.00	23	.00	.00
16	---	---	---	---	---	.00	.00	.00	.00	26	.00	.00
17	---	---	---	---	---	.00	.00	.00	.00	30	.00	.00
18	---	---	---	---	---	.00	.00	.00	.00	28	.00	.00
19	---	---	---	---	---	.00	.00	.00	.00	28	.00	.00
20	---	---	---	---	---	.00	.00	.00	9.2	36	.00	.00
21	---	---	---	---	---	.00	.00	.00	58	16	.00	.00
22	---	---	---	---	---	.00	.00	.00	28	15	.00	.00
23	---	---	---	---	---	.00	.00	.00	25	32	.00	.00
24	---	---	---	---	---	.00	.00	.00	51	32	.00	.00
25	---	---	---	---	---	.00	.00	.00	40	32	.00	.00
26	---	---	---	---	---	.00	.00	.00	18	38	.00	.00
27	---	---	---	---	---	.00	.00	.00	.05	34	2.0	.00
28	---	---	---	---	---	.00	.00	.00	.03	15	17	.00
29	---	---	---	---	---	.00	.00	.00	.00	2.2	.00	.00
30	---	---	---	---	---	.00	.00	.01	.00	1.8	.00	.00
31	---	---	---	---	---	.00	---	.01	---	.06	.00	---
TOTAL	---	---	---	---	---	---	.00	90.84	229.30	466.06	19.01	16.54
MEAN	---	---	---	---	---	---	.00	2.93	7.64	15.0	.61	.55
MAX	---	---	---	---	---	---	.00	16	58	38	17	9.0
MIN	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
AC-FT	---	---	---	---	---	---	.0	180	455	924	38	33

CAL YR 1986 TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1987 TOTAL - MEAN - MAX - MIN - AC-FT -

08418000 WARD COUNTY IRRIGATION DISTRICT NO. 1 CANAL NEAR BARSTOW, TX

LOCATION.--Lat 31°32'26", long 103°29'42", Ward County, Hydrologic Unit 13070001, on left bank 0.6 mi downstream from headgate and 7.9 mi northwest of Barstow.

PERIOD OF RECORD.--February 1922 to September 1925 (published as "Barstow Canal near Barstow"), August 1939 to May 1941, October 1941 to September 1957, and March 1964 to September 1986 (continuous-record station), October 1986 to current year (seasonal record only).

GAGE.--Water-stage recorder. Concrete weir since Nov. 20, 1968. Elevation of gage is 2,600 ft above National Geodeti Vertical Datum of 1929, from topographic map. Prior to Aug. 15, 1939, at site about 3,000 ft upstream at different datum.

REMARKS.--Records fair. At times, local runoff is deleted from daily discharge record. Water is diverted from left bank of Pecos River and is used for irrigation in the vicinity of Barstow. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--42 years (water years 1923-25, 1940, 1942-57, 1965-86), 25.1 ft^3/s (18,180 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 385 ft^3/s Aug. 30, 1923; no flow at times each year.

DISCHARGE, IN 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	8.9	.42	50	40	e.00
2	---	---	---	---	---	---	.00	8.9	15	46	43	25
3	---	---	---	---	---	---	.00	14	18	42	46	26
4	---	---	---	---	---	---	.00	16	10	40	49	30
5	---	---	---	---	---	---	.00	14	.68	39	52	33
6	---	---	---	---	---	---	.00	25	.47	38	53	34
7	---	---	---	---	---	---	.00	30	.31	37	72	34
8	---	---	---	---	---	---	.00	32	28	37	103	28
9	---	---	---	---	---	---	.00	34	32	37	102	29
10	---	---	---	---	---	---	.00	32	22	38	96	30
11	---	---	---	---	---	---	.00	.82	1.1	39	88	30
12	---	---	---	---	---	---	.00	.54	.30	40	62	21
13	---	---	---	---	---	---	.00	25	.30	41	50	13
14	---	---	---	---	---	---	.00	34	.27	41	16	.84
15	---	---	---	---	---	---	.00	24	.20	41	8.1	.78
16	---	---	---	---	---	---	.00	24	5.7	41	7.1	.68
17	---	---	---	---	---	---	.00	39	22	45	8.1	22
18	---	---	---	---	---	---	.00	42	38	45	8.6	27
19	---	---	---	---	---	---	.00	39	44	45	8.6	27
20	---	---	---	---	---	---	.00	39	44	45	17	27
21	---	---	---	---	---	---	30	34	44	46	17	26
22	---	---	---	---	---	---	49	38	44	48	18	29
23	---	---	---	---	---	---	40	28	44	50	7.1	32
24	---	---	---	---	---	---	43	12	50	50	6.6	32
25	---	---	---	---	---	---	21	12	51	50	.00	32
26	---	---	---	---	---	---	8.3	30	50	50	.00	32
27	---	---	---	---	---	---	7.9	52	50	48	9.6	32
28	---	---	---	---	---	---	13	51	50	47	14	32
29	---	---	---	---	---	---	13	48	50	47	.00	33
30	---	---	---	---	---	---	9.2	23	50	44	.00	22
31	---	---	---	---	---	---	---	8.9	---	43	.00	---
TOTAL	---	---	---	---	---	---	234.40	819.06	765.75	1350	1001.80	740.30
MEAN	---	---	---	---	---	---	7.81	26.4	25.5	43.5	32.3	24.7
MAX	---	---	---	---	---	---	49	52	51	50	103	34
MIN	---	---	---	---	---	---	.00	.54	.20	37	.00	.00
AC-FT	---	---	---	---	---	---	465	1620	1520	2680	1990	1470

CAL YR 1986	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		
WTR YR 1987	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		

e Estimated.

08436500 PECOS COUNTY WATER IMPROVEMENT DISTRICT NO. 2 (UPPER DIVERSION) CANAL NEAR GRANDFALLS, TX

LOCATION.--Lat 31°18'43", long 102°55'10", Ward County, Hydrologic Unit 13070001, on left bank about 2.5 mi upstream from bridge on State Highway 18, 4.6 mi southwest of Grandfalls, and 12.5 mi downstream from headgate of canal.

PERIOD OF RECORD.--March 1922 to July 1925 (published as "Imperial Highline Canal near Grandfalls"), August 1939 to September 1957, and March 1964 to September 1986 (discontinued as a continuous-record station; converted to seasonal.

GAGE.--Water-stage recorder. Concrete weir since Dec. 8, 1947. Elevation of gage is 2,455 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Aug. 21, 1939, water-stage recorder at site 8.5 mi upstream at different datum. Aug. 21, to Oct. 3, 1939, and May 25 to Aug. 4, 1941, staff gage, Oct. 4, 1939, to May 21, 1941, and Aug. 5, 1941, to Sept. 30, 1957, water-stage recorder at site 2.5 mi downstream at different datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. At times, local runoff is deleted from daily discharge record. Water is diverted from right bank of Pecos River and is used for irrigation and to supply water for Imperial Reservoir. Water is released from Imperial Reservoir into Pecos County Water Improvement District No. 2 canal and into Pecos County Water Improvement District No. 3 canal for irrigation. Discharges from April to September only, after September 1986.

AVERAGE DISCHARGE.--41 years (water years 1924, 1940-57, 1965-86), 28.1 ft^3/s (20,360 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 368 ft^3/s Sept. 18, 1923; no flow at times each year.

