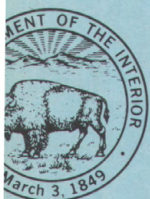
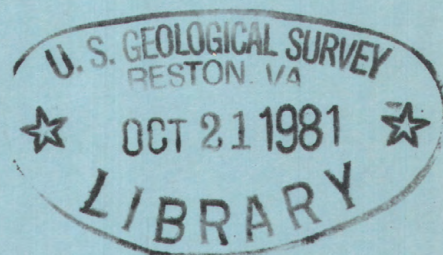


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# Water Resources Data for Texas

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-80-1  
WATER YEAR 1980

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



# CALENDAR FOR WATER YEAR 1980

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## OCTOBER

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# Water Resources Data for Texas

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

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-80-1

## WATER YEAR 1980

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



UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to  
District Chief, Water Resources Division  
300 East 8th Street  
Austin, Texas 78701



## Preface

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

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

Data for Texas are in three volumes as follows:

- Volume 1. Arkansas River basin, Red River basin, Sabine River basin, Neches River basin, Trinity River basin, and intervening and adjacent Coastal basins
- Volume 2. San Jacinto River basin, Brazos River basin, San Bernard River basin, and intervening Coastal basins
- Volume 3. Colorado River basin, Lavaca River basin, Guadalupe River basin, Nueces River basin, Rio Grande basin, and intervening Coastal basins



<b>REPORT DOCUMENTATION PAGE</b>		1. REPORT NO. USGS/WRD/HD-81/079	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Resources Data for Texas, Water Year 1980, Volume 1; Arkansas River, Red River, Sabine River, Neches River, Trinity River basins and Intervening and Adjacent Coastal basins			5. Report Date August 1981	
7. Author(s)			6.	
9. Performing Organization Name and Address  U.S. Geological Survey, Water Resources Division 300 East Eighth Street Austin, TX 78701			8. Performing Organization Rept. No. USGS-WDR-TX-80-1	
12. Sponsoring Organization Name and Address U.S. Geological Survey, Water Resources Division 300 East Eighth Street Austin, TX 78701			10. Project/Task/Work Unit No.	
			11. Contract(C) or Grant(G) No. (C) (G)	
			13. Type of Report & Period Covered Oct. 1, 1979, to Sept. 30, 1980	
			14.	
15. Supplementary Notes Prepared in cooperation with the State of Texas and with other agencies.				
16. Abstract (Limit: 200 words)  Surface-water data for the 1980 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.				
17. Document Analysis a. Descriptors  *Texas, *Hydrologic data, *Surface water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water analyses  b. Identifiers/Open-Ended Terms          c. COSATI Field/Group				
18. Availability Statement No restriction on distribution. This report may be purchased from: National Technical Information Service Springfield, VA 22161		19. Security Class (This Report) UNCLASSIFIED		21. No. of Pages 606
		20. Security Class (This Page) UNCLASSIFIED		22. Price



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# WATER RESOURCES DATA FOR TEXAS, 1980

## VOLUME 1

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

## INTRODUCTION

Surface-water data for Texas for the 1980 water year are presented in three volumes, appropriately identified by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Records for a few pertinent stations in bordering states are also included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey in cooperation with State and Federal agencies in Texas.

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

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow and water quality are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report TX-80-1." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.



## COOPERATION

Organizations that assisted in the collection of data in this report through joint funding agreements with the Geological Survey in 1980 are:

Texas Department of Water Resources, H. D. Davis, Executive Director; A. L. Black, Chairman; J. H. Garrett, Vice-Chairman; M. T. Potts, G. E. Roney, G. W. McCleskey, and W. O. Bankston, Members.

Pecos River Commission, Horace Babcock, Federal Representative and Chairman; L. A. Vick, Commissioner for Texas, and J. L. Cathey, Commissioner for New Mexico.

Sabine River Compact Administration, Lamar Carroon, Federal Representative and Chairman; R. J. Palmer and G. R. Dyson for Louisiana; and J. M. Syler and Nelson Davis for Texas.

City of Austin, John German, Jr., Director, Engineering Department.

City of Dallas, Monroe McCorkle, Director of Public Works.

City of Garland, J. G. Driskoll, City Engineer.

City of Houston, J. A. Schindewolf, Director of Public Works.

City of Mesquite, G. E. Dowling, City Engineer.

Assistance in the form of funds or services was furnished by the following Federal agencies:

Corps of Engineers, U.S. Army.

Environmental Protection Agency.

Federal Emergency Management Agency.

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

National Park Service.

Soil Conservation Service, Department of Agriculture.

U.S. Water and Power Resources Service.

Assistance in the form of funds or services was rendered by the following organizations through the Texas Department of Water Resources:

The cities of Abilene, Alice, Arlington, Austin, Brady, Cleburne, Clyde, Corpus Christi, Dallas, El Paso, Gainesville, Graham, Houston, Nacogdoches, San Angelo, San Antonio, and Wichita Falls; Athens Municipal Water Authority; Bexar, Medina, and Atascosa Counties Water Control and Improvement District No. 1; Bistone Municipal Water Supply District; Brazos River Authority; Colorado River Municipal Water District; Dallas County; Dallas Power and Light Company; Dow Chemical Company; Edwards Underground Water District; Franklin County Water District; Freese and Nichols, Inc.; Greenbelt Municipal and Industrial Water Authority; Guadalupe-Blanco River Authority; Harris County Flood Control District; Harris-Galveston Coastal Subsidence District; Lavaca-Navidad River Authority; Lone Star Steel Company; Lower Colorado River Authority; Lower Neches Valley Authority; MacKenzie Municipal Water Authority; North Central Texas Municipal Water Authority; Northeast Texas Municipal Water District; Nueces River Authority; Orange County; Palo Pinto County Municipal Water District; Red Bluff Water Power Control District; Reeves County Water Improvement District No. 1; Sabine River Authority of Texas; San Antonio City Public Service Board; San Antonio City Water Board; San Antonio River Authority; San Jacinto River Authority; Tarrant County Water Control and Improvement District No. 1; Texas Electric Service Company; Texas Utilities Services, Inc.; The Woodlands Development Corporation; Titus County Fresh Water Supply District No. 1; Tom Green County Water Control and Improvement District No. 1; Trinity River Authority; Upper Guadalupe River Authority; Upper Neches River Municipal Water Authority; Upper Trinity Basin Water Quality Compact; West Central Texas Municipal Water District; Wichita County Water Improvement District No. 2; and Wood County.

#### HYDROLOGIC CONDITIONS

Large variations in rainfall and runoff characterize the usual hydrologic conditions in Texas. In the east, streams are usually deep with wide alluvial flood plains, and streamflow is generally perennial. Normal annual rainfall exceeds 50 inches in the extreme east and annual runoff may average as much as 15 inches. In the west, streams are generally of the arroyo type and streamflow is highly ephemeral. Normal annual rainfall is less than 8 inches in the extreme west and annual runoff averages less than 0.1 inch in many areas.

During the 1980 water year, runoff for index station North Bosque River near Clifton, located in the central part of the State was in the deficient range (within the lowest 25 percent of record), with a mean discharge of only 19 percent of the long-term median. The other three index stations, Neches River near Rockland, located in east-central Texas, Guadalupe River near Spring Branch, located in south-central Texas, and North Concho River near Carlsbad, located in west Texas, were in the normal runoff range for the year. Figure 1 on page 28 shows a comparison of monthly and annual mean discharges for the index stations. Conservation storage in a selected group of 63 reservoirs, with a combined conservation capacity of 30,252,000 acre-feet, decreased from 86 percent of capacity in September 1979 to 75 percent of capacity in September 1980. Records from the 63 reservoirs show that 52 reservoirs decreased in contents, 10 increased, and one remained the same.

At the beginning of the 1980 water year, streamflow was in the deficient range in the northeastern part of the State, excessive (within the highest 25 percent of record) along the Gulf coast, and near normal in the remainder of the State. At the end of the first quarter, accumulated rainfall amounts were below normal across most of the State, with deficient runoff conditions existing across the entire northern half of the State. At the end of the second quarter, conditions were basically unchanged, with deficient runoff occurring in the northern half of the State and near-normal conditions existing in the southern half.

By late June, a combination of below-normal rainfall and record-breaking high temperatures brought moderate drought conditions to all of north and east Texas. At the end of July, drought conditions had further intensified in north and east Texas and below-normal runoff conditions existed across the entire State, except for the Guadalupe River basin in south-central Texas where conditions were normal.

Runoff conditions remained unchanged until mid-August when Hurricane Allen produced drought-breaking rainfall along its westward path across south and southwest Texas. A further improvement in flow conditions occurred in early September in the wake of tropical storm Danielle which produced heavy rainfall in the central and west-central parts of the State. At the end of the water year, deficient runoff conditions continued in a large portion of east-central Texas, above-normal conditions existed in south-central and west Texas, and normal conditions existed in the remainder of the state.

#### DEFINITION OF TERMS

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Bottom material: See Bed material.

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ( $\text{CaCO}_3$ ).

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

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

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

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

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

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

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

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

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters ( $\text{m}^2$ ), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Substrate is the physical surface upon which an organism lives.

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

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

Suspended, recoverable refers to the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45  $\mu$ m membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total refers to the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45  $\mu$ m membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total." Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

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

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

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

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

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

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



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

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

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

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

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

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

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

## DOWNSTREAM ORDER AND STATION NUMBER

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

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

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

## SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

## EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

### Collection and computation of data

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

#### Accuracy of field data and computed results

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

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

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

1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

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

#### Other data available

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

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

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

### EXPLANATION OF SURFACE-WATER QUALITY RECORDS

#### Collection and examination of data

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



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

### Water analysis

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

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating loads.

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

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

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean value for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

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

#### Water temperature

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

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

#### Sediment

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

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

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

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

## PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

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

- 1-D1. *Water temperature-influential factors, field measurements, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 p.
- 3-A1. *General field and office procedures for indirect measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 p.
- 3-A2. *Measurement of peak discharge by the slope-area methods*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 p.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 p.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 4 p.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 p.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 p.
- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 p.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 p.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 p.



- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 p.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 p.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 p.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 p.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. W. Skougstad and others: USGS--TWRI Book 5, Chapter A1. 1979. 626 p.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 p.
- 5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 p.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P. E. Greenson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 p.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 p.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 p.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 p.

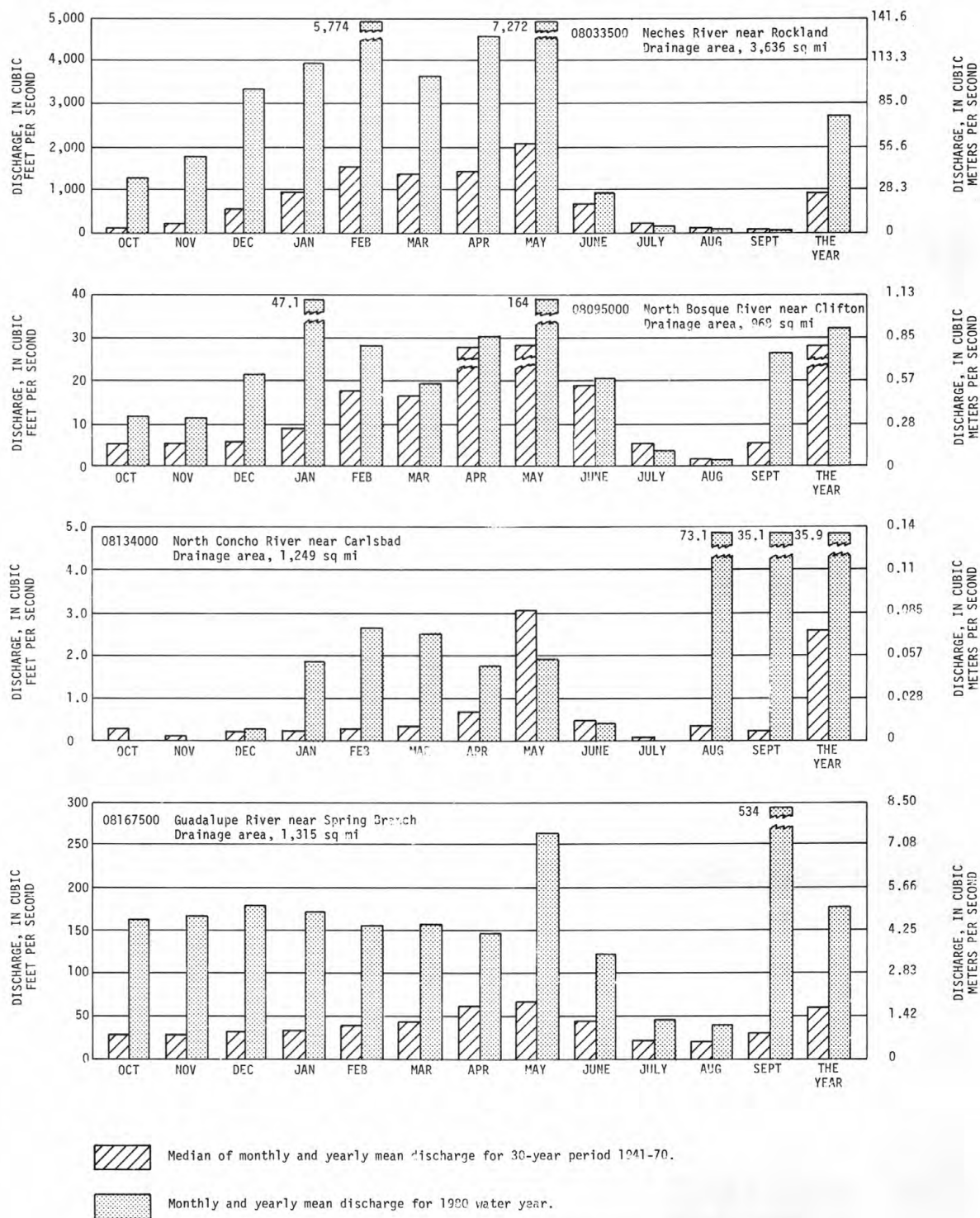


FIGURE 1.--COMPARISON OF DISCHARGE AT FOUR LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1980 WATER YEAR WITH MEDIAN DISCHARGE FOR THE PERIOD 1941-70

## LOWER MISSISSIPPI RIVER BASINS

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## ARKANSAS RIVER BASIN

## 07227000 CANADIAN RIVER AT LOGAN, NM

LOCATION.--Lat 35°21'25", long 103°25'03", in NE1/4NE1/4 sec.15, T.13 N., R.33 E., Quay County, Hydrologic Unit 11080006, on left bank 1,100 ft (340 m) upstream from bridge on U.S. Highway 54, 0.7 mi (1.1 km) south of Logan, 1.4 mi (2.3 km) upstream from Chicago, Rock Island, & Pacific Railroad Co. bridge, 2.0 mi (3.2 km) downstream from Ute Dam, 4.3 mi (6.9 km) upstream from Revuelto Creek, and at mile 672.0 (1,081.2 km).

DRAINAGE AREA.--11,141 mi<sup>2</sup> (28,855 km<sup>2</sup>), of which 1,110 mi<sup>2</sup> (2,870 km<sup>2</sup>) probably is noncontributing.

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

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

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

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

AVERAGE DISCHARGE.--15 years (water years 1909, 1912-13, 1927-38) prior to completion of Conchas Dam 392 ft<sup>3</sup>/s (11.10 m<sup>3</sup>/s), 284,000 acre-ft/yr (350 hm<sup>3</sup>/yr); 24 years (water years 1939-62) prior to completion of Ute Dam, 257 ft<sup>3</sup>/s (7.278 m<sup>3</sup>/s), 186,200 acre-ft/yr (230 hm<sup>3</sup>/yr); 18 years (water years 1963-80) regulated, 29.4 ft<sup>3</sup>/s (0.833 m<sup>3</sup>/s), 21,300 acre-ft/yr (26.3 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD (SINCE 1925).--Maximum discharge, 219,000 ft<sup>3</sup>/s (6,200 m<sup>3</sup>/s) Sept. 22, 1941, gage height, 29.3 ft (8.93 m), from floodmarks, from rating curve extended above 75,000 ft<sup>3</sup>/s (2,120 m<sup>3</sup>/s); no flow at times prior to completion of Ute Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 278,000 ft<sup>3</sup>/s (7,870 m<sup>3</sup>/s) Sept. 30, 1904, gage height, about 36.5 ft (11.13 m), site and datum used in 1909, from rating curve extended above 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s), from Ninth Biennial Report of State Engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 336 ft<sup>3</sup>/s (9.52 m<sup>3</sup>/s) Nov. 1, gage height, 3.75 ft (1.143 m); minimum, 1.1 ft<sup>3</sup>/s (0.031 m<sup>3</sup>/s) Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	170	2.9	2.7	2.1	3.2	2.5	1.7	2.0	1.7	1.5	1.2
2	1.8	329	3.1	2.7	2.1	3.1	3.6	1.7	2.0	1.7	1.5	1.2
3	1.7	324	3.1	2.7	2.1	3.0	2.9	1.8	2.0	1.8	1.5	1.2
4	1.6	321	2.9	2.7	2.1	2.8	2.7	1.9	2.0	1.6	1.5	1.2
5	1.6	317	2.7	2.5	165	2.9	2.7	1.9	1.9	1.5	1.9	1.5
6	1.6	313	2.7	2.5	310	2.8	2.5	1.9	1.8	1.5	2.2	3.0
7	1.6	311	2.7	2.3	310	2.7	2.3	2.1	1.7	1.5	1.6	2.8
8	1.6	233	2.7	2.3	310	2.7	2.1	3.0	3.1	1.5	1.5	1.8
9	1.6	5.1	2.7	2.3	310	2.8	2.3	2.0	2.4	1.6	1.5	1.8
10	1.9	4.0	2.7	86	310	2.7	2.3	1.9	3.8	1.5	1.4	2.2
11	1.9	3.5	2.5	281	312	2.7	2.1	1.8	2.9	1.5	1.3	2.6
12	1.9	3.1	2.7	285	310	2.4	2.3	1.7	2.3	1.5	1.3	2.0
13	1.9	3.1	2.7	285	310	2.4	2.1	2.0	2.1	1.6	2.0	1.5
14	1.9	3.1	2.7	285	310	3.7	2.1	2.2	1.9	1.5	1.1	1.5
15	1.9	3.1	2.7	204	311	5.6	2.1	3.5	1.7	1.5	2.9	1.5
16	1.8	3.1	2.7	4.3	309	4.8	2.1	2.7	1.8	2.8	2.3	1.5
17	1.9	3.1	2.7	3.1	306	4.4	1.9	2.3	2.1	3.2	1.8	1.5
18	2.0	2.9	2.7	2.7	304	3.9	2.0	2.4	2.1	1.9	1.4	1.5
19	2.3	3.0	2.7	2.3	303	3.7	2.0	2.4	2.0	1.5	1.2	1.5
20	2.5	3.0	2.7	2.5	300	3.6	2.0	2.4	2.1	1.3	1.2	1.5
21	2.2	2.9	2.7	2.5	216	3.6	1.9	2.3	2.2	1.8	1.2	1.5
22	2.0	2.7	2.5	2.3	6.6	3.6	2.0	2.3	1.9	1.9	1.2	1.5
23	1.9	2.9	2.5	2.3	4.2	3.8	1.9	2.4	1.9	1.9	1.2	1.5
24	2.0	2.7	2.5	2.3	3.7	3.3	3.1	2.3	1.7	3.1	1.2	1.5
25	2.0	2.7	2.5	2.3	3.4	3.3	3.0	2.1	1.5	2.1	1.2	1.5
26	2.1	2.9	2.5	2.2	3.2	3.3	1.8	2.2	1.5	2.1	1.2	2.3
27	1.8	2.9	2.5	2.0	3.2	3.6	1.8	2.3	1.5	2.0	1.2	2.9
28	1.8	2.9	2.7	2.1	3.3	3.3	1.7	2.7	1.5	1.5	1.2	2.7
29	1.8	2.9	2.7	2.1	3.2	3.1	1.6	2.3	1.7	1.5	1.2	2.3
30	3.1	2.9	2.7	2.1	---	3.1	1.7	2.3	1.7	1.5	1.2	1.8
31	2.5	---	2.7	2.1	---	2.9	---	2.2	---	1.5	1.2	---
TOTAL	59.9	2386.5	83.5	1487.9	5045.2	102.8	67.1	68.7	60.8	55.1	55.7	54.0
MEAN	1.93	79.6	2.69	48.0	174	3.32	2.24	2.22	2.03	1.78	1.80	1.80
MAX	3.1	329	3.1	285	312	5.6	3.6	3.5	3.8	3.2	11	3.0
MIN	1.6	2.7	2.5	2.0	2.1	2.4	1.6	1.7	1.5	1.3	1.2	1.2
AC-FT	119	4730	166	2950	10010	204	133	136	121	109	110	107
CAL YR 1979	TOTAL	7439.2	MEAN	20.4	MAX	968	MIN	1.0	AC-FT	14760		
WTR YR 1980	TOTAL	9527.2	MEAN	26.0	MAX	329	MIN	1.2	AC-FT	18900		

## ARKANSAS RIVER BASIN

07227100 REVUELTIO CREEK NEAR LOGAN, MO

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

DRAINAGE AREA.--786 mi<sup>2</sup> (2,036 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--water-stage recorder. Altitude of gage is 3,665 ft (1,117 m), from topographic map.

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

AVERAGE DISCHARGE.--21 years, 44.2 ft<sup>3</sup>/s (1.252 m<sup>3</sup>/s), 32,020 acre-ft/yr (39.5 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 ft<sup>3</sup>/s (756 m<sup>3</sup>/s) July 9, 1960, gage height, 14.3 ft (4.36 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD (1941-47).--Maximum discharge determined, about 13,400 ft<sup>3</sup>/s (379 m<sup>3</sup>/s) Sept. 18, 1946, gage height, 9.04 ft (2.755 m), at site 500 ft (150 m) downstream at different datum, from unpublished records collected by Water and Power Resources Services.