DISCHARGE, IN 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	89	e85	e1.4	2.9
2	---	---	---	---	---	---	.00	.00	89	e80	e1.4	3.5
3	---	---	---	---	---	---	.00	.00	89	e75	e1.4	3.8
4	---	---	---	---	---	---	.00	.00	89	e70	1.4	3.2
5	---	---	---	---	---	---	.00	.00	89	e65	e1.4	3.0
6	---	---	---	---	---	---	.00	155	89	64	e1.6	2.9
7	---	---	---	---	---	---	.00	249	89	65	e1.6	2.6
8	---	---	---	---	---	---	.00	255	89	62	e1.6	2.4
9	---	---	---	---	---	---	.00	253	89	52	e1.6	2.3
10	---	---	---	---	---	---	.00	249	55	51	e1.6	2.5
11	---	---	---	---	---	---	.00	256	55	51	e1.8	2.7
12	---	---	---	---	---	---	.00	263	89	51	e1.8	2.4
13	---	---	---	---	---	---	.00	267	89	51	e2.0	2.4
14	---	---	---	---	---	---	.00	268	89	48	e2.0	2.3
15	---	---	---	---	---	---	.00	232	89	9.0	e2.0	2.4
16	---	---	---	---	---	---	.00	142	89	4.8	e2.2	2.4
17	---	---	---	---	---	---	.00	87	89	4.6	e2.2	2.5
18	---	---	---	---	---	---	.00	130	89	3.9	e2.2	2.7
19	---	---	---	---	---	---	.00	195	89	3.5	e2.2	2.6
20	---	---	---	---	---	---	.00	198	89	3.1	e2.2	2.4
21	---	---	---	---	---	---	.00	16	55	2.9	e2.2	2.2
22	---	---	---	---	---	---	.00	3.7	55	2.7	e2.2	2.1
23	---	---	---	---	---	---	.00	3.8	89	2.0	e2.4	1.6
24	---	---	---	---	---	---	.00	3.8	89	1.8	e2.4	1.4
25	---	---	---	---	---	---	.00	4.1	89	1.6	e2.4	.30
26	---	---	---	---	---	---	.00	3.4	89	e1.6	e2.4	.02
27	---	---	---	---	---	---	.00	3.2	89	e1.6	e2.7	.00
28	---	---	---	---	---	---	.00	3.2	89	e1.6	e2.7	.00
29	---	---	---	---	---	---	.00	3.2	89	e1.6	e2.7	.00
30	---	---	---	---	---	---	.00	3.3	89	e1.5	e2.9	.00
31	---	---	---	---	---	---	---	5.0	---	e1.4	e2.9	---
TOTAL	---	---	---	---	---	---	.00	3251.70	2534	919.2	63.5	61.52
MEAN	---	---	---	---	---	---	.00	105	84.5	29.7	2.05	2.05
MAX	---	---	---	---	---	---	.00	268	89	85	2.9	3.8
MIN	---	---	---	---	---	---	.00	.00	55	1.4	1.4	.00
AC-FT	---	---	---	---	---	---	.0	6450	5030	1820	126	.122

CAL YR 1986	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		
WTR YR 1987	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		

e Estimated.

08437500 PECOS COUNTY WATER IMPROVEMENT DISTRICT NO. 2 CANAL NEAR IMPERIAL, TX

LOCATION.--Lat 31°16'38", long 102°43'54", Pecos County, Hydrologic Unit 13070001, on left bank about 2.4 mi west of Imperial and 7.7 mi downstream from Imperial Reservoir.

PERIOD OF RECORD.--April 1940 to May 1941, March 1942 to September 1957, and March 1964 to September 1986 (continuous-record station); October 1986 to current year(seasonal record only). Records since March 1942 are equivalent to earlier records if diversions to Pecos County Water Improvement District No. 3 canal near Imperial (station 08437600) are added to flow past this station.

GAGE.--Water-stage recorder. Wooden weir June 1, 1943, to Feb. 29, 1964, and concrete weir since Mar. 1, 1964. Elevation of gage is about 2,400 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to July 11, 1940, at site 1.5 mi upstream at different datum. July 12, 1940, to Mar. 23, 1942, at site 2.5 mi upstream at datum 3.36 ft higher. Mar. 24, 1942, to May 31, 1943, at site 0.5 mi upstream at datum 0.70 ft higher.

REMARKS.--No estimated daily discharges. Records good. At times, local runoff is deleted from daily discharge record. Water is diverted from Imperial Reservoir (on right bank of Pecos River) for irrigation in the vicinity of Imperial, and at times includes water diverted from the Pecos River through Cut Around Canal. The total flow at this station does not include water diverted from canal 75 ft upstream, or water diverted into Pecos County Improvement District No. 3 canal (see station 08437600), 0.6 mi upstream. Discharges from April to September only, after September 1986.

AVERAGE DISCHARGE.--37 years (water years 1943-57, 1965-86), 10.7 ft³/s (7,750 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 144 ft³/s July 27, 28, 31, Aug. 1, 1945; no flow at times each year.

DISCHARGE, IN 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	20	.00	.00	.00	.00
2	---	---	---	---	---	---	.00	19	.00	.00	.00	.00
3	---	---	---	---	---	---	.00	18	.00	.00	.00	.00
4	---	---	---	---	---	---	.00	18	.00	.00	.00	.00
5	---	---	---	---	---	---	.00	17	.00	.00	.00	.00
6	---	---	---	---	---	---	.00	17	.00	.00	.00	.00
7	---	---	---	---	---	---	.00	18	.00	.00	.00	.00
8	---	---	---	---	---	---	.00	18	.00	5.7	.00	.00
9	---	---	---	---	---	---	.00	18	.00	20	.00	.00
10	---	---	---	---	---	---	.00	18	.00	19	.00	.00
11	---	---	---	---	---	---	.00	18	.00	18	.00	.00
12	---	---	---	---	---	---	.00	16	.00	24	16	.00
13	---	---	---	---	---	---	.00	1.1	.00	18	18	.00
14	---	---	---	---	---	---	.00	.30	.00	17	15	.00
15	---	---	---	---	---	---	.00	.00	.00	24	.02	.00
16	---	---	---	---	---	---	.00	.00	.00	24	.00	12
17	---	---	---	---	---	---	.00	.00	.00	23	.11	18
18	---	---	---	---	---	---	.00	.00	.00	31	2.0	17
19	---	---	---	---	---	---	.00	.00	.00	18	.00	17
20	---	---	---	---	---	---	.00	.00	.00	18	.00	17
21	---	---	---	---	---	---	.00	.00	.00	18	.00	16
22	---	---	---	---	---	---	.00	.00	.00	17	.00	16
23	---	---	---	---	---	---	.00	.00	.00	18	.00	22
24	---	---	---	---	---	---	.00	.00	.00	3.3	.00	33
25	---	---	---	---	---	---	.00	.00	.00	.00	.00	31
26	---	---	---	---	---	---	.00	.00	.00	.00	.00	21
27	---	---	---	---	---	---	.00	.00	.00	.00	.00	20
28	---	---	---	---	---	---	.00	.00	.00	.00	.00	17
29	---	---	---	---	---	---	.00	.00	.00	.00	.00	18
30	---	---	---	---	---	---	17	.00	.00	.00	.00	9.9
31	---	---	---	---	---	---	---	.00	---	.00	.00	---
TOTAL	---	---	---	---	---	---	17.00	216.40	.00	316.00	51.13	284.90
MEAN	---	---	---	---	---	---	.57	6.98	.00	10.2	1.65	9.50
MAX	---	---	---	---	---	---	17	20	.00	31	18	.33
MIN	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
AC-FT	---	---	---	---	---	---	34	429	.0	627	101	565

CAL YR 1986	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		
WTR YR 1987	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		

08437600 PECOS COUNTY WATER IMPROVEMENT DISTRICT NO. 3 CANAL NEAR IMPERIAL, TX

LOCATION.--Lat 31°16'51", long 102°44'26", Pecos County, Hydrologic Unit 13070001, on left bank about 220 ft upstream from bridge on Farm Road 11, 0.3 mi downstream from headgate (Pecos No. 2 canal), and 2.9 mi west of Imperial.

PERIOD OF RECORD.--March 1940 to September 1941, March 1942 to September 1957, and March 1964 to September 1986 (continuous-record station), October 1986 to current year (seasonal records only).

GAGE.--Water-stage recorder. Concrete weir since Mar. 7, 1944. Elevation of gage is 2,390 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to Jan. 10, 1941, at site 350 ft downstream at datum 6.79 ft lower. Jan. 10, 1941, to Mar. 29, 1942, at site 200 ft downstream at datum 3.65 ft lower.

REMARKS.--No estimated daily discharges. Records good. At times local runoff is deleted from daily discharge record. Water is diverted from Imperial Reservoir (on right bank of Pecos River), 7.6 mi upstream, for irrigation in the vicinity of Imperial, and at times includes water diverted from the Pecos River by Cut Around Canal. Discharges from April to September only, after September 1986.

AVERAGE DISCHARGE.--38 years (water years 1941, 1943-57, 1965-86), 7.97 ft³/s (5,770 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 175 ft³/s Aug. 11, 1940; no flow at times each year.

DISCHARGE, IN 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	.00	.00	.00	.00
2	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
3	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
4	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
5	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
6	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
7	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
8	---	---	---	---	---	---	.00	.00	.00	4.1	.00	.00
9	---	---	---	---	---	---	.00	.00	.00	17	.00	.00
10	---	---	---	---	---	---	.00	.00	.00	11	.00	.00
11	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
12	---	---	---	---	---	---	.00	2.7	.00	.00	.00	.00
13	---	---	---	---	---	---	.00	18	.00	.00	.00	.00
14	---	---	---	---	---	---	.00	14	.00	.00	.00	.00
15	---	---	---	---	---	---	.00	.65	.00	.00	.00	.00
16	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
17	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
18	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
19	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
20	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
21	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
22	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
23	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
24	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
25	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
26	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
27	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
28	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
29	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	.00	.00	.00	.00	.00	8.8
31	---	---	---	---	---	---	---	.00	---	.00	.00	---
TOTAL	---	---	---	---	---	---	.00	35.35	.00	32.10	.00	8.80
MEAN	---	---	---	---	---	---	.00	1.14	.00	1.04	.00	.29
MAX	---	---	---	---	---	---	.00	18	.00	17	.00	8.8
MIN	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
AC-FT	---	---	---	---	---	---	.0	70	.0	64	.0	17

CAL YR 1986	TOTAL -	MEAN -	MAX -	MIN -	AC-FT -	
WTR YR 1987	TOTAL -	MEAN -	MAX -	MIN -	AC-FT -	

08446500 PECOS RIVER NEAR GIRVIN, TX

LOCATION.--Lat 31°06'47", long 102°25'02", Pecos County, Hydrologic Unit 13070008, on right bank 2.1 mi upstream from Comanche Creek, 3.8 mi northwest of Girvin, and 7.2 mi upstream from bridge on U.S. Highway 67.

DRAINAGE AREA.--29,560 mi² approximately, for contributing area of supplementary gage 7.2 mi downstream.

PERIOD OF RECORD.--August 1939 to current year.
Water-quality records.--Chemical analyses: October 1939 to June 1941, October 1946 to September 1947, October 1953 to September 1982. Pesticide analyses: October 1968 to September 1974.

GAGE.--Water-stage recorder with concrete control and measuring flume. Datum of gage not determined. Supplementary water-stage recorder, used as regular gage prior to July 17, 1951, is now used only for peaks exceeding about 400 ft³/s, 7.2 mi downstream at datum 2,269.65 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Estimated daily discharges: Jan. 4-14 and Mar. 9 to May 5. Records fair except those for estimated discharges which are poor. Flow is largely regulated by Red Bluff Reservoir (station 08410000). Numerous diversions above station for irrigation.

AVERAGE DISCHARGE.--48 years, 82.1 ft³/s (59,480 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft³/s Oct. 5, 1941 (gage height, 20.49 ft, at supplementary gage); minimum daily, 1.9 ft³/s June 19, July 14, 1982.
Maximum stage since at least 1932, that of Oct. 5, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 975 ft³/s June 2 at 0600 hours (gage height, 7.13 ft at supplementary gage); minimum daily, 20 ft³/s Oct. 3.

DISCHARGE, IN 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	21	53	54	160	62	107	71	176	808	608	120	217
2	21	52	54	144	62	110	71	150	936	564	140	199
3	20	53	54	105	62	120	71	170	807	542	142	220
4	43	54	54	84	62	130	72	180	718	553	142	268
5	148	54	54	80	62	140	72	197	674	608	145	295
6	151	54	54	78	62	150	72	189	674	652	146	278
7	83	55	54	76	62	162	74	187	696	630	146	212
8	55	56	54	75	62	165	74	188	674	564	146	169
9	48	57	54	74	62	162	72	186	652	520	144	150
10	43	58	54	73	62	135	71	138	652	487	143	132
11	48	57	54	72	62	113	69	92	699	432	140	120
12	54	55	54	72	62	95	69	69	718	410	138	113
13	52	56	54	71	63	83	69	66	718	410	134	110
14	46	58	54	70	64	78	68	66	696	410	107	111
15	45	59	54	70	64	77	68	66	718	410	99	103
16	42	61	55	69	65	74	68	66	696	432	99	97
17	43	62	55	68	66	71	68	65	652	432	99	103
18	46	62	56	68	66	69	68	63	608	454	97	112
19	48	62	57	67	67	69	100	63	608	487	97	124
20	51	63	58	66	74	69	150	63	586	509	97	127
21	54	63	58	64	76	69	170	62	570	498	95	122
22	56	63	64	62	80	71	150	62	608	421	95	100
23	58	63	90	62	84	71	135	60	608	355	95	87
24	58	63	90	62	86	71	113	56	586	311	95	81
25	58	63	84	62	90	71	95	53	509	280	95	78
26	58	63	96	62	95	71	85	388	469	261	95	75
27	55	60	115	62	100	71	75	564	432	246	95	71
28	54	58	98	62	104	71	100	586	498	232	95	66
29	54	56	76	62	---	71	175	586	586	212	97	64
30	54	55	90	62	---	71	180	608	630	168	108	59
31	52	---	145	62	---	71	---	652	---	124	168	---
TOTAL	1719	1748	2097	2326	1988	2958	2795	6117	19486	13222	3654	4063
MEAN	55.5	58.3	67.6	75.0	71.0	95.4	93.2	197	650	427	118	135
MAX	151	63	145	160	104	165	180	652	936	652	168	295
MIN	20	52	54	62	62	69	68	53	432	124	95	59
AC-FT	3410	3470	4160	4610	3940	5870	5540	12130	38650	26230	7250	8060

CAL YR 1986	TOTAL 13579	MEAN 37.2	MAX 193	MIN 15	AC-FT 26930			
WTR YR 1987	TOTAL 62173	MEAN 170	MAX 936	MIN 20	AC-FT 123300			

08447410 PECOS RIVER NEAR LANGTRY, TX
(National stream-quality accounting network)

LOCATION.--Lat 29°48'10", long 101°26'45", Val Verde County, Hydrologic Unit 13040212, at gaging station 7.4 mi east of Langtry, 15.0 mi upstream from confluence with the Rio Grande, and 638.2 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--35,179 mi².

PERIOD OF RECORD.--Chemical analyses: October 1954 to current year. Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: July 1975 to June 1982. Sediment analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1970 to September 1976, October 1980 to September 1985.
WATER TEMPERATURE: October 1970 to September 1985.

INSTRUMENTATION.--Specific conductance and water temperature were recorded continuously from November 1980 to September 1985.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,000 microsiemens Mar. 21, 22, 1981; minimum daily, 230 microsiemens Oct. 11, 1981.
WATER TEMPERATURE: Maximum daily, 32.5°C June 8, 1981; minimum daily, 1.5°C Dec. 26, 27, 1983.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
NOV 19...	0740	380	4730	8.00	19.5	0.60	8.3	95	0.8	24	K14	890
JAN 07...	1030	380	5500	8.10	13.0	0.40	10.1	101	1.0	K2	K11	1400
MAR 18...	1200	365	5470	8.10	17.0	0.30	11.0	121	1.2	K3	K6	1000
MAY 13...	1000	286	6000	8.20	25.0	0.70	8.2	106	1.7	26	21	1100
JUL 07...	1500	552	5320	8.10	28.0	0.80	9.0	123	3.2	K15	K14	1100
AUG 25...	1050	238	5270	8.00	27.0	2.3	8.1	108	0.8	K7	31	890

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 WH WAT TOTAL FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV 19...	720	190	100	710	11	12	170	710	1100	0.80	13	3050
JAN 07...	1300	330	150	730	9	12	172	900	1400	0.90	13	3670
MAR 18...	870	230	110	850	12	12	159	830	1400	0.90	11	3540
MAY 13...	930	230	120	960	13	12	144	900	1500	0.80	11	3860
JUL 07...	940	270	95	790	11	12	128	960	1200	0.80	17	3590
AUG 25...	760	190	100	750	11	14	132	910	1100	0.90	18	3500

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	SEDI-MENT, SUS-PENDED (MG/L)
NOV 19...	2900	--	<0.010	0.860	0.040	0.040	0.56	0.60	0.010	<0.010	<0.010	21
JAN 07...	3600	--	<0.010	0.640	0.060	0.060	0.84	0.90	<0.010	<0.010	<0.010	21
MAR 18...	3500	--	<0.010	0.600	0.090	0.060	0.41	0.50	0.010	0.010	<0.010	--
MAY 13...	3800	0.430	0.010	0.440	0.100	0.100	0.80	0.90	0.010	0.010	<0.010	11
JUL 07...	3400	--	<0.010	<0.100	0.100	0.070	1.1	1.2	0.020	0.020	<0.010	46
AUG 25...	3200	--	<0.010	0.310	0.080	0.060	0.22	0.30	0.020	0.020	<0.010	24

08447410 PECOS RIVER NEAR LANGTRY, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 19...	22	64	<10	1	100	<10	<1	<1	<1	<1	<10
JAN 07...	22	71	<10	<1	200	<10	<1	<1	<1	<1	20
MAR 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	8.5	89	50	<1	200	<10	<1	<1	<1	<1	30
JUL 07...	69	93	--	--	--	--	--	--	--	--	--
AUG 25...	15	78	<10	2	<100	<10	<1	<1	<1	<1	20

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 19...	<5	100	10	<0.1	10	<1	<1	<1	3600	<11	10
JAN 07...	<5	120	<10	0.6	13	<1	1	<1	4000	<1	10
MAR 18...	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	<5	120	20	0.1	4	<1	<1	<1	4700	33	10
JUL 07...	--	--	--	--	--	--	--	--	--	--	--
AUG 25...	<5	100	<10	0.1	10	<1	<1	<1	4400	22	<10

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX

LOCATION.--Lat 29°40'35", long 101°00'00", Val Verde County, Hydrologic Unit 13040302, on left bank 10 mi east of Comstock, and 25.5 mi upstream from mouth.