A peak discharge of 26,100 ft<sup>3</sup>/s (739 m<sup>3</sup>/s), date unknown, gage height, 12.9 ft (3.93 m), was measured by slope-area method in May 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,650 ft<sup>3</sup>/s (75.0 m<sup>3</sup>/s) Aug. 5, gage height, 5.11 ft (1.558 m), no peak above base of 3,500 ft<sup>3</sup>/s (99.1 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	85	.20	.00	.80	.00	.00	4.9	.00	.00	.00	12
2	2.0	28	.18	.00	.87	.00	.01	3.1	.00	.00	.00	4.6
3	1.0	6.6	.14	.00	2.4	.00	31	1.0	.00	.00	.00	1.3
4	.50	2.6	.02	.20	3.4	.00	5.2	.24	.00	.00	1.1	1.0
5	.20	2.0	.00	.03	2.2	.00	1.4	.00	.00	.00	315	10
6	.00	1.8	.00	.14	1.2	.00	.58	.07	.00	.00	88	50
7	1.0	1.1	.00	.10	1.2	.00	.03	33	.00	.00	15	25
8	3.0	.88	.00	.05	1.0	.00	.00	181	1.7	.00	5.0	15
9	5.0	2.4	.00	.03	1.0	.00	.00	75	.67	15	2.0	9.4
10	6.5	9.4	.00	.01	2.0	.00	.00	16	66	2.9	.50	318
11	6.6	27	.00	.00	5.0	.00	.00	3.4	242	.38	.20	91
12	6.5	7.1	.00	.00	7.5	.00	20	.93	27	.00	.00	23
13	6.3	2.7	.00	.00	11	.00	15	1.2	12	.00	.00	6.7
14	6.0	1.7	.00	.00	7.3	.00	9.0	1.3	7.8	.00	100	13
15	6.0	1.2	.03	.00	4.7	.00	7.0	545	6.8	.00	50	8.7
16	6.1	1.1	.06	.00	3.1	.00	3.3	549	4.2	.01	30	5.3
17	6.5	.87	.05	.00	3.9	.00	1.4	200	3.2	.00	20	2.5
18	6.5	.51	.05	.00	12	.00	1.0	77	2.2	.00	15	.54
19	6.3	.31	.00	.00	14	.00	.97	43	.84	.00	10	.00
20	6.0	.19	.00	.21	7.2	.00	.42	22	.16	.00	7.0	.00
21	6.4	.00	.00	.22	1.8	.00	.67	15	18	.07	3.8	.00
22	9.3	.00	.00	.97	.50	.00	.65	10	4.9	.00	334	.00
23	11	.02	.00	1.9	.12	.00	.28	8.0	3.1	.00	69	.00
24	9.2	.04	.01	1.9	.00	.00	8.5	4.9	.60	1.3	9.2	.00
25	10	.15	.00	1.9	.00	.00	61	2.4	.00	.12	.15	.00
26	9.3	.04	.00	1.8	.00	.00	92	1.8	.00	.97	.00	1.0
27	7.1	.00	.00	1.2	.00	.00	54	1.7	.00	1.1	320	37
28	7.1	.00	.00	1.0	.00	.00	23	2.4	.00	3.1	488	19
29	7.1	.00	.00	.50	.00	.00	9.5	1.4	.00	4.4	129	13
30	16	.01	.00	.60	---	.08	6.4	.59	.00	3.3	56	9.5
31	135	---	.08	.75	---	.00	---	.45	---	1.0	27	---
TOTAL	313.50	182.72	.82	13.51	94.19	.08	352.31	1805.78	401.17	33.65	2094.95	676.54
MEAN	10.1	6.09	.026	.44	3.25	.003	11.7	58.3	13.4	1.09	67.6	22.6
MAX	135	85	.20	1.9	14	.08	92	549	242	15	488	318
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	622	362	1.6	27	187	.2	699	3580	796	67	4160	1340
CAL YR 1979	TOTAL	7703.06	MEAN	21.1	MAX	1450	MIN	.00	AC-FT	15280		
WTR YR 1980	TOTAL	5969.22	MEAN	16.3	MAX	549	MIN	.00	AC-FT	11840		



## ARKANSAS RIVER BASIN

07227100 REVUELTO CREEK NEAR LOGAN, NM--Continued

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## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
OCT 18...	1155	6.5	1040	8.5	20.0	8.5	270	99	63	27	110	2.9
NOV 15...	1325	1.2	1290	8.6	14.0	9.5	250	37	56	26	190	5.3
DEC 19...	1155	.01	3650	8.3	3.0	14.7	270	0	52	35	690	18
JAN 10...	1205	.01	3790	8.4	9.5	10.4	300	0	57	38	800	20
FEB 21...	1345	1.6	2050	8.5	14.0	9.4	270	34	57	32	360	9.5
MAR 19...	1147	.01	5610	8.5	21.5	8.5	380	4	63	55	1100	24
APR 15...	1230	6.0	2110	8.0	6.5	--	--	--	--	--	--	--
APR 16...	1445	2.1	2100	8.7	21.0	7.9	450	250	87	57	350	7.2
JUL 09...	1030	30	1120	7.7	27.0	--	110	0	29	8.9	200	8.3
AUG 12...	1415	8.0	1500	8.6	26.0	7.2	320	160	68	36	200	4.9
SEP 30...	0930	8.9	1030	8.6	16.0	--	220	50	50	23	140	4.1
DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, ORTHOPH- OSPHATE DISSOL. (MG/L AS P)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 18...	6.8	280	46	.5	5.6	--	641	.01	--	163	2.9	--
NOV 15...	3.9	320	100	.5	6.7	--	831	.32	--	71	.23	--
DEC 19...	4.9	280	870	.8	8.9	--	2130	.08	--	47	.00	46
JAN 10...	4.7	280	1100	.8	9.5	--	2470	.00	--	20	.00	96
FEB 21...	3.7	450	270	.7	10	--	1330	.61	--	231	1.0	97
MAR 19...	6.5	340	1400	1.0	8.9	--	3200	.02	--	12	.00	79
APR 15...	--	--	--	--	--	--	--	--	--	221	3.6	--
APR 16...	6.3	770	150	.8	6.1	--	1550	.02	--	84	.48	--
JUL 09...	5.4	290	38	.6	13	--	706	.29	--	27600	2240	94
AUG 12...	10	410	130	.6	9.2	--	960	.02	--	39	.84	--
SEP 30...	5.0	280	51	.5	6.2	682	658	.00	.000	150	3.6	85

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

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

DRAINAGE AREA.--12,616 mi<sup>2</sup> (32,675 km<sup>2</sup>).

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

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	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)
DATE	TIME									
OCT 18...	0907	9.5	6750	8.4	13.5	12	9.6	73	160	530
NOV 16...	0840	22	5350	8.7	4.5	78	12.0	10	80	500
DEC 19...	0915	9.8	8540	8.4	2.0	23	11.9	1	26	680
JAN 10...	0840	14	9070	8.3	1.0	6.9	12.5	1	7	680
FEB 21...	0905	281	1180	8.4	6.0	320	11.3	0	120	180
MAR 19...	0921	6.4	8000	8.4	8.0	1.2	11.0	0	1	670
APR 17...	1130	8.7	8480	8.3	18.5	24	9.2	1	2	650
DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
OCT 18...	330	99	68	1300	25	11	410	2000	.5	9.6
NOV 16...	250	110	55	1100	21	8.3	380	1600	.6	9.8
DEC 19...	410	140	80	1700	28	11	410	2500	.4	13
JAN 10...	380	140	80	1700	28	9.5	440	2500	.5	12
FEB 21...	0	36	21	200	6.6	6.2	140	190	1.0	5.8
MAR 19...	430	130	83	1600	27	12	420	2500	.5	9.5
APR 17...	410	130	80	1700	29	11	430	2500	.6	11
DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)
OCT 18...	4060	4020	.03	.04	.020	.040	.45	.35	.47	.39
NOV 16...	3390	3420	.52	.54	.080	.100	.61	.47	.69	.57
DEC 19...	4920	5020	.51	.50	.060	.070	.71	.60	.77	.67
JAN 10...	5400	5060	.40	.39	.010	.010	.58	.46	.59	.47
FEB 21...	734	727	.14	.13	.060	.060	1.3	.65	1.4	.71
MAR 19...	4870	4900	.22	.24	.120	.080	.78	.69	.90	.77
APR 17...	5380	5010	.17	.18	.020	.020	.78	.34	.80	.36
DATE	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHOPH OSPHATE DISSOL. (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
OCT 18...	.010	.000	.010	4.6	3.5	.5	34	.87	88	
NOV 16...	.060	.010	.010	15	15	.1	134	8.1	83	
DEC 19...	.020	.010	.000	--	4.5	.2	44	1.2	80	
JAN 10...	.000	.000	.000	3.7	2.5	--	27	1.0	72	
FEB 21...	.440	.010	.000	7.2	5.0	2.3	1210	918	77	
MAR 19...	.020	.010	.000	--	6.7	.1	22	.38	55	
APR 17...	.050	.060	.080	7.7	4.1	.3	26	.61	83	

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 18...	0907	--	--	--	--	--	--	--	--	--	--
NOV 16...	0840	--	--	--	--	--	--	--	--	--	--
DEC 19...	0915	2	1	1	700	400	300	0	0	0	16
JAN 10...	0840	--	--	--	--	--	--	--	--	--	--
FEB 21...	0905	--	--	--	--	--	--	--	--	--	--
MAR 19...	0921	2	1	1	300	100	200	0	0	0	10
APR 17...	1130	--	--	--	--	--	--	--	--	--	--

DATE	CHRO- MIUM, SUS- PENDE RECOV- (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 18...	--	--	--	--	--	--	--	--	--	--	10
NOV 16...	--	--	--	--	--	--	--	--	--	--	20
DEC 19...	16	0	0	0	0	6	6	0	400	390	10
JAN 10...	--	--	--	--	--	--	--	--	--	--	30
FEB 21...	--	--	--	--	--	--	--	--	--	--	10
MAR 19...	0	10	2	2	0	3	3	0	150	130	20
APR 17...	--	--	--	--	--	--	--	--	--	--	40

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS NI)
OCT 18...	--	--	--	--	--	--	--	--	--	--	--
NOV 16...	--	--	--	--	--	--	--	--	--	--	--
DEC 19...	2	2	0	130	0	130	.1	.1	.0	5	5
JAN 10...	--	--	--	--	--	--	--	--	--	--	--
FEB 21...	--	--	--	--	--	--	--	--	--	--	--
MAR 19...	3	3	0	130	10	120	.0	.0	.1	2	2
APR 17...	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 18...	--	--	--	--	--	--	--	--	--	--
NOV 16...	--	--	--	--	--	--	--	--	--	--
DEC 19...	0	1	1	0	0	0	0	40	40	0
JAN 10...	--	--	--	--	0	--	--	--	--	--
FEB 21...	--	--	--	--	--	--	--	--	--	--
MAR 19...	0	--	0	1	0	0	0	20	10	10
APR 17...	--	--	--	--	0	--	--	--	--	--

## ARKANSAS RIVER BASIN

07227500 CANADIAN RIVER NEAR AMARILLO, TX

LOCATION.--Lat 35°28'13", long 101°52'45", Potter County, Hydrologic Unit 11090105, on left bank at downstream side of southbound lane of bridge on U.S. Highways 87 and 287, 1,500 ft (460 m) downstream from Pitcher Creek, 1.4 mi (2.3 km) downstream from East Amarillo Creek, 1.7 mi (2.7 km) downstream from Panhandle and Santa Fe Railway Co. bridge, 19 mi (31 km) north of Amarillo, and 537.7 mi (865.2 km) upstream from mouth.

DRAINAGE AREA.--19,445 mi<sup>2</sup> (50,362 km<sup>2</sup>), of which 4,069 mi<sup>2</sup> (10,539 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,989.16 ft (911.096 m) National Geodetic Vertical Datum of 1929. Jan. 16, 1924, to Dec. 31, 1925, and Apr. 3 to June 1, 1938, nonrecording gage at site of old bridge 20 ft (6 m) upstream at same datum. June 2 to Dec. 5, 1938, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records poor. At times, low flow is maintained by release of sewage effluent from the Amarillo disposal plant into East Amarillo Creek, a tributary to the Canadian River. Some regulation by Conchas and Ute Reservoirs in New Mexico, total capacity 439,700 acre-ft (542 hm<sup>3</sup>). Conchas Canal and Bell Ranch Canal divert from Conchas Reservoir for irrigation.

AVERAGE DISCHARGE.--43 years (water years 1925, 1939-80), 336 ft<sup>3</sup>/s (9.516 m<sup>3</sup>/s), 243,400 acre-ft/yr (300 hm<sup>3</sup>/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,940 ft<sup>3</sup>/s (168 m<sup>3</sup>/s) June 11 at 0815 hours, gage height, 5.50 ft (1.676 m), no peak above base of 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s); minimum daily observed, 0.02 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) July 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	9.2	16	14	15	41	20	755	159	2.7	.07	39
2	2.3	7.1	17	15	22	30	17	201	105	3.3	.10	29
3	2.3	5.3	17	14	27	30	32	138	73	5.8	.09	17
4	1.7	4.2	20	12	44	35	24	114	67	2.9	.03	8.6
5	1.2	16	17	12	30	36	19	47	77	2.3	.14	2.8
6	.84	287	17	10	27	32	12	35	56	3.8	101	2.3
7	.73	334	18	9.2	24	28	6.8	30	29	2.1	1.9	6.2
8	.63	360	17	9.8	22	23	3.9	44	25	2.8	1.3	9.2
9	.63	295	16	7.8	60	21	2.6	131	26	2.4	.59	3.3
10	.63	229	16	9.5	500	20	2.2	67	38	1.8	9.8	3.9
11	.63	195	17	9.4	396	21	2.0	52	1580	1.4	5.0	5.7
12	.63	161	16	10	339	22	1.6	93	258	1.2	2.5	4.6
13	.63	136	15	10	376	17	1.3	64	76	.82	1.0	412
14	.54	93	15	11	408	14	1.1	66	33	.56	5.0	492
15	.63	78	15	181	441	11	.93	1270	19	.38	155	96
16	.63	68	14	354	460	8.1	.68	819	15	1.4	1570	51
17	.63	51	12	482	521	7.1	.45	972	12	.61	564	34
18	.73	36	13	484	597	5.8	.46	611	9.3	.48	180	27
19	.54	27	14	341	493	4.8	.38	510	7.0	.37	77	7.1
20	.38	20	15	148	448	4.6	.29	315	6.6	.45	46	1.2
21	.46	14	16	118	477	4.4	.27	250	157	1.3	44	.46
22	.54	13	15	109	435	3.1	.28	207	371	.19	36	.46
23	.54	16	15	92	387	8.5	.31	160	139	.20	29	.54
24	.54	15	15	69	396	6.9	3.2	123	69	.13	22	.63
25	.63	16	16	48	206	6.4	20	93	26	.17	13	.73
26	.63	16	15	32	136	6.7	94	89	14	.21	13	2.8
27	.63	16	14	16	99	330	103	102	6.2	.16	14	6.2
28	.73	15	13	14	78	338	54	295	3.9	.17	11	4.2
29	.84	14	14	14	57	88	44	302	3.4	.14	8.0	1.2
30	21	15	16	14	---	50	63	333	3.6	.02	33	.95
31	15	---	13	15	---	30	---	229	---	.03	51	---
TOTAL	60.97	2561.8	479	2684.7	7521	1283.4	530.75	8517	3464.0	40.29	2994.52	1270.07
MEAN	1.97	85.4	15.5	86.6	259	41.4	17.7	275	115	1.30	96.6	42.3
MAX	21	360	20	484	597	338	103	1270	1580	5.8	1570	492
MIN	.38	4.2	12	7.8	15	3.1	.27	30	3.4	.02	.03	.46
AC-FT	121	5080	950	5330	14920	2550	1050	16890	6870	80	5940	2520
CAL YR 1979	TOTAL	23454.06	MEAN	64.3	MAX	3360	MIN	.38	AC-FT	46520		
WTR YR 1980	TOTAL	31407.50	MEAN	85.8	MAX	1580	MIN	.02	AC-FT	62300		



## ARKANSAS RIVER BASIN

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07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1948 to October 1949, February 1950 to current year. Chemical and biochemical analyses: January 1969 to current year. Pesticide analyses: October 1968 to current year.

## PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: October 1950 to current year.

WATER TEMPERATURES: August 1949 to current year.

SUSPENDED SEDIMENT DISCHARGE: August 1949 to September 1952.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 6,540 micromhos Dec. 10, 1978; minimum daily, 346 micromhos Oct. 29, 1964. WATER TEMPERATURES (1949-76): Maximum daily, 39.0°C July 7, 1973; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 6,350 micromhos July 8; minimum daily, 390 micromhos Aug. 16.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT 29...	1230	.84	1950	8.3	20.5	10	4.6	12.1	156	3.6	430	250
NOV 23...	1135	17	4080	--	1.0	--	--	--	--	--	650	440
DEC 20...	1015	14	3900	8.0	.0	5	--	15.5	120	6.0	710	530
JAN 31...	0815	15	4690	--	3.0	--	--	--	--	--	770	520
FEB 28...	1400	78	2380	8.5	15.5	0	240	14.2	161	.9	350	99
MAR 27...	0815	6.7	4520	--	10.0	--	--	--	--	--	780	610
APR 25...	1200	26	2400	7.9	9.0	5	8400	13.2	129	5.1	250	120
JUN 26...	1630	14	1700	8.5	32.0	20	27	9.3	141	3.6	280	140
JUL 31...	0730	.03	5100	--	22.0	--	--	--	--	--	720	630
AUG 18...	1230	180	1190	8.1	25.5	60	20	8.9	120	6.7	96	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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 29...	120	32	240	5.0	4.0	220	0	260	360	.5	21	1150
NOV 23...	160	60	650	11	8.6	250	0	580	830	.6	13	2430
DEC 20...	190	58	570	9.3	7.4	230	0	570	850	.4	16	2380
JAN 31...	190	72	740	12	8.8	310	0	620	1100	.7	15	2900
FEB 28...	79	38	380	8.8	7.2	270	20	330	430	.7	10	1430
MAR 27...	200	67	690	11	7.6	200	0	670	950	.7	15	2700
APR 25...	65	22	390	11	4.2	160	0	360	450	.5	8.6	1380
JUN 26...	74	23	250	6.5	8.3	160	6	200	330	.6	9.3	980
JUL 31...	180	65	770	13	5.6	110	0	490	1300	.5	15	2880
AUG 18...	24	8.8	210	9.3	6.1	160	0	140	210	.6	20	699

## ARKANSAS RIVER BASIN

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOL- TILE, SUS- PENDE (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)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 29...	30	28	.15	.02	.17	.09	.23	.32	.010	16	.20
NOV 23...	--	--	--	--	--	--	--	--	--	--	--
DEC 20...	25	8	.15	.03	.18	1.7	.70	2.4	.400	7.7	.10
JAN 31...	--	--	--	--	--	--	--	--	--	--	--
FEB 28...	298	84	.17	.00	.17	.00	.80	.80	.190	5.3	--
MAR 27...	--	--	--	--	--	--	--	--	--	--	--
APR 25...	1760	600	.60	.02	.62	.20	8.4	8.6	3.600	35	.00
JUN 26...	246	6	.00	.00	.00	.00	1.2	1.2	.030	11	.00
JUL 31...	--	--	--	--	--	--	--	--	--	--	--
AUG 18...	15300	1230	1.9	.21	2.1	.95	.15	1.1	4.700	81	.00

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 29...	1230	2	300	1	0	0	<10
DEC 20...	1015	--	--	--	--	--	--
FEB 28...	1400	3	100	0	0	0	0
JUN 26...	1630	5	200	<1	10	4	<10
AUG 18...	1230	5	100	0	0	11	200

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 29...	0	<1	.4	0	0	<3
DEC 20...	--	--	--	--	0	--
FEB 28...	0	20	.1	1	0	0
JUN 26...	1	3	.0	0	0	<3
AUG 18...	3	20	.1	1	0	20

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
FEB 28...	1400	.0	0	.00	.00	.0	.0	0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
FEB 28...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0

## ARKANSAS RIVER BASIN

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07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
FEB 28...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
FEB 28...	.00	.00	.00	.00	0	0	.00	.00	.00	.00

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
DEC 20...	1015	14	.0	20	.76
AUG 18...	1230	180	25.5	17700	8600

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA. MG) (MG/L)
OCT.	1979	60.97	1310	759	125	220	37	170	28	220
NOV.	1979	2561.8	1860	1090	7530	340	2320	250	1730	310
DEC.	1979	479	3580	2150	2790	730	950	510	658	590
JAN.	1980	2684.7	2340	1380	10000	440	3210	320	2330	390
FEB.	1980	7521	1830	1070	21700	330	6640	240	4970	300
MAR.	1980	1283.4	2710	1620	5610	530	1850	380	1310	450
APR.	1980	530.75	2550	1510	2160	490	697	350	503	420
MAY	1980	8517	1710	1000	23100	310	7070	230	5280	280
JUNE	1980	3464.0	985	570	5330	170	1570	130	1210	160
JULY	1980	40.29	4040	2470	268	880	96	590	64	660
AUG.	1980	2994.52	884	512	4140	150	1220	120	937	150
SEPT	1980	1270.07	1360	793	2720	240	819	180	620	220
TOTAL		31407.50	**	**	85500	**	26500	**	19600	**
WTD. AVG.		86	1720	1010	**	310	**	230	**	280

## ARKANSAS RIVER BASIN

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2290	1400	3930	3830	4610	2630	3290	1440	1850	3060	4080	2000
2	1710	2040	3900	3900	4400	2870	3650	2140	2010	3490	3120	1750
3	1750	2610	3760	3970	4000	3160	2590	2300	2340	3930	2340	2140
4	1790	2740	3720	4050	3300	3310	3200	2510	2550	3090	2860	2520
5	1840	2370	3360	4120	3740	3460	3310	3280	2670	4670	2640	2900
6	2270	1930	3710	4190	4150	3680	3360	3300	2090	3290	1050	3250
7	2340	1670	3580	4270	4130	3950	4240	3320	1560	5650	1180	3960
8	2350	1590	3420	4310	4350	4090	4310	3330	1390	6350	1430	2240
9	2200	1430	3280	4560	4400	4230	4370	2300	1530	5880	1570	2560
10	2110	1470	3130	4720	2200	4280	4440	2060	1540	5260	1280	3190
11	2090	1510	2990	4580	1970	4250	4510	3100	400	4780	2590	4390
12	2050	1600	3430	4640	2150	4190	4580	3560	750	4110	3030	4470
13	2040	1640	3860	4700	2070	4200	4640	3700	983	3030	3150	1150
14	2000	1810	3450	4780	1670	4220	4710	3600	1260	2540	2480	900
15	1970	2000	3550	3550	1650	4510	4510	750	1520	2610	1750	1620
16	1930	2260	2890	2250	1640	4410	4050	1110	2080	4020	390	1780
17	1910	2480	3830	1960	1620	4580	3660	1750	2430	4070	900	2130
18	1920	2880	3810	1790	1550	5230	3370	1800	2450	3440	1350	2570
19	1820	3150	3780	1770	1580	5000	3060	1700	2460	2890	1500	3120
20	1450	3360	3770	1960	1590	4750	2820	1680	2520	2550	1530	3700
21	1550	3540	3600	2140	1600	4960	2690	1780	1590	2130	1510	3740
22	1600	3760	3960	2320	1610	5210	3440	1720	850	2080	1450	3420
23	1650	3940	3730	2510	1630	4880	3340	2180	1300	2070	1900	3530
24	1710	4010	3570	2700	1650	4850	2580	2640	1750	2460	2170	3710
25	1760	3900	3330	2880	1660	5160	2400	3090	1930	2380	2530	3940
26	1740	4090	3450	3350	1800	5010	2150	3550	1710	2250	3340	4560
27	1760	4240	3520	3840	1970	1990	3240	3240	1910	2140	4090	5250
28	1780	4160	3580	4150	2200	2000	2270	2100	1930	2160	4830	5120
29	1670	4040	3610	4420	2440	2520	2310	1720	2010	3240	4910	4920
30	869	3930	3650	4710	---	2700	2630	1450	2650	4360	3040	2770
31	925	---	3860	4690	---	2850	---	2070	---	5100	2300	---
MEAN	1830	2720	3580	3600	2530	3970	3420	2400	1800	3520	2330	3110