DRAINAGE AREA.--3,961 mi².

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1967 to current year. Sediment analyses: January 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1978 to September 1985 .
WATER TEMPERATURE: February 1978 to September 1985 .

INSTRUMENTATION.--From August 1980 to September 1985, specific conductance and water temperature were continuously recorded at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 763 microsiemens Oct. 18, 1984; minimum daily, 105 micoromhos Oct. 20, 1983.
WATER TEMPERATURE: Maximum daily, 38.0°C May 6, 1984; minimum daily, 0.0 °C Feb. 1, 2, 1985.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
NOV 18...	1205	472	380	7.70	20.5	0.50	10.2	118	1.6	K15	K6	200
JAN 06...	1320	426	398	7.80	16.0	0.10	10.6	110	1.2	K3	K9	210
MAY 12...	1640	295	382	8.30	26.0	0.30	10.6	136	1.7	K3	K1	180
AUG 24...	1610	370	355	8.00	29.0	0.40	10.2	138	0.7	K1	K2	170

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 WH WAT TOTAL 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 18...	23	59	13	7.6	0.2	1.4	178	11	16	0.30	13
JAN 06...	31	61	13	7.8	0.2	1.3	176	11	16	0.30	14
MAY 12...	12	52	13	8.2	0.3	1.4	172	9.3	12	0.29	15
AUG 24...	16	48	13	7.8	0.3	1.4	158	7.7	11	0.30	16

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-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
NOV 18...	232	230	1.89	0.010	1.90	<0.010	0.020	--	0.70	<0.010	<0.010
JAN 06...	222	230	--	<0.010	1.40	0.020	0.020	0.78	0.80	<0.010	<0.010
MAY 12...	218	210	1.38	0.020	1.40	0.030	0.040	0.27	0.30	0.010	0.010
AUG 24...	197	200	--	<0.010	1.40	0.030	0.020	--	<0.20	<0.010	0.010

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	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)
NOV 18...	0.020	0.06	5	6.4	94	<10	1	100	<0.5	<1	<1
JAN 06...	<0.010	--	10	12	73	<10	1	110	<0.5	<1	<1
MAY 12...	<0.010	--	6	4.8	82	10	1	110	<0.5	<1	<1
AUG 24...	<0.010	--	27	27	51	<10	2	100	<0.5	<1	<1

DATE	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)
NOV 18...	<3	<1	<3	<5	11	<1	<0.1	<10	<1	<1	<1
JAN 06...	<3	<1	<3	<5	10	1	<0.1	<10	<1	<1	<1
MAY 12...	<3	3	20	7	12	1	<0.1	<10	<1	<1	<1
AUG 24...	<3	<1	<3	<5	<4	<1	<0.1	<10	<1	<1	<1

08449400 DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	URANIUM DISSOLVED, EXTRACTION (UG/L)
NOV 18...	470	8	4	2.0	<0.4	1.9	<0.4	1.5	<0.4	0.15	0.82
JAN 06...	510	7	<3	--	--	--	--	--	--	--	--
MAY 12...	490	8	7	<0.4	<0.4	1.2	<0.4	1.0	<0.4	0.19	0.92
AUG 24...	450	9	7	--	--	--	--	--	--	--	--

08450900 RIO GRANDE BELOW AMISTAD DAM NEAR DEL RIO, TX

LOCATION.--Lat 29°25'30", long 101°27'00", Val Verde County, Hydrologic Unit 13080001, 2.2 mi downstream from Amistad Dam and 10 mi northwest of Del Rio.

DRAINAGE AREA.--123,143 mi².

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

REMARKS.--The flow is controlled largely by releases from Amistad Reservoir. Records of daily mean discharge for water year 1987 are given in International Boundary and Water Commission Water Bulletins Nos. 56 and 57.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 22...	0700	2370	1080	7.80	22.0	260	140	75	17
NOV 19...	0800	2330	1090	8.00	18.0	260	140	76	18
DEC 17...	0730	2250	1150	8.00	11.0	280	150	81	18
JAN 21...	0730	4590	1190	8.00	15.5	280	140	81	18
FEB 18...	0800	2330	1270	7.90	12.0	310	160	90	20
MAR 18...	0800	2290	1280	7.90	16.5	310	160	89	21
APR 15...	0700	918	1210	8.10	14.0	300	150	87	20
MAY 20...	0730	283	1240	7.80	23.5	300	150	87	20
JUN 19...	1300	4520	1280	7.90	20.0	300	150	86	20
JUL 15...	0700	1070	1230	7.80	19.0	300	150	86	20
AUG 19...	0800	4060	1300	7.80	19.5	310	160	88	21
SEP 17...	0800	1980	1310	7.70	20.0	310	160	91	21

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)
OCT 22...	130	4	5.3	117	230	130	15	670
NOV 19...	120	3	5.5	121	250	120	15	680
DEC 17...	140	4	5.9	130	280	140	15	760
JAN 21...	150	4	5.5	135	250	150	15	750
FEB 18...	160	4	5.5	145	270	190	14	840
MAR 18...	160	4	6.1	148	270	190	14	840
APR 15...	150	4	5.7	146	250	170	14	780
MAY 20...	150	4	5.4	146	250	170	14	780
JUN 19...	150	4	5.5	147	240	170	14	770
JUL 15...	150	4	5.8	146	260	170	14	790
AUG 19...	160	4	5.2	150	270	160	15	810
SEP 17...	160	4	3.5	152	250	180	16	810

08461300 RIO GRANDE BELOW FALCON DAM, TX

LOCATION.--Lat 26°33'25", long 99°10'05", Starr County, Hydrologic Unit 13090001, U.S. Tailrace at Falcon Dam.

DRAINAGE AREA.--159,270 mi², United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

PERIOD OF RECORD.--Chemical analyses: July 1955 to current year.

REMARKS.--Records of specific conductance and discharge for water year 1987 are given in International Boundary and Water Commission Water Bulletins Nos. 56 and 57.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 20...	1100	1650	1010	7.60	24.5	250	140	66	20
NOV 17...	1100	500	990	7.70	20.5	240	130	65	18
DEC 29...	1030	400	956	7.90	15.5	240	130	65	18
JAN 22...	1500	98	972	7.90	13.5	240	120	68	17
FEB 20...	1545	491	969	7.80	15.5	240	120	69	17
MAR 23...	1330	413	980	7.90	16.5	250	130	72	18
APR 17...	1045	3610	1010	7.90	19.0	260	130	74	18
MAY 18...	1130	4230	1010	7.60	21.0	260	130	74	18
JUN 16...	0915	100	1020	7.60	23.5	250	120	74	17
JUL 13...	0915	5060	1010	7.60	26.0	250	120	70	18
AUG 20...	1100	3710	988	7.80	28.0	240	120	67	18
SEP 18...	1130	4000	990	7.80	28.5	240	130	67	18

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)
OCT 20...	120	3	5.3	103	230	120	12	640
NOV 17...	110	3	6.4	105	230	110	12	610
DEC 29...	110	3	4.9	111	230	110	12	620
JAN 22...	110	3	5.0	118	210	110	12	600
FEB 20...	110	3	4.7	121	210	110	12	610
MAR 23...	110	3	5.2	123	210	110	13	610
APR 17...	110	3	5.2	130	210	120	13	630
MAY 18...	110	3	4.8	131	200	120	14	620
JUN 16...	110	3	4.9	136	210	120	14	630
JUL 13...	110	3	4.2	125	210	120	13	620
AUG 20...	110	3	4.7	121	210	120	13	620
SEP 18...	110	3	2.7	116	210	120	13	610

08464700 RIO GRANDE AT FORT RINGGOLD, RIO GRANDE CITY, TX

LOCATION.--Lat 26°22'05", long 98°48'20", Starr County, Hydrologic Unit 13090001, at gaging station about 1 mi downstream from Rio Grande City, 3.9 mi downstream from mouth of Rio San Juan, and 1,014.3 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--174,362 mi², United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 44.