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	---	3.0	8.0	---	---	19.0	16.0	27.0	---	---	---
2	12.0	---	7.0	10.0	---	---	9.0	17.0	29.0	---	---	29.0
3	---	5.0	9.0	---	---	---	17.0	22.0	---	22.0	22.0	---
4	---	7.0	11.0	---	---	15.0	18.0	23.0	---	22.0	21.0	---
5	15.0	9.0	13.0	---	14.0	14.0	21.0	25.0	21.0	21.0	33.0	20.0
6	14.0	6.0	9.0	---	11.0	15.0	20.0	---	20.0	21.0	---	21.0
7	15.0	9.0	---	---	6.0	15.0	21.0	---	---	21.0	22.0	20.0
8	15.0	12.0	---	16.0	---	17.0	---	16.0	19.0	21.0	21.0	20.0
9	9.0	---	---	14.0	3.0	18.0	---	11.0	17.0	---	---	21.0
10	8.0	---	---	17.0	1.0	17.0	---	12.0	19.0	---	22.0	16.0
11	13.0	---	6.0	10.0	4.0	---	---	16.0	---	23.0	22.0	18.0
12	---	---	6.0	14.0	---	---	---	16.0	---	23.0	19.0	---
13	---	13.0	4.0	18.0	---	---	---	22.0	21.0	22.0	22.0	---
14	---	12.0	11.0	15.0	5.0	6.0	21.0	---	23.0	22.0	23.0	---
15	---	12.0	18.0	---	---	16.0	25.0	---	19.0	23.0	---	---
16	24.0	16.0	4.0	---	---	9.0	---	12.0	22.0	23.0	---	25.0
17	17.0	17.0	11.0	16.0	2.0	15.0	---	13.0	21.0	22.0	---	26.0
18	20.0	17.0	---	10.0	1.0	13.0	9.0	14.0	23.0	---	---	29.0
19	20.0	17.0	---	5.0	7.0	---	12.0	16.0	21.0	---	28.0	29.0
20	23.0	---	16.0	---	---	---	12.0	17.0	---	---	31.0	30.0
21	16.0	---	16.0	---	---	---	13.0	18.0	---	---	---	30.0
22	---	10.0	10.0	---	7.0	---	14.0	17.0	---	35.0	31.0	24.0
23	---	3.0	8.0	---	---	---	16.0	---	---	36.0	29.0	---
24	---	9.0	5.0	---	8.0	3.0	15.0	---	---	34.0	31.0	---
25	25.0	4.0	6.0	8.0	6.0	6.0	---	---	32.0	34.0	31.0	---
26	28.0	4.0	---	---	5.0	7.0	---	---	33.0	36.0	---	---
27	20.0	2.0	---	4.0	6.0	10.0	---	27.0	33.0	37.0	---	17.0
28	21.0	---	---	6.0	7.0	---	---	26.0	35.0	36.0	19.0	26.0
29	23.0	---	6.0	---	---	---	28.0	29.0	31.0	---	19.0	17.0
30	6.0	2.0	5.0	3.0	---	---	22.0	27.0	33.0	---	19.0	18.0
31	---	---	7.0	3.0	---	---	---	30.0	---	22.0	20.0	---
MEAN	17.0	9.5	8.5	10.5	6.0	12.5	17.5	19.0	25.0	26.5	24.5	23.0
WTR YR 1980	MEAN	17.0	MAX	37.0	MIN	1.0						



## 07227900 LAKE MEREDITH NEAR SANFORD, TX

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

DRAINAGE AREA.--20,220 mi<sup>2</sup> (52,370 km<sup>2</sup>), of which 4,172 mi<sup>2</sup> (10,805 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 6,410 ft (1,954 m) long. The dam was completed and storage began in October 1964. The service spillway is an uncontrolled concrete drop inlet located near the left end of dam. The spillway discharges into a 22-foot-diameter (7 m) conduit that is designed to discharge 19,300 ft<sup>3</sup>/s (547 m<sup>3</sup>/s) at an elevation of 3,004.9 ft (915.89 m). The flood-control outlet works consists of three 12- by 15-foot (4 by 5 m) gates that open into three 15.5-foot (4.7 m) concrete conduits. The flood-control works are located just to the left of the service spillway near the left end of dam. The dam was built by the U.S. Bureau of Reclamation for the Canadian River Municipal Water Authority for flood control, municipal, and industrial supply for the cities of Amarillo, Borger, Brownfield, Lamesa, Levelland, Lubbock, O'Donnell, Pampa, Plainview, Slaton, and Tahoka. The area-capacity curves are based on Geological Survey topographic maps dated 1953. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	3,011.0	-
Design flood.....	3,004.9	2,434,200
Crest of drop inlet.....	2,965.0	1,407,600
Top of conservation pool.....	2,936.5	864,400
Crest of flood-control outlet works (invert).....	2,894.0	313,700
Lowest gated outlet (invert).....	2,850.0	43,050

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 546,100 acre-ft (673 hm<sup>3</sup>) Apr. 28, 1973, elevation, 2,914.91 ft (888.465 m); minimum since first appreciable storage, 219,900 acre-ft (271 hm<sup>3</sup>) Apr. 10, 11, 1967, elevation, 2,883.10 ft (878.769 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 289,700 acre-ft (357 hm<sup>3</sup>) Oct. 1, elevation, 2,891.41 ft (881.302 m); minimum, 223,700 acre-ft (276 hm<sup>3</sup>) Sept. 30, elevation, 2,883.59 ft (878.918 m).

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

2,883.0	219,200	2,886.0	242,900	2,889.0	268,300
2,884.0	226,900	2,887.0	251,200	2,890.0	277,000
2,885.0	234,800	2,888.0	259,700	2,891.0	286,000
				2,892.0	295,100

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	289700	278200	274400	268400	266300	270900	267600	261700	266000	261700	244000	235300
2	289200	277900	274200	268300	266100	271200	267700	261900	265700	261600	243400	234900
3	288500	277700	273800	268200	266000	270700	267400	261900	265300	260500	243000	234400
4	288200	277400	273700	268000	265900	270300	267100	261900	264700	259800	242200	234000
5	287500	277000	273500	267800	265900	270500	267200	261800	264600	259200	241800	233500
6	287100	277100	273000	267600	265700	270100	266600	261700	264100	258600	241600	233100
7	286800	277400	272700	267100	266400	270100	266600	261500	263500	258000	241200	232600
8	285100	277300	272600	266800	266200	270100	266000	261400	263200	257300	240500	232100
9	285700	277500	272400	266900	266100	269500	265900	261800	262800	256800	240000	231500
10	285100	277500	272600	266200	265900	269200	265100	261300	265600	256300	239400	231400
11	284700	277500	272000	266200	266400	269300	265000	261000	268400	255700	239000	231300
12	284200	277500	272000	266000	266900	269100	264800	260800	269000	255000	238400	230600
13	284000	277500	271600	265800	267300	268600	264500	260400	268900	254500	237800	230200
14	283400	277500	271600	265700	267600	268400	264200	260200	268800	253900	238500	230000
15	283000	278400	271200	265800	268100	267900	263800	261400	267800	253200	238600	229700
16	282200	278200	270800	265900	268400	267100	263400	263600	267400	252500	239800	228800
17	282300	278200	269900	266000	268400	267500	263200	265200	267300	252000	241200	228700
18	282000	277800	270300	266700	268900	267100	262900	265900	265900	251100	241200	228300
19	281700	277600	270100	266800	269400	266900	262700	266000	266400	250600	241100	228300
20	281100	277400	270000	267500	270400	266600	262400	266300	266200	249800	240500	227400
21	280300	277000	269800	267500	270300	266200	261900	266300	265500	249200	240200	226900
22	280100	276600	269600	267500	270600	265700	261600	266200	265800	248900	239800	226300
23	279600	276300	269500	267400	271200	265900	261500	266000	265900	248300	239500	225900
24	279200	276100	269400	267500	271400	265600	261800	265900	265400	247700	239000	225300
25	278800	275700	269400	267500	271500	265700	261500	265500	264900	247200	238400	224800
26	278500	275600	269400	267400	271400	265000	261000	265100	264500	246500	238000	224700
27	278000	275600	269100	267200	271400	267400	261000	265700	264000	246800	237500	224300
28	277700	275400	269000	266900	271200	267200	260400	265700	263100	246300	237100	224000
29	277100	275000	268800	266900	270800	268200	260500	265900	262800	245700	236500	223900
30	278700	274800	268500	266700	---	268100	260100	265900	262200	245000	236200	223700
31	278400	---	268400	266500	---	269300	---	266300	---	244500	235800	---
MAX	289700	278400	274400	268400	271500	271200	267700	266300	269000	261700	244000	235300
MIN	277100	274800	268400	265700	265700	265000	260100	260200	262200	244500	235800	223700
(†)	2890.15	2889.74	2889.01	2888.79	2889.29	2889.12	2888.05	2888.77	2888.29	2886.19	2885.12	2883.59
(+)	-12000	-3600	-6400	-1900	+4300	-1500	-9200	+6200	-4100	-17700	-8700	-12100
(††)	7314	5211	5642	4979	5059	6035	6374	6655	8234	9804	9004	7210
CAL YR 1979	MAX	320800	MIN	268400	+	50500	††	75687				
WTR YR 1980	MAX	289700	MIN	223700	+	66700	††	81521				

† Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial uses by Canadian River Water Authority.

## ARKANSAS RIVER BASIN

07227900 LAKE MEREDITH NEAR SANFORD, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPEK- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
FEB 04...	1415	1910	5.0	240	82	49	28	330	9.3

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 04...	7.8	190	0	300	350	.8	5.6	1160

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

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

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

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.06	.02	.03	.02	.00	.25	4.9	.15	.00	.00	.00
2	.00	.05	.02	.03	.03	.00	.55	.72	.12	.00	.00	.00
3	.00	.06	.02	.04	.04	.02	.41	.38	.13	.00	.00	.00
4	.00	.05	.02	.04	.04	.03	.25	.50	.13	.00	.00	.00
5	.00	.03	.02	.04	.04	.03	.25	.43	.12	.00	.00	.00
6	.00	.02	.02	.04	.04	.03	.28	.49	.14	.00	.00	.00
7	.00	.02	.02	.04	.06	.02	.26	.40	.13	.00	.00	.00
8	.00	.05	.01	.04	.04	.02	.24	.46	.06	.00	.00	.00
9	.00	.09	.01	.04	.03	.02	.25	.26	.06	.00	.00	.00
10	.00	.06	.01	.03	.03	.02	.33	.36	62	.00	.00	.00
11	.00	.05	.01	.03	.02	.10	.30	.41	323	.00	.00	.00
12	.00	.08	.01	.03	.02	.08	.25	.32	12	.00	.00	.00
13	.00	.08	.01	.03	.04	.07	.23	.14	.95	.00	.00	.00
14	.00	.08	.01	.02	.06	.06	.24	.14	.09	.00	.00	.00
15	.00	.08	.01	.02	.06	.06	.33	13	.08	.00	.00	.00
16	.00	.06	.01	.02	.04	.06	.34	4.7	.05	.00	.00	.00
17	.00	.06	.01	.02	.02	.08	.28	1.1	.04	.00	.00	.00
18	.00	.06	.00	.02	.03	.07	.28	.31	2.3	.00	.00	.00
19	.00	.05	.00	.10	.04	.07	.42	.18	.25	.00	.00	.00
20	.00	.05	.00	.04	.05	.07	.52	.18	.02	.00	.00	.00
21	.00	.04	.00	.03	.04	.07	.53	.08	.02	.00	.00	.00
22	.00	.04	.00	.02	.02	.08	.52	.08	.02	.00	.00	.00
23	.00	.03	.00	.04	.02	.08	.55	.09	.02	.00	.00	.00
24	.00	.03	.04	.06	.02	.07	.75	.11	.01	.00	.00	.00
25	.00	.03	.06	.06	.02	.07	.49	.14	.00	.00	.00	.00
26	.00	.02	.05	.03	.02	.10	.43	.12	.00	.00	.00	.00
27	.00	.02	.05	.00	.02	13	.45	.23	.00	.00	.00	.00
28	.00	.02	.05	.00	.06	5.8	.54	7.1	.00	.00	.00	.00
29	.00	.02	.04	.00	.06	.76	.67	1.3	.00	.00	.00	.00
30	.03	.02	.03	.00	---	.53	2.1	.16	.00	.00	.00	.00
31	2.0	---	.03	.01	---	.35	---	.17	---	.00	.00	---
TOTAL	2.03	1.41	.59	.95	1.03	21.82	13.29	38.96	401.89	.00	.00	.00
MEAN	.065	.047	.019	.031	.036	.70	.44	1.26	13.4	.000	.000	.000
MAX	2.0	.09	.06	.10	.06	13	2.1	13	323	.00	.00	.00
MIN	.00	.02	.00	.00	.02	.00	.23	.08	.00	.00	.00	.00
AC-FT	4.0	2.8	1.2	1.9	2.0	43	26	77	797	.00	.00	.00
CAL YR 1979	TOTAL	789.44	MEAN	2.16	MAX	422	MIN	.00	AC-FT	1570		
WTR YR 1980	TOTAL	481.97	MEAN	1.32	MAX	323	MIN	.00	AC-FT	956		

## ARKANSAS RIVER BASIN

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

LOCATION.--Lat 35°56'06", long 100°22'13", Hemphill County, Hydrologic Unit 11090106, near left bank on downstream side of pier of bridge on U.S. Highways 60 and 83, 600 ft (180 m) downstream from Panhandle and Santa Fe Railway Co. bridge, 1.2 mi (1.9 km) downstream from Red Deer Creek, 1.6 mi (2.6 km) northeast of Canadian, and 433.9 mi (698.1 km) upstream from mouth.

DRAINAGE AREA.--22,866 mi<sup>2</sup> (59,222 km<sup>2</sup>), of which 4,688 mi<sup>2</sup> (12,142 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1341: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,301.50 ft (701.497 m) National Geodetic Vertical Datum of 1929. July 1, 1924, to Aug. 31, 1925, and Apr. 21 to Dec. 15, 1938, nonrecording gage; Dec. 16, 1938, to Sept. 30, 1953, water-stage recorder and nonrecording gages; all at site 300 ft (91 m) upstream at same datum.

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

AVERAGE DISCHARGE.--26 years (water years 1939-64) prior to completion of Lake Meredith, 549 ft<sup>3</sup>/s (15.55 m<sup>3</sup>/s), 397,800 acre-ft/yr (490 hm<sup>3</sup>/yr); 16 years (water years 1965-80) regulated, 92.7 ft<sup>3</sup>/s (2.625 m<sup>3</sup>/s), 67,160 acre-ft/yr (82.8 hm<sup>3</sup>/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,000 ft<sup>3</sup>/s (198 m<sup>3</sup>/s) May 29 at 0300 hours, gage height, 7.75 ft (2.362 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	50	44	60	120	60	91	270	66	4.6	.03	.03
2	3.2	82	41	62	141	50	97	270	47	3.9	.01	.04
3	3.2	52	45	62	211	60	108	239	41	3.1	.02	.03
4	2.7	46	44	65	144	70	108	189	33	2.9	.01	.02
5	2.5	39	44	67	97	65	99	151	36	2.0	.01	.01
6	2.5	34	42	67	72	70	87	135	31	1.8	.01	.01
7	2.5	32	40	67	81	74	77	108	27	1.2	.01	.01
8	2.8	35	38	60	101	72	65	95	33	1.1	.00	.01
9	2.4	74	38	55	101	70	65	99	30	.88	.00	.01
10	2.2	74	37	50	127	68	70	106	27	.80	.00	.05
11	2.2	73	37	58	141	75	64	95	21	.66	.00	.05
12	2.2	58	34	58	151	91	53	79	17	.60	.00	.05
13	2.2	52	34	58	113	95	53	74	35	.40	.00	.05
14	2.2	48	34	58	121	91	53	72	45	.34	.00	.05
15	2.2	50	37	59	110	68	53	151	41	.24	.08	.04
16	2.3	53	38	59	90	62	53	224	33	.24	.08	.03
17	2.4	56	41	59	90	57	50	321	29	.20	.04	.02
18	2.6	58	48	62	97	56	50	774	27	.13	.04	.01
19	2.9	57	47	87	97	54	47	519	29	.08	.02	.01
20	2.5	61	46	135	104	57	48	347	27	.08	.02	.00
21	2.4	55	46	160	95	54	50	265	25	.16	.02	.00
22	2.3	51	49	138	87	51	50	182	23	.13	.02	.00
23	2.4	50	48	121	83	56	48	153	23	.13	.02	.00
24	2.7	49	52	110	79	75	527	138	22	.10	.02	.00
25	3.2	49	53	97	75	81	979	119	16	.13	.02	.00
26	3.5	48	56	80	74	81	347	106	13	.09	.02	.00
27	3.4	48	57	60	75	124	221	99	12	.09	.02	.00
28	3.6	48	62	60	74	340	163	377	11	.13	.02	.00
29	4.5	53	58	70	72	259	131	2060	9.6	.08	.02	.01
30	18	45	58	80	---	178	190	481	7.0	.04	.02	.06
31	23	---	58	100	---	113	---	168	---	.04	.02	---
TOTAL	120.7	1580	1406	2384	3023	2777	4097	8466	836.6	26.37	.60	.60
MEAN	3.89	52.7	45.4	76.9	104	89.6	137	273	27.9	.85	.019	.020
MAX	23	82	62	160	211	340	979	2060	66	4.6	.08	.06
MIN	2.2	32	34	50	72	50	47	72	7.0	.04	.00	.00
AC-FT	239	3130	2790	4730	6000	5510	8130	16790	1660	52	1.2	1.2

CAL YR 1979 TOTAL 35754.99 MEAN 98.0 MAX 4540 MIN .10 AC-FT 70920  
WTR YR 1980 TOTAL 24717.87 MEAN 67.5 MAX 2060 MIN .00 AC-FT 49030



## ARKANSAS RIVER BASIN

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07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to current year.

WATER TEMPERATURES: October 1974 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,480 micromhos Aug. 12, 1979; minimum daily, 461 micromhos Sept. 8, 1980. WATER TEMPERATURES: Maximum daily, 39.0°C June 28, 1979; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,100 micromhos Nov. 6; minimum daily, 461 micromhos Sept. 8. WATER TEMPERATURES: Maximum daily, 37.0°C July 2; minimum daily, 0.0°C on many days during winter months.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
OCT 30...	1030	18	1750	7.6	10.0	7.5	10.6	102	21	>16000	>17000
NOV 27...	1500	48	3600	8.2	7.0	6.5	15.8	144	2.7	K12	48
DEC 18...	1130	43	3800	8.1	.5	10	17.1	128	4.6	190	1000
JAN 15...	1140	59	3300	8.3	7.0	34	17.4	160	1.5	K10	31
FEB 26...	1300	73	3500	8.2	13.5	60	17.0	177	1.3	K8	K12
MAR 25...	1630	81	3250	8.1	16.0	8.0	12.9	145	5.0	K8	K18
APR 22...	1630	50	3600	8.3	24.0	6.7	12.3	162	3.0	120	32
MAY 13...	1100	76	3550	8.3	16.0	8.9	13.4	149	4.0	96	22
JUN 24...	1415	21	3620	8.2	35.5	3.4	8.2	130	5.5	66	30
JUL 22...	1245	.25	850	8.0	32.0	.30	11.4	168	1.1	580	730
AUG 19...	1130	.06	800	7.8	27.0	38	15.2	208	1.8	400	720
SEP 02...	1415	.03	533	8.0	33.0	2.7	19.4	289	3.0	400	270

DATE	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)
OCT 30...	360	150	81	37	310	7.2	16	250	0	120	500
NOV 27...	630	420	150	62	500	8.7	29	260	0	320	850
DEC 18...	680	440	160	69	510	8.5	22	280	10	310	870
JAN 15...	560	330	130	56	470	8.7	19	280	0	280	730
FEB 26...	600	370	140	60	480	8.6	7.3	280	0	290	640
MAR 25...	540	320	120	59	420	7.8	14	270	0	230	730
APR 22...	610	420	140	64	550	9.7	20	240	0	300	920
MAY 13...	610	380	140	62	460	8.1	3.3	280	0	270	830
JUN 24...	530	360	110	61	520	9.9	19	200	0	260	910
JUL 22...	210	5	58	17	78	2.3	3.9	240	0	27	110
AUG 19...	210	4	59	16	78	2.3	3.3	240	0	24	120
SEP 02...	180	8	53	11	37	1.2	3.0	220	0	17	56

## ARKANSAS RIVER BASIN

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

[illegible]

## ARKANSAS RIVER BASIN

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07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, SUS- PENDEDED RECOV. (UG/L AS CR)	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDEDED RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDEDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDEDED RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 30...	4	0	2	0	<3	0	0	0	910	800	110
DEC 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 26...	0	0	0	0	0	3	3	0	570	560	10
MAR 25...	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	--	--	--	--	--	--	--	--	--	--	--
JUN 24...	0	0	0	0	0	6	4	2	290	280	10
AUG 19...	20	0	1	--	<3	4	3	1	220	200	20
SEP 02...	--	--	--	--	--	--	--	--	--	--	--

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDEDED RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGANESE, SUS- PENDEDED RECOV- ERABLE (UG/L AS MN)	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY, TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY, SUS- PENDEDED RECOV- ERABLE (UG/L AS HG)	MERCURY, DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDEDED RECOV- ERABLE (UG/L AS NI)
OCT 30...	3	3	0	130	60	70	.0	.0	.8	6	6
DEC 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 26...	9	9	0	50	50	0	.0	.0	.4	6	6
MAR 25...	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	--	--	--	--	--	--	--	--	--	--	--
JUN 24...	4	3	1	50	50	0	.0	.0	.0	7	0
AUG 19...	3	1	2	40	0	50	.1	.0	.1	5	5
SEP 02...	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUS- PENDEDED TOTAL (UG/L AS SE)	SELENIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDEDED RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDEDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 30...	0	0	0	0	0	0	0	20	20	5
DEC 18...	--	--	--	--	0	--	--	--	--	--
FEB 26...	0	1	0	1	0	0	0	10	0	10
MAR 25...	--	--	--	--	0	--	--	--	--	--
MAY 13...	--	--	--	--	0	--	--	--	--	--
JUN 24...	8	1	0	1	0	0	0	20	10	10
AUG 19...	0	0	0	1	0	0	0	20	20	4
SEP 02...	--	--	--	--	0	--	--	--	--	--

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/L)	PCB, 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)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 27...	1500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	1300	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	D1- AZINON, TOTAL (UG/L)	D1- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	D1- ELDRIN, TOTAL (UG/L)	D1- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL (UG/L)
NOV 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	METHYL TK1- THION, TOTAL (UG/L)	METHYL TK1- THION, TOT. IN BOTTOM MATT. (UG/KG)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL (UG/KG)	TOX- APHENE, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/KG)	TOXA- PHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL (UG/KG)	TK1- THION, TOTAL (UG/L)	TK1- THION, TOTAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	ND	--	ND	--	ND	--	ND	--	ND	--	--	--	--



07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	NOV 27,79 1500	MAR 1,80 0000	MAY 13,80 1100	JUN 24,80 1415
TOTAL CELLS/ML	29000	7800	88000	110000
DIVERSITY: DIVISION	1.6	1.6	1.0	0.2
..CLASS	1.6	1.6	1.0	0.2
...ORDER	1.7	1.9	1.4	0.3
...FAMILY	2.1	2.7	1.6	1.7
...GENUS	2.2	3.1	1.6	1.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...CHLORACIACEAE								
...SCHROEDERIA	--	-	--	-	--	-	*	0
...HYDRODICTYACEAE								
...PEDIASTRUM	--	-	--	-	--	-	31000#	29
...MICRACTINIACEAE								
...MICRACTINIUM	--	-	--	-	--	-	11000	11
...OOCYSTACEAE								
...ANKISTRODESMUS	--	-	180	2	--	-	--	-
...CHLORELLA	--	-	540	7	--	-	--	-
...CHODATELLA	910	3	360	5	--	-	*	0
...DICTYOSPHAERIUM	--	-	--	-	650	1	--	-
...OOCYSTIS	--	-	--	-	--	-	1100	1
...SELENASTRUM	--	-	--	-	--	-	--	-
...TETRAEDRON	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
...CRUCIGENIA	--	-	--	-	--	-	880	1
...SCENEDESMUS	7600#	26	3100#	40	43000#	49	57000#	54
...VOLVOCALES								
...CHLAMYDOMONADACEAE								
...CHLAMYDOMONAS	--	-	310	4	5200	6	660	1
...PHACOTACEAE								
...PTEROMONAS	--	-	--	-	--	-	*	0
...VOLVOCAEAE								
...PANDORINA	--	-	--	-	--	-	--	-
...ZYGNEMATALES								
...DESMIDIACEAE								
...CLOSTERIUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...CHAETOCERACEAE								
...CHAETOCEROS	--	-	--	-	2000	2	--	-
...COSCINODISCACEAE								
...CYCLOTELLA	460	2	360	5	35000#	40	660	1
...STEPHANODISCUS	--	-	--	-	650	1	--	-
...PENNALES								
...ACHNANTHACEAE								
...ACHNANTHES	*	0	45	1	650	1	--	-
...CYMBELLACEAE								
...AMPHORA	--	-	--	-	--	-	--	-
...EUNOTIACEAE								
...EUNOTIA	--	-	90	1	--	-	--	-
...GOMPHONEMACEAE								
...GOMPHONEMA	--	-	220	3	--	-	--	-
...NAVICULACEAE								
...MASTOGLIOIA	230	1	--	-	--	-	--	-
...NAVICULA	1300	4	400	5	--	-	--	-
...PLAGIOTROPIS	800	3	400	5	--	-	--	-
...NITZSCHIA	5800#	20	270	3	--	-	880	1
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
...CRYPTOMONADACEAE								
...CRYPTOMONAS	*	0	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
...CHROOCOCCACEAE								
...AGMENELLUM	--	-	--	-	--	-	--	-
...ANACYSTIS	11000#	40	--	-	--	-	1800	2
...HORMOGONALES								
...NOSTOCACEAE								
...ANABAENA	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
...LYNGBYA	--	-	--	-	--	-	--	-
...OSCILLATORIA	--	-	--	-	--	-	--	-
...SCHIZOTHRIX	--	-	1100	14	--	-	--	-
EUGLENOPHYTA (EUGLENIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
...EUGLENACEAE								
...EUGLENA	*	0	270	3	650	1	--	-
...TRACHELONONAS	--	-	130	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## ARKANSAS RIVER BASIN

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 22,80 1245	AUG 19,80 1130	SEP 2,80 1415
TOTAL CELLS/ML	23000	4700	3800
DIVERSITY: DIVISION	0.5	0.7	1.2
..CLASS	0.5	0.7	1.2
..ORDER	1.0	1.7	2.1
...FAMILY	1.1	2.3	2.4
....GENUS	1.3	2.5	2.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
...SCHROEDERIA	--	-	--	-	--	-
...HYDRODICTYACEAE						
...PEDIASTRUM	180	1	91	2	--	-
...MICRACTINIACEAE						
...MICRACTINIUM	--	-	--	-	--	-
...OOCYSTACEAE						
...ANKISTKODESMUS	--	-	--	-	--	-
...CHLORELLA	--	-	--	-	--	-
...CHODATELLA	--	-	--	-	--	-
...DICTYOSPHAERIUM	--	-	--	-	--	-
...OOCYSTIS	--	-	--	-	--	-
...SELENASTRUM	--	-	--	-	29	1
...TETRAEDRON	--	-	*	0	29	1
...SCENEDESMACEAE						
...CRUCIGENIA	--	-	--	-	--	-
...SCENEDESMUS	350	2	52	1	320	8
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	300	1	26	1	200	5
...PHACOTACEAE						
...PTEROMONAS	--	-	--	-	--	-
...VOLVOCAEAE						
...PANDORINA	--	-	--	-	230	6
..ZYGNEATALES						
...DESMIDIACEAE						
...GLOSTERIUM	--	-	--	-	29	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...CHAETOCERACEAE						
...CHAETOCERUS	--	-	--	-	--	-
...COSCINODISCACEAE						
...CYCLOTELLA	200	1	140	3	160	4
...STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
...ACHNANTHES	--	-	--	-	--	-
...CYMBELLACEAE						
...AMPHORA	--	-	*	0	--	-
...EUNOTIACEAE						
...EUNOTIA	--	-	--	-	--	-
...GOMPHONEMACEAE						
...GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
...MASTOGLAIA	--	-	--	-	--	-
...NAVICULA	230	1	130	3	72	2
...PLAGIOTROPIS	--	-	--	-	--	-
...NITZSCHIAEAE						
...NITZSCHIA	430	2	180	4	140	4
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
...CRYPTOMONAS	*	0	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	600	3	280	6	--	-
...ANACYSTIS	1800	8	1300#	27	1800#	49
..HORMOGONALES						
...NOSTOCACEAE						
...ANABAENA	--	-	740#	16	--	-
...OSCILLATORIACEAE						
...LYNGBYA	710	3	--	-	--	-
...OSCILLATORIA	18000#	79	1700#	37	720#	19
...SCHIZOTHRIX	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
...EUGLENA	--	-	--	-	--	-
...TRACHELOMONAS	*	0	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## ARKANSAS RIVER BASIN

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07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	120.7	2070	1250	408	450	147	160	51	400
NOV.	1979	1580	3570	2160	9200	840	3600	310	1320	580
DEC.	1979	1406	3270	1980	7510	760	2890	270	1040	550
JAN.	1980	2384	3080	1860	12000	710	4560	250	1630	530
FEB.	1980	3023	3030	1830	14900	700	5680	250	2030	530
MAR.	1980	2777	2820	1700	12800	640	4810	230	1710	500
APR.	1980	4097	2390	1440	16000	540	5930	190	2080	440
MAY	1980	8466	2090	1260	28900	460	10600	160	3690	390
JUNE	1980	836.6	2980	1800	4070	680	1550	240	553	520
JULY	1980	26.37	2340	1420	101	530	38	190	13	430
AUG.	1980	0.60	639	388	0.6	130	0.2	41	0.07	150
SEPT	1980	0.60	592	360	0.6	120	0.2	38	0.06	140
TOTAL		24717.87	**	**	106000	**	39800	**	14100	**
WTD. AVG.		68	2620	1590	**	600	**	210	**	470

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2100	2930	3450	3210	3320	3220	2630	2410	2320	3160	552	502
2	2050	2530	3410	2740	3150	2990	2580	2440	2660	3070	548	487
3	1930	2880	3480	2930	2760	3060	2700	2500	2820	2810	539	491
4	1830	3630	3580	3100	2940	3380	2920	2570	3010	2720	527	490
5	1850	3900	3380	3180	3000	3050	2980	2730	3080	2700	538	487
6	1810	4100	3400	3100	3010	3100	3290	3010	3200	2520	534	490
7	1720	4050	3340	3120	2960	3240	3200	3220	3250	2200	523	488
8	1730	3850	3350	3080	2750	3320	3130	3270	2700	1820	---	461
9	1700	3200	3390	3020	2770	3190	3290	3180	2990	1050	---	493
10	1640	3500	3400	3040	2570	3240	3250	3360	3100	807	---	488
11	1700	3580	3450	3150	2830	2920	3490	3260	3170	670	---	478
12	1810	3800	3390	3370	2750	2840	3350	3470	3260	561	---	487
13	1800	3830	3360	3130	2820	2940	3260	3520	3550	577	---	490
14	1820	3870	3330	3140	2990	2920	3320	3550	2250	570	---	540
15	1830	3860	3380	3180	2860	3080	3190	2950	2480	571	732	612
16	1890	3840	3440	3190	3180	3180	3330	2640	2500	590	760	537
17	1880	3820	3580	3090	3120	3280	3370	2520	2530	578	785	587
18	1910	3790	3120	3110	3080	3320	3210	1600	2800	591	782	607
19	2050	3740	3090	3050	3290	3340	3070	1840	3160	596	800	687
20	2190	3680	3200	2780	3180	3380	3310	1870	3530	588	780	---
21	2070	3700	3310	2600	3190	3340	3340	2480	3700	895	622	---
22	1990	3680	3410	2760	3200	3300	3550	2640	3820	783	558	---
23	1860	3670	3120	2910	3220	3230	3580	2930	3380	702	480	---
24	1930	3620	3110	3160	3230	2970	2240	3190	3570	674	498	---
25	2110	3600	3090	3170	3250	3090	1510	3400	3620	646	497	---
26	2170	3610	3140	3250	3370	2900	1830	3500	3380	638	480	---
27	2280	3600	3150	3360	3330	2280	2280	3350	3420	462	496	---
28	2220	3470	3090	3470	3380	2120	2540	2920	3440	500	498	---
29	2250	3520	3040	3440	3450	2280	2790	1070	3390	520	510	1300
30	1870	3480	3080	3400	---	2340	2070	1320	3150	517	582	1160
31	2580	---	3050	3350	---	2610	---	1670	---	519	555	---
MEAN	1950	3610	3290	3120	3070	3010	2950	2720	3110	1150	591	589

## ARKANSAS RIVER BASIN

07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33.0	6.0	2.0	4.0	.0	---	---	16.0	25.0	28.0	30.0	29.0
2	33.0	10.0	4.0	3.0	.0	4.0	10.0	17.0	30.0	37.0	30.0	30.0
3	20.0	11.0	7.0	3.0	.0	6.0	---	20.0	27.0	35.0	31.0	30.0
4	21.0	12.0	9.0	4.0	4.0	11.0	15.0	23.0	30.0	34.0	---	30.0
5	23.0	19.0	5.0	3.0	7.0	11.0	16.0	23.0	27.0	34.0	---	30.0
6	10.0	---	4.0	1.0	5.0	12.0	15.0	26.0	31.0	35.0	---	30.0
7	24.0	10.0	7.0	.0	---	12.0	18.0	20.0	30.0	33.0	---	30.0
8	24.0	8.0	5.0	.0	.0	8.0	13.0	16.0	24.0	34.0	---	28.0
9	16.0	7.0	7.0	.0	.0	14.0	16.0	20.0	27.0	32.0	---	25.0
10	20.0	4.0	10.0	7.0	1.0	14.0	18.0	17.0	25.0	34.0	---	20.0
11	25.0	5.0	1.0	4.0	5.0	9.0	13.0	14.0	28.0	30.0	---	20.0
12	20.0	8.0	1.0	4.0	2.0	12.0	10.0	17.0	30.0	33.0	---	26.0
13	20.0	10.0	2.0	10.0	7.0	14.0	11.0	21.0	27.0	30.0	---	20.0
14	---	11.0	4.0	9.0	5.0	10.0	10.0	16.0	31.0	28.0	---	---
15	25.0	10.0	---	7.0	.0	17.0	20.0	14.0	31.0	24.0	---	23.0
16	23.0	12.0	.0	8.0	.0	12.0	15.0	17.0	---	28.0	---	22.0
17	22.0	10.0	.0	7.0	---	13.0	14.0	15.0	25.0	24.0	30.0	23.0
18	20.0	---	1.0	6.0	5.0	14.0	---	20.0	28.0	25.0	30.0	26.0
19	20.0	12.0	4.0	---	11.0	15.0	10.0	24.0	27.0	25.0	30.0	25.0
20	21.0	8.0	4.0	.0	11.0	15.0	20.0	20.0	26.0	---	30.0	---
21	20.0	6.0	4.0	---	13.0	14.0	20.0	24.0	27.0	29.0	29.0	---
22	16.0	---	6.0	3.0	15.0	13.0	22.0	25.0	22.0	25.0	27.0	---
23	17.0	6.0	1.0	5.0	12.0	---	---	25.0	34.0	25.0	30.0	---
24	18.0	8.0	5.0	7.0	10.0	12.0	17.0	27.0	28.0	25.0	30.0	---
25	21.0	7.0	6.0	6.0	12.0	10.0	16.0	28.0	34.0	29.0	30.0	---
26	20.0	5.0	4.0	---	14.0	17.0	10.0	23.0	30.0	30.0	28.0	---
27	15.0	5.0	5.0	---	15.0	15.0	18.0	21.0	34.0	27.0	28.0	---
28	16.0	3.0	4.0	.0	17.0	14.0	19.0	25.0	36.0	28.0	30.0	---
29	15.0	.0	1.0	---	2.0	5.0	23.0	25.0	30.0	30.0	30.0	20.0
30	8.0	1.0	.0	---	---	6.0	14.0	27.0	27.0	30.0	30.0	24.0
31	7.0	---	3.0	.0	---	15.0	---	22.0	---	30.0	20.0	---
MEAN	20.0	8.0	4.0	4.0	6.5	12.0	15.5	21.0	28.5	29.5	29.0	26.0

## 07235000 WOLF CREEK AT LIPSCOMB, TX

LOCATION (revised).--Lat 36°14'19", long 100°16'31", Lipscomb County, Hydrologic Unit 11100203, on right bank at downstream side of State Highway 305, 0.3 mi (0.5 km) north of Lipscomb, 0.6 mi (1.0 km) downstream from Sand Creek, 2 mi (3 km) upstream from Plum Creek, and 61.2 mi (98.5 km) upstream from mouth.

DRAINAGE AREA.--697 mi<sup>2</sup> (1,805 km<sup>2</sup>), of which 222 mi<sup>2</sup> (575 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 2,371.29 ft (722.769 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 25, 1938, nonrecording gage, Feb. 25, 1938, to Sept. 30, 1942, water-stage recorder at present site at datum 5.77 ft (1.759 m) higher.

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

AVERAGE DISCHARGE.--24 years (water years 1938-42, 1962-80), 17.7 ft<sup>3</sup>/s (0.501 m<sup>3</sup>/s), 0.51 in/yr (13 mm/yr), 12,820 acre-ft/yr (15.8 hm<sup>3</sup>/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft<sup>3</sup>/s (14.2 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Apr. 25	0015	*2,220	62.9	8.47	2.582
May 30	0200	1,320	37.4	7.50	2.286

Minimum discharge, 0.85 ft<sup>3</sup>/s (0.024 m<sup>3</sup>/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	4.0	2.2	3.7	4.4	5.4	8.0	46	64	6.4	2.1	1.8
2	1.0	3.2	2.3	3.7	4.3	5.5	7.8	41	44	6.2	2.1	1.8
3	1.1	2.6	2.3	3.6	4.7	4.4	8.1	36	35	6.2	2.1	1.4
4	1.1	2.6	2.3	3.6	4.6	4.2	7.4	32	31	6.0	2.0	1.3
5	1.3	2.4	2.3	4.0	4.4	4.1	7.1	30	27	5.8	2.0	1.3
6	1.3	2.3	2.3	4.3	4.3	4.0	6.8	28	24	5.8	2.0	1.3
7	1.3	2.3	2.3	4.1	4.4	4.0	6.4	26	23	5.6	1.8	1.3
8	1.3	2.3	2.2	4.3	4.3	4.0	6.1	24	20	5.4	1.8	1.3
9	1.3	3.2	2.3	4.2	4.4	4.1	5.7	24	19	5.0	1.8	1.3
10	1.3	3.0	2.4	4.2	4.4	4.1	5.5	22	18	4.8	1.6	1.1
11	1.3	3.0	2.5	3.8	4.9	4.1	5.5	21	17	4.6	1.6	1.0
12	1.3	2.8	2.4	3.7	4.8	4.4	5.4	20	16	4.4	1.6	1.0
13	1.3	2.6	2.5	3.6	4.8	4.5	5.3	18	15	4.2	1.6	1.0
14	1.1	2.3	2.6	3.6	4.7	4.3	5.1	18	14	3.9	2.0	1.0
15	1.3	2.3	2.5	3.5	4.6	4.3	5.0	21	13	3.7	2.0	1.0
16	1.3	2.4	2.8	3.5	4.4	4.2	4.9	25	12	3.5	2.0	1.0
17	1.3	2.3	2.9	3.4	4.2	4.2	4.8	21	12	3.3	2.0	1.0
18	1.4	2.3	2.7	3.5	4.9	4.0	4.7	20	12	3.2	2.0	1.1
19	1.4	2.1	2.8	5.2	4.7	3.8	4.6	18	11	3.0	2.0	1.0
20	1.3	2.2	2.8	5.3	4.6	3.7	4.6	17	11	3.0	2.0	1.1
21	1.1	2.2	3.5	5.8	4.5	3.8	4.5	16	11	4.2	2.0	1.0
22	1.1	2.3	13	5.9	4.4	3.8	4.4	15	10	4.2	2.0	1.1
23	1.1	2.2	10	5.7	4.4	3.9	5.0	14	9.7	3.5	2.0	1.1
24	1.1	2.2	8.3	5.5	4.2	4.2	4.53	13	9.2	3.2	2.0	1.1
25	1.3	2.2	6.6	5.1	4.1	4.3	1140	12	8.8	2.8	2.0	1.3
26	1.4	2.2	5.5	4.8	4.0	4.5	146	11	7.9	2.6	2.0	1.3
27	1.4	2.2	4.9	4.8	4.0	6.4	66	11	7.4	2.6	2.0	1.3
28	1.4	2.2	4.6	4.6	4.0	12	49	16	7.0	2.6	2.0	1.3
29	1.4	2.2	4.3	4.7	4.0	12	41	60	7.0	2.4	2.0	1.4
30	4.2	2.1	4.0	4.8	---	10	46	636	6.8	2.3	2.0	1.6
31	5.2	---	3.8	4.8	---	8.8	---	133	---	2.1	1.8	---
TOTAL	45.8	74.2	117.9	135.3	128.4	159.0	2073.7	1445	522.8	126.5	59.9	36.6
MEAN	1.48	2.47	3.80	4.36	4.43	5.13	69.1	46.6	17.4	4.08	1.93	1.22
MAX	5.2	4.0	13	5.9	4.9	12	1140	636	64	6.4	2.1	1.8
MIN	1.0	2.1	2.2	3.4	4.0	3.7	4.4	11	6.8	2.1	1.6	1.0
CFSM	.003	.005	.008	.009	.009	.011	.15	.10	.04	.009	.004	.003
IN.	.00	.01	.01	.01	.01	.01	.16	.11	.04	.01	.00	.00
AC-FT	91	147	234	268	255	315	4110	2870	1040	251	119	73

CAL YR 1979	TOTAL	5784.90	MEAN 15.8	MAX 2010	MIN .80	CFSM .03	IN .45	AC-FT 11470
WTR YR 1980	TOTAL	4925.10	MEAN 13.5	MAX 1140	MIN 1.0	CFSM .03	IN .39	AC-FT 9770



## ARKANSAS RIVER BASIN

07235000 WOLF CREEK AT LIPSCOMB, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: May 1980.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
MAY 12...	1515	20	1600	8.3	22.0	5	5.6	11.4	142	2.5	18

DATE	TIME	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
MAY 12...	24	320	59	78	30	200	4.9	5.8	310	0	85	

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
MAY 12...	280	1.7	26	863	25	2	.03	.52	.020	8.2

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY 12...	1515	5	300	<1	0	2	50

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY 12...	0	30	.1	0	0	40

## RED RIVER BASIN

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

LOCATION.--Lat 34°50'15", long 101°24'49", Armstrong County, Hydrologic Unit 11120103, on left bank at downstream side of bridge on Farm Road 284, 13 mi (21 km) northeast of Wayside, 26 mi (42 km) south of Claude, and at mile 1,145 (1,842 km).

DRAINAGE AREA.--4,211 mi<sup>2</sup> (10,906 km<sup>2</sup>), of which 3,281 mi<sup>2</sup> (8,498 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 2,463.74 ft (750.948 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--13 years, 30.8 ft<sup>3</sup>/s (0.872 m<sup>3</sup>/s), 22,310 acre-ft/yr (27.5 hm<sup>3</sup>/yr).