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

REMARKS.--Records of specific conductance and discharge for water year 1987 are given in International Boundry and Water Commission Water Bulletins Nos. 56 and 57.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 14...	1330	1260	1090	7.60	23.5	240	140	66	19
NOV 17...	1300	244	1760	7.70	18.5	360	220	100	27
DEC 15...	1115	187	1430	8.00	15.5	310	180	85	24
JAN 20...	1100	293	1450	8.00	13.0	320	180	88	25
FEB 18...	1645	1880	973	7.70	16.5	240	120	69	17
MAR 13...	1245	960	1040	7.80	16.0	260	130	73	19
APR 22...	1205	3910	1010	7.90	19.0	260	130	73	18
MAY 15...	1230	4460	1010	7.80	24.0	260	130	73	18
JUN 15...	1300	891	1480	7.60	30.0	290	170	84	20
JUL 20...	0915	2700	1090	7.70	31.5	270	140	75	19
AUG 17...	1130	3160	1000	7.80	30.0	240	120	68	18
SEP 14...	0900	8140	990	7.80	28.5	240	130	67	18

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)
OCT 14...	140	4	5.9	100	240	140	12	680
NOV 17...	240	6	5.7	138	340	300	14	1100
DEC 15...	190	5	5.7	133	320	200	11	920
JAN 20...	190	5	5.3	143	280	220	8.2	900
FEB 18...	110	3	4.8	120	210	110	11	600
MAR 13...	120	3	5.4	127	220	130	11	650
APR 22...	110	3	5.2	130	220	120	13	640
MAY 15...	110	3	4.9	130	200	120	12	620
JUN 15...	200	5	5.4	126	290	230	11	920
JUL 20...	130	4	5.4	125	220	150	13	690
AUG 17...	110	3	4.6	121	210	120	14	620
SEP 14...	110	3	1.5	116	210	120	14	610

08466300 RIO GRANDE NEAR LOS EBANOS, TX

LOCATION.--Lat 26°14'15", long 98°33'49", Hidalgo County, Hydrologic Unit 13090001, on Farm Road 886 at U.S. Border Port of Entry near Los Ebanos and at mile 204.37.

PERIOD OF RECORD.--Chemical analyses: June 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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									
20...	1345	1450	1270	7.70	25.5	280	170	76	23
NOV									
18...	1500	1190	2070	7.80	23.0	590	410	160	47
DEC									
15...	1445	397	1670	8.00	18.0	400	250	110	30
JAN									
20...	1330	666	2120	8.00	13.0	490	300	130	39
FEB									
18...	1400	2060	1050	7.70	16.5	250	130	72	18
MAR									
16...	1400	1680	1320	7.70	23.0	320	180	89	24
APR									
15...	1030	2300	1040	7.90	23.5	260	140	74	19
MAY									
18...	1415	4450	1070	7.60	25.0	270	130	75	19
JUN									
16...	0915	1990	1350	7.60	29.5	280	160	82	19
JUL									
20...	1345	3250	1070	7.80	31.0	270	140	76	19
AUG									
18...	1330	3420	1030	7.90	31.0	250	130	70	19
SEP									
14...	1300	6430	990	7.80	30.0	240	120	66	18

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)
OCT								
20...	160	4	6.7	117	270	180	12	800
NOV								
18...	260	5	6.5	180	400	380	18	1400
DEC								
15...	200	5	5.9	153	360	250	13	1100
JAN								
20...	280	6	6.1	184	440	330	12	1300
FEB								
18...	120	3	4.6	125	240	120	11	660
MAR								
16...	160	4	5.8	139	270	190	12	830
APR								
15...	120	3	5.6	128	220	130	12	660
MAY								
18...	120	3	5.8	132	210	130	12	650
JUN								
16...	170	5	6.1	125	250	210	13	830
JUL								
20...	130	4	5.3	126	230	130	14	680
AUG								
18...	120	3	5.0	121	220	130	14	650
SEP								
14...	110	3	5.9	117	210	120	13	610

08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX

LOCATION.--Lat 26°08'00", long 98°20'05", Hidalgo County, Hydrologic Unit 13090002, at gaging station 0.5 mi downstream from Anzalduas Dam, 12.2 mi from Hidalgo, and 1,077.1 mi downstream from the American Dam at El Paso.

DRAINAGE AREA.--176,112 mi², United States and Mexico; from International Boundary and Water Commission Water Bulletin No. 45.

PERIOD OF RECORD.--Chemical analyses: March 1959 to current year. Pesticide analyses: October 1967 to July 1972.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to current year.

REMARKS.--Records of and discharge for water year 1987 are given in International Boundary and Water Commission Water Bulletins Nos. 56 and 57. 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, 3,310 microsiemens Feb. 12, 1984; minimum daily, 368 microsiemens Sept. 6, 1987.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,930 microsiemens Feb. 10; minimum daily, 368 microsiemens Sept. 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS (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 15...	1045	900	1730	7.60	25.0	300	190	80	24
NOV 17...	1305	550	1220	7.80	20.0	280	170	77	22
DEC 16...	1120	200	1830	8.10	17.0	360	210	96	28
JAN 20...	1030	200	2940	8.00	11.0	550	370	150	43
FEB 20...	0915	810	1260	7.90	13.0	290	150	80	21
MAR 16...	0850	150	1760	7.90	19.0	410	240	110	32
APR 13...	0740	600	1260	8.00	23.0	280	140	79	19
MAY 20...	0815	600	1250	7.90	20.0	280	140	78	20
JUN 15...	0740	776	1570	7.80	28.0	310	180	88	21
JUL 17...	0800	2000	1250	7.90	26.5	280	150	79	21
AUG 17...	0745	1740	1110	8.00	29.0	260	140	72	20
SEP 16...	0745	6760	1130	7.90	26.0	250	140	70	19

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WH WAT TOTAL 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)
OCT 15...	230	6	6.7	111	350	240	12	1000
NOV 17...	140	4	5.4	117	270	160	13	760
DEC 16...	210	5	5.8	144	350	230	11	1000
JAN 20...	420	8	6.1	182	590	500	14	1800
FEB 20...	140	4	4.9	133	250	160	11	750
MAR 16...	230	5	5.8	162	350	300	2.0	1100
APR 13...	140	4	5.3	131	240	150	13	720
MAY 20...	140	4	4.8	133	250	150	13	740
JUN 15...	210	5	5.5	131	300	250	14	970
JUL 17...	140	4	5.3	131	240	150	14	730
AUG 17...	130	4	4.8	125	230	140	13	680
SEP 16...	130	4	5.8	118	220	130	14	660

08469200 RIO GRANDE BELOW ANZALDUAS DAM, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1986 TO SEPTEMBER 1987

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.	1986	26005	1290	792	55600	170	12000	280	19300	310
NOV.	1986	16417	1260	774	34300	170	7340	270	12000	300
DEC.	1986	8224	1820	1130	25100	280	6240	370	8150	420
JAN.	1987	6282	2450	1540	26100	440	7380	460	7810	550
FEB.	1987	18240	1550	961	47300	230	11400	320	15600	360
MAR.	1987	15227	1470	904	37200	210	8450	310	12600	340
APR.	1987	36091	1110	678	66100	140	13500	240	23500	260
MAY	1987	48262	1070	652	84900	130	17200	230	30400	260
JUNE	1987	42737	1300	801	92400	180	20400	280	31800	310
JULY	1987	66589	1170	719	129000	150	27000	250	45700	280
AUG.	1987	41151	1190	730	81100	150	17100	260	28500	280
SEPT	1987	96587	996	608	159000	120	31700	220	57000	240
TOTAL		421812	**	**	838000	**	180000	**	292000	**
WTD.AVG.		1156	1200	736	**	160	**	260	**	280