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,000 ft<sup>3</sup>/s (170 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
June 11	0045	*16,200	459	10.80	3.292
Sept. 13	2000	9,080	257	10.18	3.103

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	6.6	.60	.61	.90	.81	.92	5.6	.43	1.0	.00	.00
2	.04	3.4	.60	.69	.90	.72	4.5	4.9	.16	.92	.00	.00
3	.05	1.5	.60	.58	.90	.94	.93	2.2	.10	1.3	.00	.00
4	.05	.87	.54	.59	.90	.72	.90	1.6	3.4	1.3	.00	.00
5	.06	.65	.54	.66	.66	.59	.72	2.5	153	.44	.00	.00
6	.05	.58	.54	.59	.63	.75	.48	2.1	2.0	.24	4.8	.02
7	.05	.62	.54	.46	1.9	.55	.45	1.2	.27	.16	.41	.01
8	.04	.98	.54	.56	2.1	.46	.38	8.0	.10	.08	.08	.00
9	.04	3.2	.66	.81	1.7	.55	.55	1.1	.08	.03	.03	.22
10	.06	.87	.60	1.1	1.5	.67	.62	.70	115	.02	.00	.11
11	.06	.60	.54	1.1	1.6	.92	.49	.34	2920	.01	.00	.02
12	.06	.59	.60	1.1	1.0	.53	.55	.24	292	.00	.00	.00
13	.06	.55	.73	1.3	.89	.33	.63	.29	95	.00	.00	449
14	.05	.54	.60	1.5	.73	.48	.64	7.8	57	.00	.33	190
15	.07	.51	.66	1.5	.70	.53	.68	276	36	.00	101	7.1
16	.04	.52	.81	1.8	.60	.48	.62	33	25	.00	1.8	1.7
17	.06	.52	.81	2.1	.40	.35	.54	5.6	22	.00	.29	.90
18	.09	.47	.81	3.1	.30	.47	.64	2.4	17	.00	.15	.67
19	.07	.41	.66	3.9	.40	.50	.66	1.6	11	.00	.40	.41
20	.04	.46	.66	5.0	.54	.47	.60	1.3	8.5	.00	.20	.24
21	.03	.22	.66	3.0	1.1	.90	.63	.95	54	.24	.08	.13
22	.03	.25	.60	1.4	.95	1.5	4.1	.72	8.0	.22	.42	.03
23	.04	.54	.49	.88	.84	2.6	11	.57	5.8	.08	.09	.08
24	.06	.60	.54	.68	.93	3.2	448	.37	3.3	.01	.03	.12
25	.06	.60	.54	.56	.84	5.0	45	.26	2.4	.00	.01	.15
26	.06	.54	.49	.42	.82	7.5	12	.72	2.5	.00	.00	2.0
27	.05	.54	2.0	.39	.72	55	5.7	4.0	1.8	.00	.00	2.8
28	.06	.49	1.3	.30	.80	40	3.4	60	1.3	.00	.00	1.5
29	.24	.60	.58	.40	.87	11	2.2	41	1.6	.00	.00	1.0
30	81	.60	.53	.60	---	2.0	24	2.6	1.1	.00	.00	.99
31	8.2	---	.56	.73	---	1.3	---	.84	---	.00	.00	---
TOTAL	90.90	29.42	20.93	38.41	27.12	141.82	572.53	470.50	3839.84	29.81	110.12	659.20
MEAN	2.93	.98	.68	1.24	.94	4.57	19.1	15.2	128	.96	3.55	22.0
MAX	81	6.6	2.0	5.0	2.1	55	448	276	2920	24	101	449
MIN	.03	.22	.49	.30	.30	.33	.38	.24	.08	.00	.00	.00
AC-FT	180	58	42	76	54	281	1140	933	7620	59	218	1310
CAL YR 1979	TOTAL	3638.22		MEAN	9.97	MAX	449	MIN	.02	AC-FT	7220	
WTR YR 1980	TOTAL	6030.60		MEAN	16.5	MAX	2920	MIN	.00	AC-FT	11960	

WATER-QUALITY RECORDS

PERIOD OF DAILY

SPECIFIC CONDUCTANCE: October 1968 to current year.

WATER TEMPERATURES: October 1968 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

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

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

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 43.700 micromhos Aug. 14; minimum daily, 597 micromhos June 11.

WATER TEMPERATURES: Maximum daily, 36.0°C June 6; minimum daily, 0.0°C Dec. 16, 17, Jan. 28-30.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

[illegible][illegible]

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, ORGANIC DIS-SOLVED (MG/L AS N)	
DATE											
OCT 31...	.5	9.1	1850	1880	.77	.75	.180	--	4.0	--	
NOV 29...	.6	27	25000	23800	.07	.06	.230	.150	.33	.19	
DEC 19...	.7	27	13800	12600	.11	.11	.220	.220	.22	.23	
JAN 16...	.9	26	15900	15000	.03	.03	.090	.080	.00	.00	
FEB 28...	.8	25	15500	15200	.06	.06	.100	.100	.06	.07	
MAR 27...	.7	19	15500	15400	.34	.03	.480	.220	.62	.26	
APR 24...	.6	9.8	467	522	.59	.56	.260	.250	27	.32	
MAY 14...	.8	27	19100	17800	.03	.02	.100	.000	.29	.30	
JUN 26...	1.1	26	8450	7620	.07	.07	.140	.140	.66	.27	
JUL 24...	.7	6.2	23200	23400	.01	.01	.240	.250	.39	.35	
AUG 20...	.7	18	27200	26400	2.0	.07	.460	.000	.03	.67	
SEP 04...	--	--	--	--	--	--	--	--	--	--	
	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED (MG/L AS C)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
DATE											
OCT 31...	4.2	.89	2.900	.010	--	20	.6	--	--	--	
NOV 29...	.56	.34	.010	.030	3.7	--	--	6	.01	39	
DEC 19...	.44	.45	.010	.020	2.4	--	--	19	.03	73	
JAN 16...	.02	.08	.000	.020	3.9	--	--	32	.16	33	
FEB 28...	.16	.17	.010	.000	--	2.3	.6	37	.09	56	
MAR 27...	1.1	.48	.070	.020	3.3	--	--	139	6.8	79	
APR 24...	27	.57	7.700	.010	290	--	--	68600	19300	88	
MAY 14...	.39	.30	.010	.010	3.4	--	--	5	.01	61	
JUN 26...	.80	.41	.000	.000	--	4.1	.4	117	.98	82	
JUL 24...	.63	.60	.010	.010	2.3	--	--	73	.02	64	
AUG 20...	.49	.67	.030	.020	--	4.4	.3	26	.00	86	
SEP 04...	--	--	--	--	--	--	--	--	--	--	
	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUS-PENDED RECOVERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUS-PENDED RECOVERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	
DATE	TIME										
OCT 31...	1130	30	26	4	1200	800	400	0	0	0	88
DEC 19...	1615	--	--	--	--	--	--	--	--	--	--
FEB 28...	0915	3	1	2	500	200	300	0	0	0	10
MAR 27...	1315	--	--	--	--	--	--	--	--	--	--
MAY 14...	1400	--	--	--	--	--	--	--	--	--	--
JUN 26...	1230	4	0	4	100	0	200	0	0	1	0
AUG 20...	1530	5	1	4	200	0	300	0	0	0	50

## RED RIVER BASIN

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, SUS- PENDED RECOV. (UG/L AS CR)	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDED RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 31...	88	0	63	63	0	--	--	5	53000	53000	20
DEC 19...	--	--	--	--	--	--	--	--	--	--	--
FEB 28...	0	20	0	0	0	5	5	0	210	120	90
MAR 27...	--	--	--	--	--	--	--	--	--	--	--
MAY 14...	--	--	--	--	--	--	--	--	--	--	--
JUN 26...	0	10	0	0	0	3	1	2	50	20	30
AUG 20...	20	30	3	2	1	8	7	1	300	140	160

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDED RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGANESE, SUS- PENDED RECOV- ERABLE (UG/L AS MN)	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY, TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY, SUS- PENDED RECOV- ERABLE (UG/L AS HG)	MERCURY, DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDED RECOV- ERABLE (UG/L AS NI)
OCT 31...	90	90	0	2800	2800	50	1.2	.0	1.4	160	160
DEC 19...	--	--	--	--	--	--	--	--	--	--	--
FEB 28...	0	0	0	--	--	380	.0	.0	.0	6	6
MAR 27...	--	--	--	--	--	--	--	--	--	--	--
MAY 14...	--	--	--	--	--	--	--	--	--	--	--
JUN 26...	2	1	1	190	10	180	.0	.0	.0	1	0
AUG 20...	3	1	2	1100	100	1000	.0	.0	.4	6	6

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUS- PENDED TOTAL (UG/L AS SE)	SELENIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDED RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 31...	0	3	1	2	0	0	0	360	350	10
DEC 19...	--	--	--	--	0	--	--	--	--	--
FEB 28...	0	1	0	1	2	2	0	--	--	40
MAR 27...	--	--	--	--	0	--	--	--	--	--
MAY 14...	--	--	--	--	0	--	--	--	--	--
JUN 26...	4	1	0	1	0	0	0	10	0	10
AUG 20...	0	2	1	1	0	0	0	60	20	40



## RED RIVER BASIN

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

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	NOV 29,79 0945	MAK 1,80 0000	MAY 14,80 1400	JUN 26,80 1230	JUL 24,80 0945	AUG 20,80 1530				
TOTAL CELLS/ML	290	19000	19000	870	610	1100				
DIVERSITY: DIVISION	0.0	0.0	0.0	1.5	0.8	0.7				
..CLASS	0.0	0.0	0.0	1.5	0.8	0.7				
...ORDER	0.0	0.0	0.0	2.1	0.8	0.7				
...FAMILY	0.9	0.7	0.2	2.2	0.9	1.0				
....GENUS	0.9	0.7	0.2	2.6	0.9	1.0				
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
..CHLOROPHYCEAE										
...CHLOROCOCCALES										
....OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	--	-	13	2	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	26	4	--	-
....SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	52	6	--	-
...VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	--	-	--	-	100	12	13	2
....CHLOROGONIUM	--	-	--	-	--	-	270#	31	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARINIUM	--	-	--	-	--	-	13	1	--	-
CHRYSOPHYTA										
..BACILLARIOPHYCEAE										
...CENTRALES										
...COSCINODISCEACEAE										
....CYCLOTELLA	--	-	--	-	--	-	65	7	--	-
...PENNALES										
....ACHNANTHACEAE										
....ACHNANTHES	--	-	180	1	--	-	--	-	--	-
....CYMBELLACEAE										
....CYMBELLA	--	-	360	2	--	-	--	-	--	-
...NAVICULACEAE										
....ENTOMONEIS	--	-	--	-	--	-	--	-	--	-
....NAVICULA	87#	30	2400	12	380	2	39	4	13	2
...NITZSCHACEAE										
....NITZSCHIA	200#	70	16000#	85	19000#	97	170#	19	26	4
									770#	73
CYANOPHYTA (BLUE-GREEN ALGAE)										
..CYANOPHYCEAE										
...CHROOCOCCALES										
....CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	160#	18	--	-
...HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	--	-	--	-	520#	85
									220#	21

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

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	90.90	2940	1890	464	780	190	410	101	440
NOV.	1979	29.42	18100	11900	945	5400	432	2000	159	*
DEC.	1979	20.93	25000	16600	937	7800	440	2600	144	*
JAN.	1980	38.41	21400	14100	1460	6500	669	2300	243	*
FEB.	1980	27.12	22200	14600	1070	6700	491	2400	177	*
MAR.	1980	141.82	7620	5000	1910	2300	867	860	331	970
APR.	1980	572.53	3140	2030	3130	850	1320	420	652	450
MAY	1980	470.50	2980	1920	2440	790	1000	420	530	440
JUNE	1980	3839.84	1500	958	9930	390	4000	220	2250	230
JULY	1980	29.81	7880	5150	415	2300	185	930	75	1000
AUG.	1980	110.12	2570	1650	491	670	200	360	108	390
SEPT	1980	659.20	1630	1050	1860	420	752	240	420	250
TOTAL		6030.60	**	**	25100	**	10500	**	5190	**
WTD. AVG.		17	2380	1540	**	650	**	320	**	340

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32800	6640	31100	26700	23800	27300	10000	11800	8060	23400	---	---
2	32400	10900	29600	21600	23300	27900	11700	12000	11400	27300	---	---
3	32700	15200	27000	23100	20800	26100	11900	12300	12800	26500	---	---
4	32200	18800	27200	22500	20000	22200	15000	13300	11000	21000	---	---
5	31700	20600	26400	22200	21700	24700	15400	14000	4000	31500	---	---
6	31900	23400	25700	21000	24300	23700	17200	14100	5220	32800	3500	15000
7	32500	24100	24700	22200	23100	23800	19800	14800	8940	34800	7190	38600
8	32600	22000	25700	20900	20200	24400	22000	11700	17600	35900	30200	---
9	32800	19500	26400	29800	22200	25500	25600	13900	22900	36700	37700	3560
10	33400	22900	24600	31200	24300	25200	22600	14500	15000	36600	---	17500
11	33100	23600	24900	28600	22500	24000	23800	22200	597	38500	---	25000
12	32000	23800	26200	25000	19600	23900	27000	27600	1040	---	---	---
13	31900	24100	26400	21700	18400	24400	27200	27900	1600	---	---	1250
14	31800	23800	23300	20100	18800	28500	24200	22500	2070	---	43700	1070
15	32100	24400	23600	20200	19800	26600	25000	1520	2570	---	1950	4520
16	32000	24200	23400	23100	20400	26700	26600	2500	3620	---	5820	14900
17	31800	23400	33200	23000	26500	29900	28500	5490	3930	---	11200	20700
18	32400	23800	30800	22000	18400	27300	29300	6840	4810	---	26300	22400
19	32100	24800	24300	21800	19300	26900	28500	9040	5450	---	29700	27000
20	32700	24700	23900	16400	20600	26400	27700	9800	5980	---	37400	28700
21	33900	24000	22800	13400	25800	28200	31200	11500	4500	3500	38500	33800
22	35000	31000	23200	19700	22500	28100	28000	12400	8630	22900	12500	35600
23	36000	31100	23800	20500	23200	26900	23400	15100	9520	34100	17100	40300
24	32900	27400	24100	21900	23800	24800	1400	22800	9920	34300	29300	38900
25	33000	26400	24500	22100	22800	27600	2880	26100	11900	---	39000	38800
26	33300	26700	23400	21200	23200	23400	4960	25300	13600	---	---	22100
27	33700	27500	21500	20900	22800	2000	7070	10000	15200	---	---	18200
28	34300	27300	22400	29400	23200	1700	8820	1480	19200	---	---	21100
29	31500	31500	22500	29900	23400	4400	10900	1170	17500	---	---	24700
30	2270	30800	22600	24100	---	5890	7500	4110	22200	---	---	27800
31	3410	---	23600	23700	---	6960	---	5820	---	---	---	---
MEAN	30800	23600	25300	22900	22000	22400	18800	13000	9360	29300	23200	22700

## RED RIVER BASIN

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	7.0	9.0	10.0	1.0	6.0	22.0	21.0	24.0	35.0	---	---
2	23.0	14.0	5.0	7.0	8.0	5.0	18.0	20.0	25.0	35.0	---	---
3	22.0	15.0	10.0	10.0	4.0	11.0	15.0	22.0	26.0	32.0	---	---
4	23.0	15.0	15.0	9.0	11.0	17.0	21.0	26.0	34.0	33.0	---	---
5	23.0	16.0	16.0	5.0	7.0	10.0	19.0	29.0	21.0	33.0	---	---
6	27.0	17.0	12.0	11.0	10.0	16.0	21.0	25.0	36.0	33.0	28.0	29.0
7	21.0	9.0	13.0	9.0	7.0	15.0	23.0	26.0	23.0	31.0	28.0	30.0
8	28.0	19.0	10.0	5.0	5.0	15.0	17.0	21.0	25.0	32.0	30.0	---
9	18.0	9.0	5.0	6.0	5.0	14.0	18.0	16.0	28.0	30.0	30.0	23.0
10	20.0	6.0	15.0	9.0	5.0	17.0	25.0	23.0	23.0	31.0	---	22.0
11	25.0	9.0	7.0	5.0	9.0	12.0	19.0	22.0	20.0	33.0	---	20.0
12	21.0	10.0	5.0	10.0	6.0	18.0	8.0	15.0	25.0	---	---	---
13	21.0	15.0	4.0	5.0	12.0	18.0	12.0	24.0	26.0	---	---	30.0
14	19.0	15.0	8.0	11.0	10.0	16.0	18.0	16.0	27.0	---	28.0	20.0
15	23.0	16.0	9.0	11.0	7.0	20.0	25.0	14.0	28.0	---	26.0	25.0
16	25.0	13.0	.0	10.0	3.0	13.0	18.0	19.0	30.0	---	29.0	27.0
17	20.0	18.0	.0	11.0	5.0	15.0	17.0	20.0	29.0	---	25.0	25.0
18	18.0	14.0	14.0	9.0	10.0	15.0	20.0	18.0	35.0	---	27.0	20.0
19	22.0	17.0	7.0	5.0	15.0	22.0	22.0	20.0	30.0	---	28.0	30.0
20	20.0	16.0	4.0	4.0	17.0	17.0	21.0	28.0	30.0	---	29.0	26.0
21	18.0	10.0	13.0	7.0	11.0	16.0	26.0	25.0	30.0	29.0	27.0	21.0
22	15.0	6.0	11.0	6.0	15.0	10.0	26.0	26.0	29.0	33.0	32.0	20.0
23	17.0	12.0	11.0	3.0	16.0	15.0	26.0	30.0	35.0	31.0	32.0	22.0
24	18.0	14.0	11.0	9.0	12.0	16.0	20.0	21.0	35.0	26.0	24.0	25.0
25	17.0	10.0	7.0	10.0	16.0	16.0	12.0	25.0	23.0	---	29.0	19.0
26	21.0	13.0	10.0	3.0	15.0	20.0	15.0	29.0	35.0	---	---	17.0
27	15.0	11.0	11.0	1.0	19.0	15.0	18.0	25.0	32.0	---	---	17.0
28	15.0	6.0	8.0	.0	20.0	11.0	25.0	26.0	30.0	---	---	15.0
29	20.0	6.0	6.0	.0	5.0	9.0	27.0	27.0	32.0	---	---	27.0
30	9.0	8.0	3.0	.0	---	15.0	20.0	30.0	32.0	---	---	29.0
31	6.0	---	11.0	4.0	---	8.0	---	29.0	---	---	---	---
MEAN	19.5	12.0	8.5	6.5	10.0	14.5	20.0	23.0	28.5	32.0	28.5	23.5

## RED RIVER BASIN

## 07298100 MACKENZIE RESERVOIR NEAR SILVERTON, TX

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

DRAINAGE AREA.--1,053 mi<sup>2</sup> (2,727 km<sup>2</sup>), of which 904 mi<sup>2</sup> (2,341 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

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

REMARKS.--The reservoir is formed by a rolled earthfill dam 2,100 ft (640 m) long. The dam was completed in August 1974 and storage began in June 1974. The uncontrolled emergency spillway is an open cut channel just beyond the right end of dam. The service spillway is an uncontrolled ogee-type weir across a concrete chute at the right end of dam. A 30-inch (762 mm) gated outlet concrete pipe discharges into a valve vault at the downstream toe of the dam and then into the creek bed downstream. When facilities are completed, water will be used for municipal, industrial, and recreational purposes by the cities of Floydada, Silvertown, and Tulia. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	3,127.0	-
Crest of spillway.....	3,111.0	57,770
Crest of spillway with ogee weir.....	3,100.0	46,080
Lowest gated outlet (invert).....	2,961.0	17

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 14,800 acre-ft (18.2 hm<sup>3</sup>) Oct. 1 at 0015 hours, elevation, 3,045.43 ft (928.247 m); minimum, 13,570 acre-ft (16.7 hm<sup>3</sup>) Sept. 26, elevation, 3,042.37 ft (927.314 m).

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

3,042.0	13,430	3,044.0	14,220
3,043.0	13,820	3,045.0	14,620
		3,046.0	15,030

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14780	14760	14650	14570	14530	14590	14420	14350	14280	14290	13990	13770
2	14780	14760	14640	14570	14550	14580	14420	14340	14280	14270	13990	13770
3	14770	14750	14660	14580	14550	14570	14420	14330	14280	14260	13980	13760
4	14760	14750	14640	14570	14570	14570	14410	14330	14280	14260	13970	13740
5	14750	14730	14640	14570	14570	14550	14390	14320	14280	14240	13970	13740
6	14740	14740	14640	14590	14550	14550	14380	14300	14280	14230	13960	13740
7	14730	14740	14610	14570	14590	14610	14410	14290	14280	14220	13960	13720
8	14720	14730	14620	14560	14560	14610	14430	14300	14280	14210	13950	13720
9	14710	14720	14640	14550	14570	14600	14450	14280	14280	14190	13940	13720
10	14710	14710	14610	14570	14550	14590	14440	14260	14280	14180	13940	13710
11	14700	14740	14610	14550	14540	14570	14440	14250	14280	14170	13930	13700
12	14690	14730	14610	14550	14560	14540	14430	14270	14260	14160	13920	13700
13	14680	14730	14610	14540	14570	14530	14430	14280	14260	14150	13920	13700
14	14680	14730	14600	14540	14570	14510	14430	14290	14250	14130	13910	13690
15	14670	14710	14600	14550	14580	14490	14420	14290	14230	14120	13900	13680
16	14670	14730	14600	14540	14590	14470	14420	14280	14220	14110	13900	13680
17	14670	14730	14600	14540	14590	14460	14410	14280	14320	14100	13890	13670
18	14670	14710	14600	14550	14610	14440	14410	14280	14360	14080	13880	13650
19	14660	14720	14590	14550	14640	14420	14400	14280	14360	14070	13880	13650
20	14650	14700	14610	14570	14630	14430	14400	14280	14350	14060	13870	13640
21	14650	14710	14600	14570	14630	14420	14400	14280	14410	14060	13860	13630
22	14620	14680	14590	14560	14610	14420	14390	14280	14410	14050	13850	13620
23	14610	14710	14590	14560	14590	14400	14390	14280	14400	14040	13850	13610
24	14630	14680	14580	14560	14610	14400	14380	14280	14380	14040	13840	13600
25	14610	14690	14580	14560	14610	14420	14370	14280	14370	14040	13830	13590
26	14610	14670	14590	14550	14610	14420	14360	14280	14370	14030	13820	13570
27	14610	14670	14590	14550	14610	14450	14360	14280	14340	14030	13810	13590
28	14600	14660	14610	14540	14620	14450	14340	14280	14320	14020	13810	13590
29	14750	14650	14590	14540	14600	14460	14340	14280	14310	14010	13800	13590
30	14770	14660	14580	14540	---	14440	14340	14280	14300	14010	13790	13610
31	14780	---	14570	14540	---	14440	---	14280	---	14000	13780	---
MAX	14780	14760	14660	14590	14640	14610	14450	14350	14410	14290	13990	13770
MIN	14600	14650	14570	14540	14530	14400	14340	14250	14220	14000	13780	13570
(†)	3045.37	3045.09	3044.86	3044.80	3044.94	3044.54	3044.31	3044.16	3044.20	3043.45	3042.90	3042.45
(‡)	-20	-120	-90	-30	+60	-160	-100	-60	+20	-300	-220	-170

CAL YR 1979 MAX 15070 MIN 14500 ‡ -140  
WTR YR 1980 MAX 14780 MIN 13570 ‡ -1190

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

## RED RIVER BASIN

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07298100 MACKENZIE RESERVOIR NEAR SILVERTON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
FEB 05...	1345	464	6.0	150	0	39	13	31	1.1
JUL 25...	1225	491	26.5	160	1	38	15	39	1.4

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
FEB 05...	11	190	0	72	10	1.2	2.0	273
JUL 25...	12	190	0	78	9.6	1.2	.3	286



## 07298200 TULE CREEK NEAR SILVERTON, TX

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

DRAINAGE AREA.--1,150 mi<sup>2</sup> (2,980 km<sup>2</sup>), of which 960 mi<sup>2</sup> (2,490 km<sup>2</sup>) probably is noncontributing.

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

Water-quality records: Chemical analyses: October 1967 to September 1975. Water temperatures: October 1967 to September 1969.

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

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

AVERAGE DISCHARGE.--9 years (water years 1965-73) prior to completion of MacKenzie Dam, 9.24 ft<sup>3</sup>/s (0.262 m<sup>3</sup>/s), 6,690 acre-ft/yr (8.25 hm<sup>3</sup>/s); 7 years (water years 1974-80) regulated, 2.17 ft<sup>3</sup>/s (0.061 m<sup>3</sup>/s), 1,570 acre-ft/yr (1.94 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,800 ft<sup>3</sup>/s (362 m<sup>3</sup>/s) May 20, 1977, gage height, 14.5 ft (4.42 m), from floodmarks; no flow for many days each year.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,170 ft<sup>3</sup>/s (33.1 m<sup>3</sup>/s) June 18 at 0015 hours, gage height, 5.49 ft (1.673 m); no flow for many days.

REVISIONS.--The maximum discharge for the water year 1979 has been revised to 1,140, ft<sup>3</sup>/s (32.3 m<sup>3</sup>/s) July 25, 1979, gage height 5.54 ft (1.689 m), superseding figure published in the report for 1979. These supersede figures published in the report for 1979. Revised daily and monthly discharge, in cubic feet per second, for the 1979 water year are shown below. These figures supersede those published in the report for 1979.

Mar. 21, 1979.....	30
22 .....	8.9
June 9 .....	189
July 18 .....	49
25 .....	91

Month	Cfs-days	Maximum	Mean	Runoff in acre-feet
March 1979 .....	40.12	30	1.29	80
June .....	198.33	189	6.61	393
July .....	165.32	91	5.33	328
WTR YR .....	576.50	189	1.58	1,140

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.27	.33	.07	.04	.40	.12	.00	.00	.00	.00	.00
2	.00	.08	.23	.08	.06	.33	1.0	.00	.00	.00	.00	.00
3	.00	.06	.31	.06	.10	.96	.08	.00	.00	.00	.00	.00
4	.00	.04	.34	.06	.15	.69	.13	.00	.00	.00	.00	.00
5	.00	.02	.32	.08	.20	.18	.06	.00	.00	.00	.00	.00
6	.00	.02	.27	.09	.33	.23	.02	.16	.00	.00	.00	.00
7	.00	.01	.27	.04	.93	.15	.00	.96	.00	.00	.00	.00
8	.00	.01	.27	.09	1.5	.01	.00	.00	.00	.00	.00	.00
9	.00	.01	.20	.15	1.6	.05	.00	.00	.00	.00	.00	.00
10	.00	.01	.15	.18	1.5	.09	.00	.00	.00	.00	.00	.00
11	.00	1.4	.10	.10	1.3	.74	.00	.00	.00	.00	.00	.00
12	.00	7.0	.08	.13	1.5	1.5	.00	.00	.00	.00	.00	.00
13	.00	.75	.06	.15	1.6	.11	.00	.00	.00	.00	.00	.00
14	.00	.60	.04	.17	1.4	.07	.00	.03	.00	.00	.45	.00
15	.00	.46	.03	.22	.90	.07	.00	32	.00	.00	1.9	.00
16	.00	.36	.01	.23	.70	.03	.00	.00	.00	.00	.00	.00
17	.00	.42	.01	.27	.60	.00	.00	.00	24	.00	.00	.00
18	.00	.35	.01	.36	.70	.05	.00	.00	70	.00	.00	.00
19	.00	.27	.01	.50	.80	.10	.00	.00	.00	.00	.00	.00
20	.00	.31	.01	1.4	1.0	.08	.00	.00	.00	.00	.00	.00
21	.00	.19	.02	.56	.89	.14	.00	.00	12	.00	.00	.00
22	.00	.18	.03	.31	.77	.20	.49	.00	.03	.00	.00	.00
23	.00	.32	.05	.15	.45	.71	1.7	.00	.00	.00	.00	.00
24	.00	.43	.06	.17	.74	.34	1.9	.00	.00	.00	.00	.00
25	.00	.28	.13	.21	.74	.74	.01	.00	.00	.00	.00	.00
26	.00	.28	.22	.15	.77	1.1	.00	.00	.00	3.2	.00	.00
27	.00	.26	.27	.11	.61	1.7	.00	.00	.00	.00	.00	.00
28	.00	.18	.09	.08	.59	1.2	.00	.00	.00	.00	.00	.00
29	.00	.17	.06	.06	.49	1.1	.00	.00	.00	.00	.00	.00
30	92	.29	.05	.05	---	.91	.00	.00	.00	.00	.00	.00
31	2.8	---	.03	.04	---	.58	---	.00	---	.00	.00	---
TOTAL	94.80	15.03	4.06	6.32	22.96	14.56	5.51	33.15	106.03	3.20	2.35	.00
MEAN	3.06	.50	.13	.20	.79	.47	.18	1.07	3.53	.10	.076	.000
MAX	92	7.0	.34	1.4	1.6	1.7	1.9	32	70	3.2	1.9	.00
MIN	.00	.01	.01	.04	.04	.00	.00	.00	.00	.00	.00	.00
AC-FT	188	30	8.1	13	46	29	11	66	210	6.3	4.7	.00

CAL YR 1979	TOTAL 612.57	MEAN 1.68	MAX 189	MIN .00	AC-FT 1220
WTR YR 1980	TOTAL 307.97	MEAN .84	MAX 92	MIN .00	AC-FT 611

## RED RIVER BASIN

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07299200 PRAIRIE DOG TOWN FORK RED RIVER NEAR LAKEVIEW, TX

LOCATION.--Lat 34°34'23", long 100°44'43", Hall County, Hydrologic Unit 11120105, on left bank at downstream side of bridge on Farm Road 657, 7.6 mi (12.2 km) southwest of Lakeview, 8.6 mi (13.8 km) upstream from Little Red River, 13.3 mi (21.4 km) downstream from former gage near Brice, and at mile 1,092.5 (1,757.8 km).

DRAINAGE AREA.--6,792 mi<sup>2</sup> (17,591 km<sup>2</sup>), of which 4,769 mi<sup>2</sup> (12,352 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1963 to September 1980 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,926.41 ft (587.170 m) National Geodetic Vertical Datum of 1929. Aug. 29 to Dec. 12, 1968, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records poor. Several small diversions above station. Flow is affected at times by discharge from flood-detention pools of nine floodwater-retarding structures with combined detention capacity of 13,540 acre-ft (16.7 hm<sup>3</sup>). These structures control runoff from 55.8 mi<sup>2</sup> (144.5 km<sup>2</sup>).

AVERAGE DISCHARGE.--17 years (water years 1964-80), 76.1 ft<sup>3</sup>/s (2.155 m<sup>3</sup>/s), 0.51 in/yr (13 mm/yr), 55,130 acre-ft/yr (68.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,000 ft<sup>3</sup>/s (2,690 m<sup>3</sup>/s) May 20, 1977, gage height, 11.1 ft (3.38 m), from floodmark, from rating curve extended above 51,000 ft<sup>3</sup>/s (1,440 m<sup>3</sup>/s) on basis of slope-area measurement at gage height 9.10 ft (2.774 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1906, 14.8 ft (4.51 m) occurred in summer of 1933 at former site 13 mi (21 km) upstream. Flood of June 7, 1960, reached a stage of 12.0 ft (3.66 m), present site and datum, from information by local residents and State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,600 ft<sup>3</sup>/s (442 m<sup>3</sup>/s) June 11 at 1000 hours, gage height, 6.66 ft (2.030 m), no other peak above base of 6,000 ft<sup>3</sup>/s (170 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.07	.29	1.5	1.4	.55	.69	25	.03	1.1	.00	.00
2	.01	.06	.29	1.2	1.2	.67	.97	25	.03	.87	.00	45
3	.01	.05	.29	1.5	1.2	.67	1.0	23	.03	.70	.00	.10
4	.02	.04	.34	1.4	1.2	.67	1.5	25	.03	.46	.00	.00
5	.06	.03	.34	1.5	1.2	.80	1.8	25	.03	.57	.00	.00
6	.07	.03	.34	1.3	2.0	.80	1.1	20	11	.36	.00	.00
7	.10	.02	.55	1.3	3.0	.55	1.2	17	.03	.27	.00	.00
8	.02	.02	.55	1.3	2.1	.55	1.1	17	.03	.27	.00	.00
9	.00	.02	.44	1.1	1.7	.67	1.6	17	.03	.15	.00	.00
10	.04	.02	.55	1.2	1.4	.67	2.0	17	.03	.20	.00	.00
11	.09	1.0	.55	1.2	1.0	.94	1.9	16	4010	.11	.00	.00
12	.11	.43	.55	1.2	.79	.55	2.1	16	1120	.11	.00	.00
13	.10	.30	.55	1.0	.94	.55	2.0	16	332	.05	.00	27
14	.23	.25	.67	1.1	.94	.67	2.2	16	106	.05	.00	119
15	.91	.16	.55	1.5	.67	.55	2.6	1170	54	.02	2.4	38
16	3.0	.12	.44	1.6	.67	.44	2.7	468	36	.02	.78	10
17	8.4	.15	.55	1.9	.55	.44	2.9	207	24	.00	.36	2.0
18	18	.11	.55	2.7	.55	.55	3.5	120	18	.00	.00	.00
19	14	.15	.55	2.4	.41	.34	3.6	57	16	.00	.00	8.8
20	2.5	.13	.55	1.5	.55	.24	3.4	20	15	.00	.48	5.1
21	.86	.06	.44	1.3	.80	.44	4.0	6.9	188	.00	.00	3.2
22	.24	.07	.55	1.7	.80	.44	4.4	3.9	44	.00	.00	2.4
23	.52	.17	.55	1.4	.80	.44	6.2	2.8	15	.00	.00	2.4
24	.97	.14	.67	1.2	.80	.44	23	2.4	9.4	.00	.00	2.5
25	1.8	.13	.94	1.2	.80	.55	16	2.0	4.8	.00	.00	.00
26	3.5	.17	1.2	1.4	.67	.44	16	1.7	3.7	.00	.00	47
27	4.3	.14	1.2	1.5	.67	2.0	25	1.4	2.4	.00	.00	64
28	6.1	.14	1.2	1.4	.67	1.3	26	17	1.5	.00	.00	54
29	16	.16	1.2	1.2	.67	4.3	25	309	1.3	.00	.00	40
30	489	.20	1.2	1.2	---	1.3	25	12	1.3	.00	.00	26
31	19	---	1.2	1.2	---	1.8	---	.24	---	.00	.00	---
TOTAL	590.01	4.54	19.84	44.1	30.15	25.32	210.46	2676.34	6013.67	5.31	4.02	496.50
MEAN	19.0	.15	.64	1.42	1.04	.82	7.02	86.3	200	.17	.13	16.6
MAX	489	1.0	1.2	2.7	3.0	4.3	26	1170	4010	1.1	2.4	119
MIN	.00	.02	.29	1.0	.41	.24	.69	.24	.03	.00	.00	.00
CFSM	.009	.000	.000	.001	.001	.000	.003	.04	.10	.000	.000	.008
IN.	.01	.00	.00	.00	.00	.01	.00	.05	.11	.00	.00	.01
AC-FT	1170	9.0	39	87	60	50	417	5310	11930	11	8.0	985

CAL YR 1979 TOTAL 27057.77 MEAN 74.1 MAX 4160 MIN .00 CFSM .04 IN .50 AC-FT 53670  
WTR YR 1980 TOTAL 10120.26 MEAN 27.7 MAX 4010 MIN .00 CFSM .01 IN .19 AC-FT 20070

## RED RIVER BASIN

07299200 PRAIRIE DOG TOWN FORK RED RIVER NEAR LAKEVIEW, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1968 to September 1979.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to September 1980 (discontinued).

WATER TEMPERATURES: July 1968 to September 1980 (discontinued).

SUSPENDED SEDIMENT DISCHARGE: October 1978 to September 1980 (discontinued).

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1968-79): Maximum daily, 37,900 micromhos July 30, 1979; minimum daily, 1,320 micromhos Apr. 19, 1979.

WATER TEMPERATURES (1968-79): Minimum daily, 0.0°C on many days during winter months.

SEDIMENT CONCENTRATION: Maximum daily mean, 40,100 mg/L Aug. 15, 1980; minimum daily mean, 9 mg/L Jan. 29, 1980.

SEDIMENT LOADS: Maximum daily, 325,000 tons June 11, 1980; minimum daily, 0 tons on many days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 40,100 mg/L Aug. 15; minimum daily mean, 9 mg/L Jan. 29.

SEDIMENT LOADS: Maximum daily, 325,000 tons June 11; minimum daily, 0 tons on many days during year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

				SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)					
FEB 06...	1000	1.1	4.0	75	.22	--	--	
APR 23...	1540	731	28.0	23800	47000	17	71	
24...	1640	189	22.5	6170	3150	15	17	
MAY 16...	1640	346	22.0	17200	16100	12	15	
JUL 08...	2018	12	27.0	4530	147	46	60	
09...	1114	13	25.0	6470	227	34	47	
		SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
FEB 06...	--	--	--	52	--	--	--	--
APR 23...	92	95	96	96	97	99	100	--
24...	94	98	99	99	100	--	--	--
MAY 16...	78	83	87	92	98	99	100	--
JUL 08...	67	79	89	95	99	100	--	--
09...	72	82	91	95	99	100	--	--

## 07299200 PRAIRIE DOG TOWN FORK RED RIVER NEAR LAKEVIEW, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7520	---	6610	6680	7000			---	---	8130	---	---
2	7590	8130	6580	6970	5510			---	---	8600	---	6280
3	7520	7340	6830	6750	7260			---	---	8510	---	15400
4	7140	6890	6750	6660	7090			---	---	9490	---	---
5	7380	6940	6910	7020	6830			---	---	9540	---	---
6	7390	6550	6430	6950	6840			---	---	9600	---	---
7	7650	6780	6550	6330	6850			---	---	9450	---	---
8	7690	6810	7040	7090	7120			---	---	9810	---	---
9	7780	7290	6660	6510	8940			---	---	9650	---	---
10	7850	6550	7030	7280	7080			---	---	---	---	---
11	7260	6610	7080	6590	7210			---	---	10100	---	---
12	7530	7580	6410	7440	7930			---	---	9810	---	---
13	7580	6570	6430	7310	6900			---	---	---	---	---
14	7500	6510	8110	6760	7580			---	---	10200	---	5720
15	7960	6640	6900	6790	7680			---	---	---	13500	6170
16	7930	6210	7260	6450	5870			---	---	---	13400	5420
17	7930	6610	7360	6800	8740			---	12200	---	---	---
18	7470	6550	6650	7090	9190			---	---	---	---	---
19	7530	6360	7160	7210	7710			---	---	---	---	---
20	7850	6590	6990	7100	7740			---	---	---	---	---
21	7830	6470	7000	7680	7050			22400	---	---	---	---
22	8590	6260	6850	7370	6800			---	---	---	---	---
23	7730	5560	6660	6930	6780			---	---	---	---	---
24	7780	6570	6660	6950	6450			---	---	---	---	---
25	7150	6470	6810	7240	6510			---	---	---	---	---
26	7450	6440	6730	6850	6570			---	---	---	---	7100
27	7240	6250	6620	6250	6400			---	---	---	---	9230
28	7170	6210	6150	5020	6800			---	---	---	---	9130
29	7350	6350	6680	5030	6670			---	---	---	---	8340
30	8800	7640	6660	7520	---			---	---	---	---	7340
31	6670	---	6680	7170	---			---	---	---	---	---
MEAN	7610	6680	6810	6830	7140			22400	12200	9410	13500	8010

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	7.0	8.5	2.0	1.5			---	---	32.0		
2	12.5	6.5	1.0	5.0	4.0			---	---	33.0		
3	15.0	8.5	4.0	4.5	5.0			---	---	33.0		
4	15.0	9.0	5.0	4.5	4.5			---	---	25.0		
5	12.0	10.5	6.0	5.5	4.5			---	---	23.0		
6	23.0	7.5	4.0	6.5	4.0			---	---	31.0		
7	14.0	9.5	4.5	2.0	6.0			---	---	21.0		
8	14.0	10.0	5.5	5.5	1.0			---	---	27.0		
9	12.0	10.5	7.0	4.0	8.5			---	---	25.0		
10	11.5	5.0	5.0	3.0	6.0			---	---	26.0		
11	15.0	6.5	8.0	4.5	8.5			---	---	33.0		
12	15.0	5.0	2.0	12.5	10.5			---	---	35.0		
13	14.5	4.5	3.0	11.0	11.5			---	---	---		
14	15.0	5.0	3.0	6.0	15.0			---	---	32.0		
15	17.0	5.0	3.5	9.5	9.5			---	---	---		
16	15.0	5.0	1.5	7.0	4.0			---	---	---		
17	20.0	6.5	.0	4.5	5.5			---	35.0	---		
18	20.0	10.0	2.5	8.0	9.5			---	---	---		
19	17.0	8.5	2.0	10.5	12.0			---	---	---		
20	14.0	14.5	2.5	4.5	15.0			---	---	---		
21	16.0	8.0	6.0	5.0	8.0			27.0	---	---		
22	10.5	3.0	9.0	4.0	15.0			---	---	---		
23	10.0	11.0	7.0	2.0	19.5			---	---	---		
24	9.0	16.0	5.0	3.5	9.5			---	---	---		
25	10.0	16.5	4.5	5.5	8.0			---	---	---		
26	11.5	4.5	4.5	5.0	6.5			---	---	---		
27	15.0	5.5	7.0	4.5	5.5			---	---	---		
28	10.0	4.5	9.5	3.0	10.0			---	---	---		
29	10.0	2.0	5.0	5.0	8.5			---	---	---		
30	11.0	1.5	2.5	2.5	---			---	---	---		
31	5.0	---	2.0	4.5	---			---	---	---		
MEAN	14.0	7.5	4.5	5.5	8.0			27.0	35.0	29.0		

## RED RIVER BASIN

07299200 PRAIRIE DOG TOWN FORK RED RIVER NEAR LAKEVIEW, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	.05	290	.04	.07	6500	1.2	.29	137	.11
2	.01	500	.01	.06	190	.03	.29	227	.18
3	.01	1260	.03	.05	218	.03	.29	77	.06
4	.02	1230	.07	.04	162	.02	.34	82	.08
5	.06	870	.14	.03	168	.01	.34	102	.09
6	.07	340	.06	.03	169	.01	.34	81	.07
7	.10	570	.15	.02	143	.00	.55	90	.13
8	.02	960	.05	.02	150	.00	.55	81	.12
9	.00	---	.00	.02	186	.01	.44	82	.10
10	.04	130	.01	.02	95	.00	.55	81	.12
11	.09	116	.03	1.0	141	.38	.55	78	.12
12	.11	126	.04	.43	115	.13	.55	76	.11
13	.10	122	.03	.30	108	.09	.55	75	.11
14	.23	122	.08	.25	110	.07	.67	106	.19
15	.91	180	.44	.16	84	.04	.55	69	.10
16	3.0	360	2.9	.12	68	.02	.44	123	.15
17	8.4	290	6.6	.15	99	.04	.55	80	.12
18	18	990	48	.11	110	.03	.55	56	.08
19	14	1100	42	.15	100	.04	.55	109	.16
20	2.5	300	2.0	.13	69	.02	.55	68	.10
21	.86	170	.39	.06	61	.00	.44	68	.08
22	.24	54	.03	.07	37	.00	.55	49	.07
23	.52	111	.16	.17	11	.00	.55	69	.10
24	.97	108	.28	.14	48	.02	.67	62	.11
25	1.8	119	.58	.13	82	.03	.94	110	.28
26	3.5	121	1.1	.17	35	.02	1.2	64	.21
27	4.3	177	2.1	.14	52	.02	1.2	32	.10
28	6.1	73	1.2	.14	40	.02	1.2	10	.03
29	16	170	7.3	.16	32	.01	1.2	48	.16
30	489	21300	62900	.20	29	.02	1.2	25	.08
31	19	14500	744	---	---	---	1.2	15	.05
TOTAL	590.01	---	63759.82	4.54	---	2.31	19.84	---	3.57

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	1.5	62	.25	1.4	165	.62	.55	95	.14
2	1.2	79	.26	1.2	183	.59	.67	95	.17
3	1.5	59	.24	1.2	167	.54	.67	95	.17
4	1.4	48	.18	1.2	160	.52	.67	95	.17
5	1.5	79	.32	1.2	138	.45	.80	95	.21
6	1.3	43	.15	2.0	120	.65	.80	10	.24
7	1.3	89	.31	3.0	140	1.1	.55	95	.14
8	1.3	75	.26	2.1	141	.80	.55	90	.13
9	1.1	---	.14	1.7	201	.92	.67	110	.20
10	1.2	24	.08	1.4	121	.46	.67	95	.17
11	1.2	60	.19	1.0	160	.43	.94	80	.20
12	1.2	50	.16	.79	113	.24	.55	105	.16
13	1.0	67	.18	.94	115	.29	.55	85	.13
14	1.1	61	.18	.94	67	.17	.67	100	.18
15	1.5	44	.18	.67	123	.22	.55	70	.10
16	1.6	38	.16	.67	285	.52	.44	60	.07
17	1.9	30	.15	.55	162	.24	.44	80	.10
18	2.7	41	.30	.55	196	.29	.55	70	.10
19	2.4	99	.64	.41	196	.22	.34	70	.06
20	1.5	39	.16	.55	147	.22	.24	60	.04
21	1.3	30	.11	.80	189	.41	.44	80	.10
22	1.7	23	.11	.80	151	.33	.44	90	.11
23	1.4	33	.12	.80	132	.29	.44	80	.10
24	1.2	42	.14	.80	100	.22	.44	85	.10
25	1.2	35	.11	.80	99	.21	.55	80	.12
26	1.4	29	.11	.67	89	.16	.44	70	.08
27	1.5	12	.05	.67	86	.16	2.0	120	.65
28	1.4	12	.05	.67	84	.15	1.3	100	.35
29	1.2	9	.03	.67	103	.19	4.3	130	1.5
30	1.2	21	.07	---	---	---	1.3	80	.28
31	1.2	16	.05	---	---	---	1.8	95	.46
TOTAL	44.1	---	5.44	30.15	---	11.61	25.32	---	6.73