SPECIFIC CONDUCTANCE, MICROSIEMENS PER CENTIMETER AT 25 DEG. C, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1390	1360	1950	1590	2610	1160	1230	1030	1090	1110	1250	1130
2	1430	1320	2100	1750	2590	1180	1250	1040	1110	1100	1280	1100
3	1340	1320	1970	2040	2560	1180	1250	1040	1140	1110	1350	659
4	1290	1240	1990	2090	2560	1170	1380	1070	1140	1100	1340	593
5	1210	1250	1890	2140	2460	1190	1360	1040	1140	1100	1340	498
6	1170	1280	1920	2310	2350	1180	1300	1080	1150	1100	1340	368
7	1160	1200	1870	2330	2380	1230	1140	1070	1180	1140	1350	447
8	1290	1150	1940	2360	2550	1810	1060	1100	1180	1140	1750	658
9	1350	1130	2030	2390	2660	1590	1170	1090	1170	1130	1880	744
10	1200	1130	2130	2370	2930	1690	1240	1130	1210	1120	1530	925
11	1160	1150	2270	2430	2310	1710	1140	1230	1420	1140	1340	884
12	1150	1260	2290	2460	1940	1760	1100	1160	1540	1170	1260	1090
13	1160	1370	2130	2470	1450	1880	1140	1110	1550	1150	1150	1010
14	1270	1280	1960	2350	1320	1910	1210	1090	1540	1170	1150	1010
15	1610	1260	1790	2160	1260	1850	1050	1080	1550	1140	1200	1000
16	1240	1210	1610	2160	1240	1830	1030	1100	1540	1140	1220	557
17	1160	1210	1520	2190	1270	1760	1020	1080	2120	1140	1110	1050
18	1110	1190	1670	2240	1330	1650	1040	1060	1860	1150	1060	1110
19	1130	1190	1420	2580	1280	1570	1090	1120	1720	1440	1060	1110
20	1140	1240	1410	2680	1210	1520	1110	1100	1730	1400	1060	1130
21	1360	1300	1450	2790	1160	1510	1120	1100	1720	1350	1070	1110
22	1500	1350	1490	2810	1130	1500	1040	1060	1720	1330	1080	1220
23	1700	1330	1500	2830	1100	1480	1040	1100	1760	1310	1070	1100
24	1440	1330	1540	2830	1080	1420	1040	1080	1880	1320	1050	1110
25	1320	1330	1520	2810	1070	1400	1050	1060	1970	1140	1050	1150
26	1270	1340	1510	2840	1060	1490	1030	1050	2140	1190	1050	1080
27	1260	1390	1490	2820	1080	1760	1040	1030	2380	1160	1050	1050
28	1300	1520	1490	2840	1120	1550	1050	1050	1200	1190	1050	1090
29	1380	1630	1470	2790	---	1380	1060	1060	1110	1510	1090	1210
30	1370	1700	1440	2690	---	1280	1050	1070	1100	1320	1110	1090
31	1340	---	1490	2610	---	1220	---	1080	---	1290	1130	---
MEAN	1300	1300	1750	2440	1750	1510	1130	1080	1500	1200	1220	943

08470400 ARROYO COLORADO AT HARLINGEN, TX

WATER-QUALITY RECORDS

LOCATION.--Lat 26°10'24", long 97°42'01", Cameron County, Hydrologic Unit 13090002, on downstream side of northbound service road on U.S. Highways 83 & 77, about 18 mi from point of main floodway that divides into North Floodway and Arroyo Colorado.

PERIOD OF RECORD.--Chemical and biochemical analyses: November 1986 to July 1987.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
NOV 20...	1659	225	5050	7.80	26.0	160	7.7	96	3.3	4200	200	930
JAN 14...	1215	394	4090	7.90	15.0	130	8.6	86	8.0	K15000	K16000	750
MAR 10...	1625	277	5010	7.80	22.0	77	7.8	91	7.3	480	1800	990
MAY 12...	1430	310	4730	8.80	25.5	190	6.3	78	2.5	K900	K210	1000
JUL 07...	1030	384	3310	7.70	28.5	96	6.0	78	2.5	K360	K300	630
SEP 01...	1115	284	3620	7.70	29.0	110	6.3	82	1.3	520	K280	760

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 WH WAT TOTAL 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 20...	710	210	98	780	11	10	222	930	1100	0.90	28	3350
JAN 14...	550	180	73	580	10	9.1	203	710	840	0.70	21	2670
MAR 10...	760	230	99	760	11	12	229	920	1100	1.0	24	3370
MAY 12...	770	240	95	670	10	10	228	780	1000	0.60	28	3020
JUL 07...	440	150	61	450	8	9.6	185	550	630	0.80	24	2160
SEP 01...	590	180	75	520	8	9.1	175	640	790	0.80	8.2	2470

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 20...	3300	4.36	0.140	4.50	0.110	0.090	1.9	2.0	1.00	0.940	0.920	2.8
JAN 14...	2500	3.06	0.140	3.20	0.260	0.270	1.6	1.9	0.830	0.460	0.490	1.5
MAR 10...	3300	3.86	0.340	4.20	0.220	0.180	1.8	2.0	0.920	0.560	0.470	1.4
MAY 12...	3000	3.66	0.340	4.00	0.190	0.190	1.9	2.1	0.750	0.360	0.360	1.1
JUL 07...	2000	2.36	0.240	2.60	0.120	0.120	0.38	0.50	0.660	0.330	0.290	0.89
SEP 01...	2300	1.98	0.120	2.10	0.060	--	1.5	1.6	0.430	0.540	0.410	1.3

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 20...	190	115	100	<10	6	100	<10	<1	<1	<1	3	20
JAN 14...	245	261	97	--	--	--	--	--	--	--	--	--
MAR 10...	221	165	99	20	5	<100	<10	<1	1	<1	1	<10
MAY 12...	331	277	100	10	9	130	<2	<3	<1	<9	2	13
JUL 07...	255	264	99	--	--	--	--	--	--	--	--	--
SEP 01...	196	150	98	20	7	77	<2	<3	<1	<9	1	13

08470400 ARROYO COLORADO AT HARLINGEN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

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 20...	<5	150	20	0.3	20	<1	2	<1	5000	10	20
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 10...	<5	140	10	<0.1	20	2	2	<1	4400	<550	<10
MAY 12...	<5	170	7	0.2	<30	3	2	<1	4800	<18	14
JUL 07...	--	--	--	--	--	--	--	--	--	--	--
SEP 01...	<5	110	6	0.2	<30	3	1	<1	3700	<18	17

08475000 RIO GRANDE NEAR BROWNSVILLE, TX
(National stream-quality accounting network)

LOCATION.--Lat 25°52'35", long 97°27'15", Cameron County, Hydrologic Unit 13090002, at International Boundary and Water Commission gaging station, 1,000 ft downstream from El Jardin pumping plant, 6.8 mi below International Bridge between Brownsville and Matamoros, Tamps., Mex., and 48.8 mi above the Gulf of Mexico.

DRAINAGE AREA.--176,333 mi².

PERIOD OF RECORD.--Chemical analyses: January 1932, March 1943 to February 1944, February 1966 to September 1974. Chemical and biochemical analyses: October 1974 to current year. Pesticide analyses: May 1975 to May 1982. Sediment analyses: February 1966 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1943 to February 1944, April 1967 to September 1983.
WATER TEMPERATURE: October 1966 to September 1983.
SUSPENDED-SEDIMENT DISCHARGE: February 1966 to September 1983.

REMARKS.--Records of discharge furnished by International Boundary and Water Commission.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,130 microsiemens May 29, 1972; minimum daily, 337 microsiemens Sept. 3, 1967.
WATER TEMPERATURE (1966-69, 1970-75, 1977-83): Maximum daily, 35.0°C on several days during summer months of 1982 and 1983; minimum daily, 8.0°C Jan. 10, 1967.
SEDIMENT CONCENTRATION: Maximum daily mean, 6,000 mg/L Feb. 28, 1983; minimum daily mean, 4 mg/L Apr. 26, 1970, Aug. 16, 18, 24, 27, 1977.
SEDIMENT LOAD: Maximum daily, 181,000 tons Feb. 28, 1983; minimum daily, 0.12 tons Aug. 26, 1983.