07299200 PRAIRIE DOG TOWN FORK RED RIVER NEAR LAKEVIEW, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	.69	80	.15	25	70	4.7	.03	70	.0
2	.97	90	.24	25	80	5.4	.03	72	.0
3	1.0	80	.22	23	80	5.0	.03	60	.0
4	1.5	65	.26	25	60	4.1	.03	60	.0
5	1.8	60	.29	25	70	4.7	.03	60	.0
6	1.1	70	.21	20	70	3.8	11	5310	418
7	1.2	70	.23	17	65	3.0	.03	110	.0
8	1.1	65	.19	17	60	2.8	.03	30	.0
9	1.6	75	.32	17	70	3.2	.03	35	.0
10	2.0	70	.38	17	75	3.4	.03	60	.0
11	1.9	70	.36	16	65	2.8	4010	19700	325000
12	2.1	70	.40	16	70	3.0	1120	12000	36300
13	2.0	50	.27	16	60	2.6	332	6200	5560
14	2.2	60	.36	16	55	2.4	106	1700	487
15	2.6	50	.35	1170	10800	55600	54	1000	146
16	2.7	50	.36	468	10000	14200	36	1500	177
17	2.9	70	.55	207	5000	2790	24	1000	65
18	3.5	85	.80	120	2500	810	18	1000	49
19	3.6	75	.73	57	1000	154	16	500	22
20	3.4	80	.73	20	500	27	15	500	20
21	4.0	85	.92	6.9	520	9.7	188	5450	4360
22	4.4	85	1.0	3.9	500	5.3	44	3500	416
23	6.2	85	1.4	2.8	465	3.5	15	310	13
24	23	105	8.2	2.4	410	2.7	9.4	60	1.5
25	16	40	1.7	2.0	350	1.9	4.8	30	.4
26	16	50	2.2	1.7	285	1.3	3.7	40	.4
27	25	60	4.1	1.4	240	.91	2.4	50	.3
28	26	70	4.9	17	170	7.8	1.5	60	.2
29	25	80	5.4	309	10100	9980	1.3	60	.2
30	25	70	4.7	12	1500	49	1.3	60	.2
31	---	---	---	.24	140	.09	---	---	---
TOTAL	210.46	---	41.92	2676.34	---	83694.10	6013.67	---	373036.2
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	1.1	1200	3.6	.00	---	---	.00	---	---
2	.87	1100	2.6	.00	---	---	45	8280	1950
3	.70	600	1.1	.00	---	---	.10	3600	.97
4	.46	450	.56	.00	---	---	.00	---	---
5	.57	570	.88	.00	---	---	.00	---	---
6	.36	400	.39	.00	---	---	.00	---	---
7	.27	400	.29	.00	---	---	.00	---	---
8	.27	800	.58	.00	---	---	.00	---	---
9	.15	1000	.41	.00	---	---	.00	---	---
10	.20	600	.32	.00	---	---	.00	---	---
11	.11	1000	.30	.00	---	---	.00	---	---
12	.11	850	.25	.00	---	---	.00	---	---
13	.05	420	.06	.00	---	---	27	1700	484
14	.05	480	.06	.00	---	---	119	6340	3150
15	.02	250	.01	2.4	40100	364	38	7300	749
16	.02	200	.01	.78	35700	213	10	3200	86
17	.00	---	.00	.36	900	.87	2.0	100	.54
18	.00	---	---	.00	---	---	.00	90	.00
19	.00	---	---	.00	---	---	8.8	110	2.6
20	.00	---	---	.48	7040	46	5.1	100	1.4
21	.00	---	---	.00	---	---	3.2	100	.86
22	.00	---	---	.00	---	---	2.4	100	.65
23	.00	---	---	.00	---	---	2.4	110	.71
24	.00	---	---	.00	---	---	2.5	100	.68
25	.00	---	---	.00	---	---	.00	---	.00
26	.00	---	---	.00	---	---	47	300	38
27	.00	---	---	.00	---	---	64	265	46
28	.00	---	---	.00	---	---	54	200	29
29	.00	---	---	.00	---	---	40	255	28
30	.00	---	---	.00	---	---	26	140	9.8
31	.00	---	---	.00	---	---	---	---	---
TOTAL	5.31	---	11.42	4.02	---	623.87	496.50	---	6578.21
YEAR	10120.26		527775.20						

## RED RIVER BASIN

07299300 LITTLE RED RIVER NEAR TURKEY, TX

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

DRAINAGE AREA.--139 mi<sup>2</sup> (360 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

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

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

AVERAGE DISCHARGE.--12 years (water years 1969-80), 11.0 ft<sup>3</sup>/s (0.312 m<sup>3</sup>/s), 1.07 in/yr (27 mm/yr), 7,970 acre-ft/yr (9.83 hm<sup>3</sup>/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,180 ft<sup>3</sup>/s (33.4 m<sup>3</sup>/s) May 15 at 1345 hours, gage height, 8.91 ft (2.716 m), no peak above base of 1,500 ft<sup>3</sup>/s (42.5 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.16	.15	.10	.10	.13	.15	.07	2.6	.00	.00	.00
2	.10	.15	.15	.10	.10	.15	.19	.02	1.6	.00	.00	.00
3	.10	.10	.15	.10	.10	.15	.15	.01	.80	.00	.00	.00
4	.06	.12	.13	.10	.06	.08	.15	.01	.34	.00	.00	.00
5	.06	.09	.11	.10	.06	.18	.19	.01	.19	.00	.00	.00
6	.04	.11	.11	.10	.06	.17	.15	.05	.15	.00	.00	.00
7	.05	.11	.12	.10	.23	.11	.15	.01	.06	.00	.00	.00
8	.04	.14	.11	.10	.57	.12	.15	.06	.04	.00	.00	.00
9	.03	.13	.14	.10	.28	.08	.15	.01	.06	.00	.00	.00
10	.04	.13	.13	.15	.24	.14	.15	.01	.15	.00	.00	.00
11	.04	.13	.12	.10	.27	.22	.19	.01	37	.00	.00	.00
12	.04	.11	.13	.10	.23	.09	.19	.00	5.8	.00	.00	.00
13	.04	.10	.17	.10	.17	.08	.19	.01	.34	.00	.00	90
14	.03	.07	.23	.10	.25	.12	.15	.07	.04	.00	.00	15
15	.04	.09	.14	.10	.18	.13	.19	353	.01	.00	29	1.1
16	.02	.08	.15	.10	.29	.11	.15	37	.51	.00	.94	.80
17	.01	.06	.19	.06	.99	.09	.10	2.6	.23	.00	.00	.64
18	.01	.06	.13	.06	3.2	.07	.15	.51	.01	.00	.00	.64
19	.01	.09	.11	.23	2.9	.11	.15	.19	.01	.00	.01	.51
20	.01	11	.12	.19	.37	.13	.19	.28	.00	.00	.19	.28
21	.01	1.4	.13	.10	.24	.08	.15	.23	.02	.00	.00	.28
22	.02	.19	.10	.06	.20	.16	.10	.23	.00	.00	.00	.23
23	.02	.13	.19	.04	.30	.13	.06	.15	.00	.00	.00	.34
24	.02	.13	.17	.04	.23	.07	18	.10	.00	.00	.00	.51
25	.02	.10	.20	.06	.21	.07	22	.10	.00	.00	.00	.40
26	.02	.11	.19	.06	.20	.13	.66	.15	.00	.00	.00	1.9
27	.02	.08	.22	.06	.15	11	.06	.10	.00	.00	.00	41
28	.02	.10	.15	.06	.18	3.9	.03	13	.00	.00	.00	20
29	.03	.10	.10	.06	.15	2.2	.03	45	.00	.00	.00	2.1
30	59	.15	.10	.10	---	.33	.09	6.0	.00	.00	.00	.51
31	4.2	---	.10	.10	---	.16	---	3.8	---	.00	.00	---
TOTAL	64.25	15.52	4.44	2.93	12.51	20.69	44.41	462.79	49.96	.00	30.14	176.24
MEAN	2.07	.52	.14	.095	.43	.67	1.48	14.9	1.67	.000	.97	5.87
MAX	59	11	.23	.23	3.2	11	22	353	37	.00	29	90
MIN	.01	.06	.10	.04	.06	.07	.03	.00	.00	.00	.00	.00
CFSM	.02	.004	.001	.001	.003	.005	.01	.11	.01	.000	.007	.04
IN.	.02	.00	.00	.00	.00	.01	.01	.12	.01	.00	.01	.05
AC-FT	127	31	8.8	5.8	25	41	88	918	99	.00	60	350

CAL YR 1979 TOTAL 6192.41 MEAN 17.0 MAX 1110 MIN .01 CFSM .12 IN 1.66 AC-FT 12280  
WTR YR 1980 TOTAL 883.88 MEAN 2.41 MAX 353 MIN .00 CFSM .02 IN .24 AC-FT 1750

## RED RIVER BASIN

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07299300 LITTLE RED RIVER NEAR TURKEY, TX--Continued

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to current year.

WATER TEMPERATURES: July 1968 to current year.

SUSPENDED SEDIMENT DISCHARGE: February 1979 to current year.

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

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1968-79): Maximum daily, 126,000 micromhos Feb. 21, 1978; minimum daily, 4,100 micromhos Sept. 3, 1979.

WATER TEMPERATURES (1968-76, 1979): Maximum daily, 36.0°C July 23, 1969; minimum daily, 0.0°C on several days during winter months.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 34,000 mg/L June 24, 1979; minimum daily mean, 5 mg/L Feb. 14, Apr. 7, 1979, Jan. 28, 1980.

SEDIMENT LOADS: Maximum daily, 56,500 tons Mar. 18, 1979; minimum daily, 0.0 tons on many days.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Minimum daily, 0.0°C Jan. 29.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 16,100 mg/L May 15; minimum daily mean, 5 mg/L Jan. 28.

SEDIMENT LOADS: Maximum daily, 26,700 tons May 15; minimum daily, 0.00 tons on many days.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
DEC 28...	1130	.13	7.0	17	.01	--	--
FEB 05...	1650	.07	14.0	58	.01	--	--
MAR 17...	1300	.08	--	33	.01	--	--
APR 23...	1425	.06	28.0	27	.00	--	--
24...	1525	21	24.0	2620	149	64	68
MAY 15...	1430	969	21.0	3470	9080	75	80
21...	1515	.16	29.0	24	.01	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM
DEC 28...	--	--	--	55	--	--
FEB 05...	--	--	--	67	--	--
MAR 17...	--	--	--	53	--	--
APR 23...	--	--	--	84	--	--
24...	89	97	98	99	99	100
MAY 15...	93	98	99	99	99	100
21...	--	--	--	92	--	--

07299300 LITTLE RED RIVER NEAR TURKEY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47900	29900	46600	46900	47000				---		---	---
2	48300	33400	47000	46600	45400				---		---	---
3	48500	38300	46400	46900	44800				---		---	---
4	48600	42800	46900	46700	44600				---		---	---
5	49400	45300	46800	47000	45400				---		---	---
6	48900	46700	47700	47700	46400				---		---	---
7	48700	47000	47600	48600	47200				---		---	---
8	49300	46200	47800	48300	42900				---		---	---
9	49400	45900	47400	48300	73700				---		---	---
10	48800	45900	46700	46800	65700				50400		---	---
11	49000	45900	47400	48500	59800				---		---	---
12	49000	44900	47400	48700	57900				---		---	---
13	49000	46000	47400	48200	55900				---		---	---
14	48800	45700	43700	48200	52900				---		---	6950
15	48200	45700	45500	47400	52000				---		28500	---
16	48700	45900	46700	47200	44400				---		28600	---
17	48900	46900	48500	47600	46100				---		---	---
18	48200	46600	47200	47200	89000				---		---	---
19	47700	47300	46400	47200	98100				---		---	---
20	49200	47500	45900	47500	95200				---		43900	---
21	50000	44800	46400	41700	84500				---		---	---
22	50800	44800	46900	44400	63900				---		---	---
23	51000	44200	47600	45500	56500				---		---	---
24	50800	45400	48000	45700	54300				---		---	---
25	49900	45600	47700	47100	51500				---		---	---
26	49500	45600	47600	47300	51800				---		---	35500
27	48900	46400	47600	47800	50100				---		---	68000
28	49300	47300	46600	47100	49600				---		---	99800
29	49100	47300	46900	47600	49200				---		---	90300
30	---	47400	47000	46900	---				---		---	73400
31	26000	---	---	47300	---				---		---	---
MEAN	48300	44800	47000	47100	57400				50400		33700	62300

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	8.5	10.0	4.0	1.0				---			
2	15.0	5.0	1.5	5.0	2.0				---			
3	16.5	8.0	3.5	5.0	6.0				---			
4	19.0	9.0	7.0	6.0	5.0				---			
5	15.0	11.5	10.0	6.0	5.5				---			
6	18.0	9.5	5.0	7.0	4.5				---			
7	15.0	10.0	5.0	2.0	8.0				---			
8	16.0	12.0	---	5.5	1.5				---			
9	15.0	12.0	9.5	2.5	2.0				---			
10	10.0	7.0	6.0	2.5	4.5				29.0			
11	13.5	7.0	10.0	5.0	10.0				---			
12	16.0	7.5	5.0	13.5	11.0				---			
13	15.0	5.0	4.5	10.5	12.0				---			
14	16.0	6.0	4.5	7.5	15.5				---			
15	18.0	7.5	4.0	11.0	10.0				---			
16	16.0	6.0	3.0	6.0	5.0				---			
17	19.0	8.0	3.5	6.5	7.0				---			
18	20.0	12.0	4.5	7.5	10.5				---			
19	19.0	10.0	2.5	12.0	10.0				---			
20	15.0	13.0	2.5	5.0	15.5				---			
21	17.5	8.5	7.5	6.0	8.5				---			
22	10.0	4.5	9.0	5.0	16.0				---			
23	10.0	9.0	7.5	3.5	20.5				---			
24	11.0	16.0	4.5	5.0	10.0				---			
25	10.0	16.5	5.5	8.0	8.0				---			
26	15.0	5.0	5.5	4.0	7.0				---			
27	15.0	7.5	6.0	5.0	6.0				---			
28	12.5	5.0	10.0	1.0	11.5				---			
29	13.0	3.0	6.0	.0	---				---			
30	10.5	1.0	5.0	1.5	---				---			
31	5.5	---	2.0	4.0	---				---			
MEAN	15.0	8.5	5.5	5.5	8.5				29.0			

## 07299300 LITTLE RED RIVER NEAR TURKEY, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	.10	125	.03	.16	45	.02	.15	130	.05
2	.10	70	.02	.15	32	.01	.15	130	.05
3	.10	85	.02	.10	100	.03	.15	115	.05
4	.06	60	.00	.12	110	.04	.13	95	.03
5	.06	70	.01	.09	75	.02	.11	150	.04
6	.04	105	.01	.11	85	.03	.11	197	.06
7	.05	115	.02	.11	100	.03	.12	162	.05
8	.04	90	.00	.14	115	.04	.11	105	.03
9	.03	95	.00	.13	77	.03	.14	110	.04
10	.04	70	.00	.13	72	.03	.13	118	.04
11	.04	75	.00	.13	77	.03	.12	135	.04
12	.04	55	.00	.11	82	.02	.13	95	.03
13	.04	35	.00	.10	52	.01	.17	90	.04
14	.03	30	.00	.07	75	.01	.23	60	.04
15	.04	50	.00	.09	58	.01	.14	80	.03
16	.02	47	.00	.08	55	.01	.15	125	.05
17	.01	87	.00	.06	55	.00	.19	142	.07
18	.01	70	.00	.06	47	.00	.13	87	.03
19	.01	60	.00	.09	55	.01	.11	115	.03
20	.01	67	.00	11	2930	298	.12	80	.03
21	.01	42	.00	1.4	82	.31	.13	77	.03
22	.02	45	.00	.19	32	.02	.10	90	.02
23	.02	45	.00	.13	25	.00	.19	115	.06
24	.02	42	.00	.13	95	.03	.17	135	.06
25	.02	30	.00	.10	48	.01	.20	127	.07
26	.02	37	.00	.11	77	.02	.19	150	.08
27	.02	40	.00	.08	85	.02	.22	95	.06
28	.02	55	.00	.10	60	.02	.15	70	.03
29	.03	15	.00	.10	90	.02	.10	85	.02
30	59	14100	2630	.15	120	.05	.10	50	.01
31	4.2	4990	105	---	---	---	.10	55	.01
TOTAL	64.25	---	2735.11	15.52	---	298.88	4.44	---	1.28

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	.10	60	.02	.10	155	.04	.13	60	.02
2	.10	80	.02	.10	150	.04	.15	47	.02
3	.10	98	.03	.10	215	.06	.15	62	.03
4	.10	95	.03	.06	187	.03	.08	80	.02
5	.10	125	.03	.06	123	.02	.18	75	.04
6	.10	100	.03	.06	137	.02	.17	58	.03
7	.10	75	.02	.23	175	.11	.11	48	.01
8	.10	45	.01	.57	130	.20	.12	40	.01
9	.10	52	.01	.28	60	.05	.08	70	.02
10	.15	70	.03	.24	136	.09	.14	80	.03
11	.10	100	.03	.27	97	.07	.22	60	.04
12	.10	85	.02	.23	123	.08	.09	50	.01
13	.10	60	.02	.17	126	.06	.08	38	.00
14	.10	60	.02	.25	105	.07	.12	45	.01
15	.10	52	.01	.18	134	.07	.13	75	.03
16	.10	45	.01	.29	120	.09	.11	55	.02
17	.06	70	.01	.99	146	.39	.09	27	.00
18	.06	60	.00	3.2	108	.93	.07	45	.00
19	.23	57	.04	2.9	84	.66	.11	75	.02
20	.19	32	.02	.37	195	.19	.13	23	.00
21	.10	15	.00	.24	205	.13	.08	40	.00
22	.06	45	.00	.20	186	.10	.16	37	.02
23	.04	61	.00	.30	130	.11	.13	75	.03
24	.04	14	.00	.23	140	.09	.07	72	.01
25	.06	32	.00	.21	104	.06	.07	47	.00
26	.06	23	.00	.20	121	.07	.13	25	.00
27	.06	53	.00	.15	114	.05	11	2950	385
28	.06	5	.00	.18	138	.07	3.9	2240	50
29	.06	6	.00	.15	65	.03	2.2	80	.48
30	.10	29	.00	---	---	---	.33	55	.05
31	.10	60	.02	---	---	---	.16	36	.02
TOTAL	2.93	---	0.43	12.51	---	3.98	20.69	---	435.97



## RED RIVER BASIN

07299300 LITTLE RED RIVER NEAR TURKEY, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	.15	60	.02	.07	85	.02	2.6	87	.61
2	.19	75	.04	.02	75	.00	1.6	70	.30
3	.15	60	.02	.01	55	.00	.80	60	.13
4	.15	40	.02	.01	45	.00	.34	60	.06
5	.19	30	.02	.01	48	.00	.19	62	.03
6	.15	50	.02	.05	67	.00	.15	92	.04
7	.15	85	.03	.01	82	.00	.06	90	.01
8	.15	85	.03	.06	72	.01	.04	62	.00
9	.15	72	.03	.01	55	.00	.06	67	.01
10	.15	57	.02	.01	42	.00	.15	100	.04
11	.19	57	.03	.01	40	.00	37	11100	1660
12	.19	57	.03	.00	---	---	5.8	2750	62
13	.19	52	.03	.01	70	.00	.34	90	.08
14	.15	48	.02	.07	62	.01	.04	80	.00
15	.19	45	.02	353	16100	26700	.01	72	.00
16	.15	35	.01	37	6950	1250	.51	70	.10
17	.10	40	.01	2.6	115	.81	.23	90	.06
18	.15	55	.02	.51	75	.10	.01	70	.00
19	.15	65	.03	.19	55	.03	.01	48	.00
20	.19	62	.03	.28	35	.03	.00	---	---
21	.15	42	.02	.23	35	.02	.02	25	.00
22	.10	35	.00	.23	54	.03	.00	---	---
23	.06	25	.00	.15	60	.02	.00	---	---
24	18	6560	635	.10	80	.02	.00	---	---
25	22	7970	1170	.10	72	.02	.00	---	---
26	.66	2500	4.5	.15	57	.02	.00	---	---
27	.06	80	.01	.10	45	.01	.00	---	---
28	.03	55	.00	13	5180	416	.00	---	---
29	.03	52	.00	45	11900	2240	.00	---	---
30	.09	80	.02	6.0	1000	16	.00	---	---
31	---	---	---	3.8	125	1.3	---	---	---
TOTAL	44.41	---	1810.03	462.79	---	30624.45	49.96	---	1723.47

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	.00		.00	---	---	.00	---	---	---
2	.00		.00	---	---	.00	---	---	---
3	.00		.00	---	---	.00	---	---	---
4	.00		.00	---	---	.00	---	---	---
5	.00		.00	---	---	.00	---	---	---
6	.00		.00	---	---	.00	---	---	---
7	.00		.00	---	---	.00	---	---	---
8	.00		.00	---	---	.00	---	---	---
9	.00		.00	---	---	.00	---	---	---
10	.00		.00	---	---	.00	---	---	---
11	.00		.00	---	---	.00	---	---	---
12	.00		.00	---	---	.00	---	---	---
13	.00		.00	---	---	90	6590	6650	---
14	.00		.00	---	---	15	6630	598	---
15	.00		29	5930	627	1.1	130	.39	---
16	.00		.94	3500	8.9	.80	110	.24	---
17	.00		.00	---	---	.64	127	.22	---
18	.00		.00	---	---	.64	145	.25	---
19	.00		.01	100	.00	.51	135	.19	---
20	.00		.19	136	.07	.28	120	.09	---
21	.00		.00	---	---	.28	155	.12	---
22	.00		.00	---	---	.23	142	.09	---
23	.00		.00	---	---	.34	165	.15	---
24	.00		.00	---	---	.51	180	.25	---
25	.00		.00	---	---	.40	205	.22	---
26	.00		.00	---	---	1.9	210	1.1	---
27	.00		.00	---	---	41	11900	1440	---
28	.00		.00	---	---	20	4490	439	---
29	.00		.00	---	---	2.1	70	.40	---
30	.00		.00	---	---	.51	20	.03	---
31	.00		.00	---	---	---	---	---	---
TOTAL	0.00			30.14	---	635.97	176.24	---	9130.74
YEAR	883.88		47400.31						

## 07299512 JONAH CREEK AT WEIR NEAR ESTELLINE, TX

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

DRAINAGE AREA.--65.5 mi<sup>2</sup> (169.6 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