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	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 (MG/L AS CACO3)
NOV 20...	1207	138	1340	8.20	23.0	36	9.1	106	2.5	1300	170	320
JAN 14...	0900	92	1900	8.10	14.5	17	9.5	93	3.6	400	130	470
MAR 10...	1028	33	1480	8.40	21.0	8.6	12.0	135	3.8	K130	K30	370
MAY 12...	0930	460	1100	8.80	24.0	38	6.4	76	1.7	K130	K670	260
JUL 07...	0830	243	2340	8.10	29.5	25	7.4	97	2.4	K120	180	480
SEP 01...	1410	199	1080	8.10	28.5	26	7.8	100	1.4	K920	120	290

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 WH WAT TOTAL 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 20...	190	87	25	150	4	5.6	128	290	180	0.80	13	840
JAN 14...	270	130	36	220	5	6.1	205	350	290	0.70	13	1170
MAR 10...	210	100	28	170	4	5.2	160	290	210	0.70	14	913
MAY 12...	130	72	18	130	4	5.1	124	230	140	0.40	12	690
JUL 07...	290	130	38	280	6	7.5	195	420	360	0.60	21	1430
SEP 01...	170	79	22	130	3	5.4	118	230	150	0.70	16	734

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
NOV 20...	830	0.310	0.010	0.320	0.040	0.030	0.66	0.70	0.070	0.030	0.020	0.06
JAN 14...	1200	0.520	0.030	0.550	0.090	0.070	1.3	1.4	0.070	0.020	0.010	0.03
MAR 10...	920	--	0.010	<0.100	0.040	0.010	1.1	1.1	0.080	0.010	<0.010	--
MAY 12...	680	--	--	--	0.100	--	0.70	0.80	0.090	<0.010	--	--
JUL 07...	1400	--	<0.010	<0.100	0.060	0.050	1.0	1.1	0.080	0.010	0.020	0.06
SEP 01...	710	--	<0.010	<0.100	0.020	0.050	0.78	0.80	0.030	0.030	0.050	0.15

08475000 RIO GRANDE NEAR BROWNSVILLE, TX--Continued
(National stream-quality accounting network)

WATER QUALITY DATA, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987

DATE	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)
NOV 20...	36	13	91	<10	3	110	<0.5	<1	<1	<3	1	4
JAN 14...	65	16	85	--	--	--	--	--	--	--	--	--
MAR 10...	46	4.1	89	10	3	91	<0.5	<1	<1	<3	2	4
MAY 12...	78	97	87	30	2	100	<0.5	<1	<1	<3	1	12
JUL 07...	45	30	88	--	--	--	--	--	--	--	--	--
SEP 01...	55	30	83	<10	4	97	<0.5	<1	<1	<3	<1	11

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 20...	<5	59	2	0.2	10	1	<1	<1	1500	<6	9
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 10...	<5	58	<1	<0.1	<10	2	<1	<1	1700	<6	15
MAY 12...	<5	51	2	<0.1	<10	2	<1	<1	1200	<6	7
JUL 07...	--	--	--	--	--	--	--	--	--	--	--
SEP 01...	<5	43	2	0.4	<10	1	1	<1	1400	<6	10

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 1987

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Colorado River basin				
08129500	Dove Creek Spring near Knickerbocker, Tex.	Lat 31°11'06", long 100°43'51", Irion County, at headquarters ranchhouse, 500 ft upstream from Dove Creek, 1.8 mi upstream from Stilson Dam on Dove Creek, and 8.5 mi southwest of Knickerbocker.	(a)	1944-58†, 1959-87	10-22-86 12- 3-86 2-17-87 4- 7-87 6- 2-87 7-29-87 9-17-87	14.5 13.8 26.8 28.2 33.1 21.0 27.8
08143900	Springs at Fort McKavett, Tex.	Lat 30°50'03", long 100°05'37", Menard County, at Fort McKavett.	(a)	1902, 1905, 1922, 1942, 1948-49, 1951-52, 1955-56, 1958-87	2-12-87 9-11-87	18.2 24.6
08146500	San Saba Springs, at San Saba, Tex.	Lat 31°11'44", long 98°42'42", San Saba County, 150 ft upstream from bridge on U.S. Highway 190 at San Saba and 0.8 mi east of courthouse.	(a)	1939, 1952, 1957, 1959-87	2-18-87 7-22-87	12.2 8.78
08149400	South Llano River near Telegraph, Tex.	Lat 30°15'43", long 99°56'01", Edwards County, 3.7 mi upstream from Paint Creek, 5.7 mi south of Telegraph, and 18.7 mi southwest of Junction.	(a)	1939, 1952, 1956, 1959-87	2-12-87 9-16-87	30.0 44.1
08149500	Seven Hundred Springs near Telegraph, Tex.	Lat 30°16'12", long 99°55'22", Edwards County, about 3 mi upstream from Paint Creek, about 5 mi south of Telegraph, and about 18 mi southwest of Junction.	(a)	1939, 1952, 1955-56, 1959-87	2-13-87 9-16-87	24.0 18.6
08155400	Barton Creek above Barton Springs at Austin, Tex.	Lat 30°15'48", long 97°46'19", Travis County, just upstream from upper dam of Barton Creek swimming pool in Zilker Park and upstream from all springs known as Barton Springs at Austin.	125	1919-87	1-15-87 9-22-87	103 4.07
		Guadalupe River basin				
08168000	Hueco Springs near New Braunfels, Tex.	Lat 29°45'33", long 98°08'23", Comal County, two springs located 400 and 500 ft west of the Guadalupe River, 600 ft downstream from the mouth of Elm Creek, and 4.2 mi north of New Braunfels.	(a)	1944-87	11-14-86 12-12-86 2- 2-87 4- 6-87 6-10-87 7-30-87	80.7 69.1 83.2 74.0 116 78.3
08168600	Blieders Creek at New Braunfels, Tex.	Lat 29°43'14", long 98°07'23", Comal County, at Grove Avenue crossing in northwest New Braunfels and 0.25 mi upstream from mouth.	-	1962-87	2- 2-87 6-10-87	0 0
08168700	Panther Canyon at New Braunfels, Tex.	Lat 29°42'47", long 98°08'14", Comal County, at Landa Park Drive crossing in Landa Park at New Braunfels.	-	1962-87	2- 2-87 6-29-87	0 0
08168800	Dry Comal Creek at New Braunfels, Tex.	Lat 29°41'52", long 98°08'11", Comal County, at Floral Avenue crossing in New Braunfels, 0.6 mi upstream from Missouri Pacific Railroad Co. bridge, and 0.9 mi upstream from mouth.	-	1962-87	2- 2-87 6-29-87	4.27 7.55

† Operated as a continuous-record station.
a Not applicable.

Discharge measurements made at low-flow partial-record stations during water year 1987--Continued

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Nueces River basin				
08204000	Leona River spring flow near Uvalde, Tex.	Lat 29°09'15", long 99°44'35", Uvalde County, at old road crossing on White's Ranch, 2.0 mi downstream from Cooks Slough, and 4.7 mi southeast of Uvalde.	(a)	1935-65†, 1966-87	11-17-86	30.0
					12- 9-86	32.3
					1-22-87	39.1
					3-20-87	49.4
					9- 3-87	92.8
		Rio Grande Basin				
08425500	Phantom Lake Spring near Toyahvale, Tex.	Lat 30°56'01", long 103°50'43", Jeff Davis County, 375 ft downstream from source of spring, 3.5 mi southwest of Toyahvale, and 7.0 mi southwest of Balmorhea.	(a)	1931-33†, 1942-66†, 1967-86† 1987	10- 2-86	21.2
					11-25-86	12.1
					1-21-87	19.8
					5- 6-87	6.12
					7- 7-87	3.69
					8- 5-87	3.83
					9- 2-87	3.37
08456300	Las Moras Springs at Brackettville, Tex. c/	Lat 29°18'33", long 100°25'13", Kinney County, in springflow pool at Brackettville, 160 ft south of U.S. Highway 90, and 1,550 ft upstream from bridge on Brackettville-Fort Clark Road.	(a)	1896, 1899-1900, 1902, 1904-06, 1910, 1912, 1925, 1928, 1951-87	10-31-86	37.6
					11-18-86	42.3
					12-19-86	38.9
					1-12-87	37.0
					2-10-87	37.2
					3-10-87	30.7
					4-15-87	25.7
					5-12-87	37.8
					6-17-87	48.2
					7-14-87	36.8
					8-18-87	39.7
					9-15-87	68.6

† Operated as a continuous-record station.
a Not applicable.
c Records were furnished by the International Boundary and Water Commission.

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 1987

Station no.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
Colorado River basin							
08133500	North Concho River at Sterling City, Tex.	Lat 31°49'48", long 100°59'36", Sterling County, on right bank 100 ft upstream from bridge on State Highway 163, 0.5 mi south of Sterling City, 4.0 mi upstream from Sterling Creek, 5.1 mi downstream from Lacy Creek, and at mile 57.2.	588	1939-87	10- 5-86	21.85	11,400
08142000	Hords Creek at Coleman, Tex.	Lat 31°50'50", long 99°25'25", Coleman County, on right bank in city park, 1,250 ft downstream from bridge on U.S. Highways 84 and 283 and State Highway 206, 1 mi north of courthouse in Coleman, 3.9 mi downstream from Bachelor Creek, 12 mi downstream from Hords Creek Dam, and at mile 14.3.	107	1941-70† 1971-87	5-29-87	6.05	1,640
08158050	Boggy Creek at U.S. Highway 183, Austin, Tex.	Lat 30°15'47", long 97°40'20", Travis County, on U.S. Highway 183, 1.6 mi south of intersection at Webberville Road and U.S. Highway, 183, 4.1 mi east of State Capitol Building in Austin, and 0.7 mi upstream from mouth.	13.1	1975-86† 1987	5-29-87	15.34	4,760
08158100	Walnut Creek at Farm road 1325 near Austin, Tex.	Lat 30°24'35", long 97°42'41", Travis County, at downstream side of bridge on Farm Road 1325 and 9.5 mi north of the State Capitol Building in Austin.	12.6	1975-87	5-29-87	11.16	1,882
08158200	Walnut Creek at Dessau Road, Austin, Tex.	Lat 30°22'30", long 97°39'37", Travis County, on downstream side of bridge on Dessau Road and 8.4 mi northeast of the State Capitol Building in Austin.	26.2	1975-87	5-29-87	18.52	7,415
08158300	Ferguson Branch at Springdale Road, Austin, Tex.	Lat 30°19'53", long 97°39'12", Travis County, on downstream side of bridge on Springdale Road in Austin.	1.63	1975-87	6-13-87	7.79	321
08158380	Little Walnut Creek at Georgian Drive Austin, Tex.	Lat 30°21'15", long 97°41'52", Travis County, on left upstream side of bridge on Georgian Drive in Austin.	5.22	1983-87	5-29-87	13.34	-
08158880	Boggy Creek (South) at Circle S Road, Austin, Tex.	Lat 30°10'50", long 97°46'55", Travis County, on downstream side of bridge on Circle S Road in Austin.	3.58	1976-87	10-12-86	9.45	2,340
Guadalupe River basin							
08169500	Guadalupe River at New Braunfels, Tex.	Lat 29°41'52", long 98°06'23", Comal County, Comal Mills in New Braunfels and 0.4 mi upstream from Interstate Highway 35.	1,652	1898-1902, 1915-27† 1974-87	6-25-87	12.93	7,410
08173900	Guadalupe River at Gonzales, Tex.	Lat 29°29'49", long 97°27'17", Gonzales County, at Gonzales Hydro Station in Gonzales and 1.4 mi upstream from U.S. Highway 183.	-	1977-87	6- 5-87	34.70	52,000
08177820	Olmos Creek at Hildebrand Street San Antonio, Tex.	Lat 29°27'56", long 98°28'01", Bexar County, at upstream side of bridge on Hildebrand Street, 0.8 mi downstream from Olmos dam in San Antonio.	34.8	1980-87	5-19-87	9.50	1,600
08177900	San Antonio River at Navarro Street, San Antonio, Tex.	Lat 29°25'50", long 98°29'24", Bexar County, at bridge on Navarro Street in San Antonio.	-	1973-87	6- 3-87	a638.86	-
08177920	San Antonio River at Dolorosa Street, San Antonio, Tex.	Lat 29°25'24", long 98°29'32", Bexar County, just downstream from Dolorosa Street in San Antonio.	-	1980-87	5- 4-87	21.66	-
08178100	San Pedro Creek at Santa Rosa Street, San Antonio, Tex.	Lat 29°25'51", long 98°29'49", Bexar County, at bridge on Santa Rosa Street in San Antonio.	-	1973-87	6-11-87	a645.62	-
08178350	Martinez Creek at Fredericksburg Road, San Antonio, Tex.	Lat 29°27'22", long 98°31'04", Bexar County, at bridge on Fredericksburg Road in San Antonio.	-	1973-87	5-29-87	a683.17	-
08178400	Alazan Creek at West Martin Street San Antonio, Tex.	Lat 29°25'51", long 98°30'51", Bexar County, at bridge on West Martin Street in San Antonio.	-	1973-87	5-29-87	a639.73	-

† Operated as a continuous-record station.
a Elevation, in feet, above National Geodetic Vertical Datum of 1929.

Annual maximum stage and (or) discharge during water year 1987--Continued

Station no.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft³/s)
		Guadalupe River basin--Continued					
08178450	Apache Creek at South Zarzamora Street, San Antonio, Tex.	Lat 29°24'47", long 98°31'42", Bexar County, at bridge on South Zarzamora Street in San Antonio.	-	1973-87	5-29-87	a631.21	-
08178500	San Pedro Creek at Furnish Street, San Antonio, Tex.	Lat 29°24'22", long 98°30'38", Bexar County, at bridge on Furnish Street in San Antonio.	-	1973-87	5-29-87	a609.65	-
08178550	San Antonio River at Ashley Street (Berg's Mill), San Antonio, Tex.	Lat 29°20'04", long 98°27'20", Bexar County, at bridge on Ashley Street in San Antonio.	-	1973-87	5-19-87	a519.55	-
		Nueces River basin					
08207220	Rutledge Hollow at 7th Street, Poteet, Tex.	Lat 29°02'07", long 98°34'18", Atascosa County, in city of Poteet at 7th Street and 2.0 mi above Atascosa River.	9.74	1979-87	5-21-87	a421.07	-
08207300	Atascosa River at U.S. Highway 281, Pleasanton, Tex.	Lat 28°57'44", long 98°28'51", Atascosa County, at bridge on U.S. Highway 281 in Pleasanton.	-	1973-87	6- 5-87	a348.54	-
08211500	Nueces River at Calallen, Tex.	Lat 27°52'34", long 97°37'32", Nueces County, at the Cunningham pumping station in Corpus Christi, and 0.4 mi upstream from Calallen dam.	16,920	e1915-50, 1983-87	6-11-87	9.25	3,780
		San Fernando Creek basin					
08212300	Tranquitas Creek at Kingsville, Tex.	Lat 27°31'33", long 97°52'02", Kleberg County, at bridge on U.S. Highway 77 Business Route in Kingsville, 4.9 mi above San Fernando Creek, and 5.9 mi downstream from Tranquitas Dam.	48.5	1965-82, 1984-87	10-21-86	3.20	-

a Elevation, in feet, above National Geodetic Vertical Datum of 1929.
e Gage heights only during 1918-50.

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 1987

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurement	
					Date	Discharge (ft^3/s)
Guadalupe River basin						
San Antonio Springs	San Antonio River	Lat 29°27'56", long 98°28'04", Bexar County, just below Hildebrandt Street in San Antonio, Tex.	-	1951-52, 1959-62, 1972, 1974-77, 1979-87	9-10-87	53.1
San Pedro Springs	San Pedro Creek	Lat 29°26'42", long 98°30'06", Bexar County, at San Pedro Park in San Antonio, Tex.	-	1933-35, 1951-52, 1958-61, 1966, 1971, 1974-77, 1979-87	4- 7-87 9-10-87	10.3 11.2
Rio Grande basin						
Mud Springs 1/	Mud Creek	Lat 29°27'10", long 100°37'30", Kinney County, on Mays Ranch and about 16 mi northwest of Brackettville, Tex.	-	1939-41, 1952-53, 1962, 1965-87	10-31-86 11-18-86 12- 9-86 1-12-87 2-19-87 3-10-87 4-15-87 5-12-87 6-17-87 7-14-87 8-18-86 9-15-87	16.8 16.0 16.6 18.1 20.5 19.0 21.1 18.3 22.7 23.4 25.8 30.8
Pinto Springs 1/	Pinto Creek	Lat 29°24'10", long 100°27'15", Kinney County, on C. C. Belcher Ranch and 7.5 mi northwest of Brackettville, Tex.	-	1939-41, 1952-53, 1965-87	10-31-86 11-18-86 12- 9-86 4-15-87 5-12-87 6-17-87 7-14-87 9-15-87	0 0 0 0 4.2 17.6 16.1 12.2

1/ Measurements by International Boundary and Water Commission.

INDEX

CALENDAR FOR WATER YEAR 1987

1986

OCTOBER

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

NOVEMBER

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

DECEMBER

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

1987

JANUARY

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

FEBRUARY

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

MARCH

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

APRIL

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

MAY

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

JUNE

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

JULY

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

AUGUST

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

SEPTEMBER

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

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