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

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

AVERAGE DISCHARGE.--6 years (water years 1974-80), 1.79 ft<sup>3</sup>/s (0.051 m<sup>3</sup>/s), 1,300 acre-ft/yr (1.60 hm<sup>3</sup>/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 264 ft<sup>3</sup>/s (7.48 m<sup>3</sup>/s) May 29 at 2300 hours, gage height, 3.01 ft (0.917 m), no peak above base of 500 ft<sup>3</sup>/s (14.2 m<sup>3</sup>/s); minimum, 0.16 ft<sup>3</sup>/s (0.005 m<sup>3</sup>/s).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.67	.72	.69	.65	.63	.34	.52	4.5	.93	.69	.52	.39
2	.65	.72	.63	.69	.65	.37	1.6	1.2	.87	.66	.46	.35
3	.65	.72	.65	.65	.65	.44	.58	.75	.83	.67	.40	.37
4	.68	.65	.68	.65	.72	.45	.57	.77	.78	.62	.46	.36
5	.62	.65	.59	.65	.71	.40	.60	1.2	.81	.58	.40	.37
6	.60	.65	.45	.75	.63	.43	.78	.96	.72	.59	.46	.35
7	.65	.65	.45	.59	1.1	.52	.60	.89	.72	.59	.46	.33
8	.84	.65	.50	.59	1.5	.50	.37	1.4	.72	.59	.46	.38
9	.65	.66	.66	.60	.91	.51	.49	.88	.78	.59	.46	.75
10	.61	.58	.64	.68	.80	.51	.56	.99	.84	.59	.46	1.5
11	.65	.67	.68	.58	.75	.60	.55	.94	1.3	.59	.52	.48
12	.66	.82	.64	.57	.65	.49	.64	1.0	.59	.59	.46	.36
13	.69	.75	.65	.72	.65	.57	.71	.93	.65	.59	.53	.38
14	.73	.75	.65	.70	.67	.66	.78	2.0	.65	.59	.51	.37
15	.63	.65	.65	.72	.77	.53	.78	66	.72	.59	.88	.34
16	.61	.65	.72	.63	.99	.65	.84	17	1.1	.59	.52	.36
17	.71	.62	.72	.60	.77	.59	.78	1.7	.81	.59	.49	.39
18	.72	.65	.73	.59	.73	.59	.78	1.0	1.5	.52	.98	.39
19	.72	.63	.70	2.2	.75	.59	.84	1.0	.75	.52	.40	.39
20	.65	2.4	.59	1.2	.68	.65	.90	1.4	.68	.52	.40	.41
21	.65	.72	.59	.77	.72	.57	.84	.92	1.1	1.6	.46	.42
22	.65	.65	.65	.67	.72	.65	.90	.83	.68	.59	.40	.38
23	.72	.65	.72	.62	.66	.76	2.5	.85	.66	.59	.40	.36
24	.72	.65	.72	.60	.75	.51	9.6	1.0	.64	.59	.40	.44
25	.72	.65	.72	.63	.70	.54	1.7	1.0	.63	.65	.40	.45
26	.76	.65	.72	.68	.41	.61	.90	3.4	.64	.65	.34	3.1
27	.72	.65	.72	.65	.40	1.7	.78	1.6	.64	.65	.40	2.3
28	.76	.59	.65	.68	.39	.74	1.0	3.4	.64	.59	.60	.76
29	.74	.59	.65	.72	.43	.64	.81	75	.59	.59	.40	.68
30	9.5	.59	.65	.73	---	.49	1.2	37	.59	.59	.40	.60
31	.78	---	.65	.63	---	.55	---	2.3	---	.52	.53	---
TOTAL	30.11	21.63	20.11	22.39	20.89	18.15	34.50	233.81	23.56	19.47	14.96	18.51
MEAN	.97	.72	.65	.72	.72	.59	1.15	7.34	.79	.63	.48	.62
MAX	9.5	2.4	.73	2.2	1.5	1.7	9.6	75	1.5	1.6	.98	3.1
MIN	.60	.58	.45	.57	.39	.34	.37	.75	.59	.52	.34	.33
AC-FT	60	43	40	44	41	36	68	464	47	39	30	37
CAL YR 1979	TOTAL 999.82		MEAN 2.74	MAX 128	MIN .45	AC-FT 1980						
WTR YR 1980	TOTAL 478.09		MEAN 1.31	MAX 75	MIN .33	AC-FT 948						

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

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1974 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 156,000 micromhos May 14, 1975; minimum daily, 4,920 micromhos May 28, 1978.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 141,000 micromhos May 27; minimum daily, 8,160 micromhos May 15.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	
OCT											
04...	1415	.65	--	26.0	--	--	--	--	--	--	
24...	0750	.72	99600	32.0	5900	--	1700	410	--	--	
NOV											
14...	0900	.76	95600	8.0	6000	5900	1700	430	25000	140	
DEC											
04...	0745	.76	--	5.5	--	--	--	--	--	--	
12...	1615	.65	--	13.0	--	--	--	--	--	--	
27...	0735	1.5	--	7.5	--	--	--	--	--	--	
JAN											
16...	0735	.63	95700	7.5	5600	5500	1600	380	25000	146	
FEB											
05...	0815	.75	94900	5.5	5500	5400	1600	370	25000	146	
26...	0750	.59	--	4.5	--	--	--	--	--	--	
MAR											
19...	1720	.60	--	--	--	--	--	--	--	--	
APR											
07...	1405	1.2	--	29.0	--	--	--	--	--	--	
24...	--	82	--	--	--	--	--	--	--	--	
29...	0745	.81	89700	14.0	5600	5500	1600	400	24000	139	
MAY											
15...	--	127	--	--	--	--	--	--	--	--	
20...	1025	4.2	--	26.0	--	--	--	--	--	--	
20...	1545	4.2	86500	26.0	6200	6100	1800	410	22000	122	
26...	--	6.2	--	--	--	--	--	--	--	--	
JUN											
09...	1825	.74	--	30.0	--	--	--	--	--	--	
30...	1040	.59	104000	34.0	6100	6000	1700	450	28000	156	
30...	1440	.52	--	34.0	--	--	--	--	--	--	
JUL											
21...	1715	.78	122000	34.0	5900	5900	1700	410	34000	192	
AUG											
12...	1330	.46	--	30.0	--	--	--	--	--	--	
SEP											
01...	1630	.37	--	31.0	--	--	--	--	--	--	
DATE		POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT											
04...	--	--	--	--	--	--	--	--	15	.03	63
24...	--	--	--	--	4400	43000	--	--	--	--	--
NOV											
14...	77	110	0	5400	39000	9.0	71700	26	.05	78	
DEC											
04...	--	--	--	--	--	--	--	--	10	.02	85
12...	--	--	--	--	--	--	--	--	78	.14	98
27...	--	--	--	--	--	--	--	--	37	.15	97
JAN											
16...	68	110	0	4400	39000	5.7	70500	10	.02	69	
FEB											
05...	65	110	0	4100	39000	5.6	70200	17	.03	93	
26...	--	--	--	--	--	--	--	--	16	.03	68
MAR											
19...	--	--	--	--	--	--	--	--	13	.02	47
APR											
07...	--	--	--	--	--	--	--	--	28	.09	80
24...	--	--	--	--	--	--	--	--	3580	793	97
29...	59	130	0	3000	38000	7.8	67100	14	.03	78	
MAY											
15...	--	--	--	--	--	--	--	--	5510	1890	97
20...	--	--	--	--	--	--	--	--	1010	12	99
20...	62	82	0	4100	36000	.5	64400	51	.59	93	
26...	--	--	--	--	--	--	--	--	4570	77	89
JUN											
09...	--	--	--	--	--	--	--	--	8	.02	90
30...	76	78	0	5600	46000	.6	81900	--	--	--	--
30...	--	--	--	--	--	--	--	--	52	.07	28
JUL											
21...	65	78	0	5000	55000	.5	96200	54	.11	97	
AUG											
12...	--	--	--	--	--	--	--	--	27	.03	92
SEP											
01...	--	--	--	--	--	--	--	--	141	.14	98

## RED RIVER BASIN

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
OCT									
04...	1415	.65	26.0	15	.03	63	--	--	--
NOV									
14...	0900	.76	8.0	26	.05	78	--	--	--
DEC									
04...	0745	.76	5.5	10	.02	85	--	--	--
12...	1615	.65	13.0	78	.14	98	--	--	--
27...	0735	1.5	7.5	37	.15	97	--	--	--
JAN									
16...	0735	.63	7.5	10	.02	69	--	--	--
FEB									
05...	0815	.75	5.5	17	.03	93	--	--	--
26...	0750	.59	4.5	16	.03	68	--	--	--
MAR									
19...	1720	.60	--	13	.02	47	--	--	--
APR									
07...	1405	1.2	29.0	28	.09	80	--	--	--
24...	--	82	--	3580	793	97	98	99	100
29...	0745	.81	14.0	14	.03	78	--	--	--
MAY									
15...	--	127	--	5510	1890	97	99	99	100
20...	1025	4.2	26.0	1010	12	99	--	--	--
20...	1545	4.2	26.0	51	.59	93	--	--	--
26...	--	6.2	--	4570	77	89	98	99	100
JUN									
09...	1825	.74	30.0	8	.02	90	--	--	--
30...	1440	.52	34.0	52	.07	28	--	--	--
JUL									
21...	1715	.78	34.0	54	.11	97	--	--	--
AUG									
12...	1330	.46	30.0	27	.03	92	--	--	--
SEP									
01...	1630	.37	31.0	141	.14	98	--	--	--

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	30.11	83800	61600	5010	33700	2740	4200	342	*
NOV.	1979	21.63	91300	67700	3960	36900	2160	4600	267	*
DEC.	1979	20.11	97400	73600	4000	39900	2170	4900	265	*
JAN.	1980	22.39	89800	66400	4020	36200	2190	4500	272	*
FEB.	1980	20.89	87400	64100	3620	35100	1980	4400	247	*
MAR.	1980	18.15	96600	72900	3570	39600	1940	4800	237	*
APR.	1980	34.50	78700	56800	5290	31200	2900	3900	367	*
MAY	1980	233.81	28000	18400	11600	10400	6560	1400	889	*
JUNE	1980	23.56	96000	72300	4600	39300	2500	4800	306	*
JULY	1980	19.47	105700	82000	4310	44200	2320	5300	278	*
AUG.	1980	14.96	97200	73500	2970	39900	1610	4900	197	*
SEPT	1980	18.51	88700	65700	3280	35800	1790	4400	222	*
TOTAL		478.09	**	**	56300	**	30900	**	3890	**
WTD. AVG.		1.3	60100	43600	**	24000	**	3000	**	**

## RED RIVER BASIN

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

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101000	84100	97400	95000	96000	98400	101000	73300	75000	100000	101000	104000
2	103000	84800	97000	95300	95500	96900	83600	51200	78700	98500	102000	101000
3	104000	87600	95800	95200	95200	97300	95400	77700	81900	100000	100000	101000
4	101000	90200	96600	95500	94500	98600	94400	82500	88400	101000	101000	102000
5	98400	91300	98000	95900	94900	98100	98000	79600	93500	101000	101000	104000
6	96800	92000	97000	93300	94600	97400	100000	61500	98500	102000	101000	104000
7	98500	92700	96700	94100	90600	96900	98400	75500	102000	101000	101000	104000
8	89500	92800	96900	95600	70700	97300	100000	70200	102000	101000	102000	104000
9	95700	94400	95200	95300	79500	96600	95700	75700	98800	103000	102000	98900
10	99600	94600	95200	94700	80200	97000	95700	89400	96600	104000	100000	71400
11	101000	95500	97000	95500	83000	97300	99400	91700	94400	107000	100000	86200
12	102000	95100	98900	96200	86000	97700	100000	101000	94000	109000	99300	95000
13	102000	95300	98900	94000	86000	99000	99400	108000	94800	112000	99100	93900
14	101000	95600	99900	94600	85200	98400	98400	87400	95600	111000	97900	95900
15	98100	95100	99800	94200	88200	99800	96600	8160	96600	110000	107000	97700
16	98000	94300	99300	95700	80100	102000	97000	12800	99200	113000	98400	98600
17	96900	94200	99000	93700	77500	101000	98400	50100	101000	115000	97300	101000
18	95900	94400	97700	93400	84500	101000	97500	76100	98700	116000	83700	100000
19	94800	93700	98400	69300	84400	99800	95700	78200	99400	118000	77400	100000
20	95900	77000	98900	70700	86000	101000	95300	91400	100000	121000	82600	102000
21	96700	91200	99600	76500	90100	99700	96200	102000	97600	122000	83700	103000
22	97900	93700	98400	85400	92300	100000	95700	94100	98500	104000	85100	103000
23	98600	92900	97600	91500	93000	102000	69500	98000	99500	100000	87300	104000
24	99500	92100	96900	94600	93700	100000	53700	104000	100000	99000	90200	103000
25	97100	93900	96500	94000	93500	98600	64200	101000	101000	98900	93600	102000
26	97500	94800	96200	93700	96000	99000	70600	98100	98700	96900	97100	69300
27	99700	95500	95900	94200	94600	79700	77000	141000	100000	97800	97800	72400
28	97200	96800	95000	93500	93900	85900	83300	112000	101000	96600	106000	87600
29	97500	97500	96900	92600	96200	96800	89700	22400	103000	97400	107000	98900
30	54200	96300	96900	92300	---	97200	81700	20700	104000	99200	104000	101000
31	74700	---	96000	96500	---	99200	---	57200	---	101000	104000	---
MEAN	96200	92600	97400	92000	88800	97700	90700	77200	96400	105000	97100	97000



## RED RIVER BASIN

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

LOCATION.--Lat 34°34'09", long 100°11'37", Childress County, Hydrologic Unit 11120105, on left bank at downstream side of bridge on U.S. Highways 62 and 83, 3.1 mi (5.0 km) downstream from Salt Creek, 10.0 mi (16.1 km) north of Childress, and at mile 1,061 (1,707 km).

DRAINAGE AREA.--7,725 mi<sup>2</sup> (20,008 km<sup>2</sup>), of which 4,769 mi<sup>2</sup> (12,352 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records poor. Many small diversions above station. Flow is affected at times by discharge from flood-detention pools of 13 floodwater-retarding structures with combined detention capacity of 18,530 acre-ft (22.8 hm<sup>3</sup>). These structures control runoff from 83.8 mi<sup>2</sup> (217 km<sup>2</sup>).

AVERAGE DISCHARGE.--15 years (water years 1966-80), 109 ft<sup>3</sup>/s (3.087 m<sup>3</sup>/s), 78,970 acre-ft/yr (97.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,400 ft<sup>3</sup>/s (2,450 m<sup>3</sup>/s) May 28, 1978, gage height, 13.47 ft (4.106 m), from floodmark, from rating curve extended above 33,000 ft<sup>3</sup>/s (935 m<sup>3</sup>/s); maximum gage height, 13.94 ft (4.249 m) May 21, 1977; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,830 ft<sup>3</sup>/s (108 m<sup>3</sup>/s) June 11 at 2145 hours, gage height, 8.74 ft (2.664 m), no peak above base of 7,000 ft<sup>3</sup>/s (198 m<sup>3</sup>/s); minimum daily, 0.08 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s), Sept. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	19	5.4	6.3	7.0	4.9	3.5	35	51	1.2	.27	.51
2	2.5	7.3	5.2	6.3	8.0	5.2	7.2	68	17	1.8	.15	.90
3	2.2	3.9	5.3	7.0	11	4.1	5.5	36	9.2	1.1	.15	1.8
4	2.2	3.9	5.5	7.0	10	5.5	5.0	26	4.7	1.1	.15	.44
5	2.8	3.9	5.3	7.0	9.9	3.2	4.3	23	3.0	1.1	.44	.44
6	3.3	3.9	5.2	7.2	8.7	4.0	5.4	23	2.2	.90	1.1	.44
7	3.6	4.4	5.1	7.4	14	4.3	3.5	20	5.0	.72	1.3	.72
8	3.0	7.8	5.0	7.0	23	3.7	2.9	25	5.0	.72	.72	2.2
9	2.9	5.0	5.0	7.0	18	4.0	2.5	17	5.0	.72	.57	3.4
10	2.5	3.9	5.0	7.3	14	3.7	4.0	19	5.6	.72	1.1	36
11	2.5	3.9	5.0	7.1	16	4.8	5.0	15	458	.90	.90	42
12	3.0	3.9	5.0	7.0	11	6.5	3.3	14	1030	.90	.72	11
13	2.9	5.0	5.6	7.1	11	3.7	4.5	12	341	.72	.70	17
14	2.8	6.0	7.8	7.0	11	2.8	4.4	22	128	.35	.61	53
15	3.2	5.8	7.8	7.0	13	3.0	4.5	743	71	.35	5.2	156
16	3.9	4.8	6.3	6.1	5.7	3.9	5.4	1630	52	.57	2.2	120
17	4.4	4.3	5.6	6.2	6.1	3.1	5.7	257	48	.57	.91	34
18	4.6	4.9	5.9	6.3	5.6	1.8	3.6	106	50	.72	.92	8.7
19	3.7	4.2	5.0	26	5.4	2.7	5.4	43	65	.72	2.1	2.2
20	2.2	29	5.0	31	5.7	4.9	6.1	85	41	.90	1.4	.20
21	1.7	12	5.6	18	5.6	2.1	6.3	75	31	1.1	21	.08
22	1.7	8.4	7.8	9.6	5.6	3.0	6.6	61	19	2.0	3.3	.08
23	2.0	7.7	9.7	7.7	5.0	5.5	7.3	61	70	.63	.56	.15
24	2.9	8.4	9.7	7.8	5.6	3.1	89	54	45	.38	.27	.72
25	3.4	8.4	9.7	7.7	4.4	2.3	63	40	13	.42	.16	1.3
26	3.3	7.7	7.0	7.3	4.8	3.1	87	44	3.0	.57	.17	46
27	3.2	6.1	6.3	6.8	5.0	8.0	43	119	2.2	1.1	.23	213
28	2.6	6.1	6.6	6.5	5.2	7.2	27	44	1.6	1.3	.29	135
29	1.6	5.8	6.3	6.2	5.1	5.0	24	463	2.0	.90	.43	48
30	93	5.6	6.3	6.2	---	2.9	47	500	2.5	.57	.18	29
31	129	---	6.3	6.2	---	2.0	---	138	---	.44	.17	---
TOTAL	305.5	211.0	192.3	270.3	260.4	124.0	491.9	4818	2581.0	26.19	48.37	964.28
MEAN	9.85	7.03	6.20	8.72	8.98	4.00	16.4	155	86.0	.84	1.56	32.1
MAX	129	29	9.7	31	23	8.0	89	1630	1030	2.0	21	213
MIN	1.6	3.9	5.0	6.1	4.4	2.5	12	12	1.6	.35	.15	.08
AC-FT	606	419	381	536	517	246	976	9560	5120	52	96	1910
CAL YR 1979	TOTAL	33347.86	MEAN	91.4	MAX	4310	MIN	.57	AC-FT	66150		
WTR YR 1980	TOTAL	10293.24	MEAN	28.1	MAX	1630	MIN	.08	AC-FT	20420		

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

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to current year.

WATER TEMPERATURES: July 1968 to current year.

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

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 98,100 micromhos June 18, July 8, and Aug. 9, 1970; minimum daily, 3,000 micromhos Aug. 13, 1971.

WATER TEMPERATURES: Maximum daily 40.0°C July 24, 1980; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 90,900 micromhos Aug. 6; minimum daily, 4,210 micromhos May 29.

WATER TEMPERATURES: Maximum daily, 40.0°C July 24; minimum daily, 1.0°C Nov. 29.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

		STREAK- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHUS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	
DATE	TIME											
OCT 30...	1630	59	27000	7.6	14.0	900	10.7	122	8.1	2400	2200	
NOV 28...	0945	6.1	72000	8.1	1.0	3.8	11.5	119	.8	K11	51	
DEC 04...	1330	5.5	--	--	--	--	--	--	--	--	--	
19...	1215	7.0	66100	8.1	6.0	36	10.2	117	4.8	<1	350	
27...	1010	6.2	--	--	--	--	--	--	--	--	--	
JAN 16...	0900	6.1	69500	7.8	5.0	19	10.7	124	1.2	K15	340	
FEB 25...	1700	4.4	--	--	--	--	--	--	--	--	--	
27...	1330	5.0	70200	7.9	19.0	--	9.6	145	2.0	K4	<4	
MAR 20...	0745	4.4	--	--	--	--	--	--	--	--	--	
26...	1500	4.2	76000	7.9	25.0	23	8.2	144	4.1	K8	K12	
APR 23...	1000	8.7	75500	7.9	24.0	2.4	7.9	136	3.4	K10	<1	
MAY 13...	1515	15	77500	8.2	27.0	5.0	8.1	150	4.2	K4	K12	
JUN 25...	1115	13	40450	8.1	27.0	320	7.8	120	2.9	120	40	
JUL 23...	0945	.90	83000	7.9	36.0	5.0	5.7	95	.9	K8	K16	
AUG 20...	0830	1.6	85000	7.6	23.0	19	7.6	133	2.2	K4	K37	
SEP 03...	1345	2.6	85500	8.1	31.0	.80	6.6	132	1.4	K4	84	
DATE		HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 30...	2300	2200	710	120	5600	51	24	60	0	1800	9300	
NOV 28...	4900	4700	1400	330	18000	112	50	150	0	4100	29000	
DEC 04...	--	--	--	--	--	--	--	--	--	--	--	--
19...	4900	4800	1400	340	16000	100	26	140	0	3700	25000	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 16...	4900	4800	1400	350	16000	99	46	120	0	3400	26000	
FEB 25...	--	--	--	--	--	--	--	--	--	--	--	--
27...	5000	4900	1400	370	17000	104	66	100	0	4300	27000	--
MAR 20...	--	--	--	--	--	--	--	--	--	--	--	--
26...	3900	3800	1100	270	15000	105	48	110	0	4600	23000	
APR 23...	5600	5500	1600	380	19000	111	67	110	0	4600	31000	
MAY 13...	5900	5800	1700	400	19000	108	49	90	0	4500	31000	
JUN 25...	3400	3300	990	220	8900	67	50	130	0	2300	15000	
JUL 23...	6200	6100	1800	410	20000	111	59	90	0	4400	34000	
AUG 20...	6200	6200	1800	420	22000	121	70	80	0	5100	36000	
SEP 03...	5900	5800	1700	400	22000	125	76	100	0	3900	37000	

## RED RIVER BASIN

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)
OCT 30...	.3	5.3	18100	17600	.25	.28	.320	--	2.8	--
NOV 28...	.6	9.9	51100	53000	.40	.40	.430	.370	.06	.02
DEC 04...	--	--	--	--	--	--	--	--	--	--
19...	.5	9.8	--	46500	.05	.03	.750	.660	.01	.07
27...	--	--	--	--	--	--	--	--	--	--
JAN 16...	.7	9.7	49900	47300	.12	.12	.490	.240	.00	.00
FEB 25...	--	--	--	--	--	--	--	--	--	--
27...	.6	--	51200	50100	.13	.13	.470	.430	.31	.00
MAR 20...	--	--	--	--	--	--	--	--	--	--
26...	.6	8.2	43100	44100	.27	.22	.510	.390	.18	.03
APR 23...	1.0	9.1	57600	56700	.05	.04	.430	.340	2.7	.26
MAY 13...	.7	6.8	62400	56700	.03	.03	.340	.410	.48	--
JUN 25...	.9	14	27300	27500	.18	.19	.160	.010	1.3	.25
JUL 23...	.3	5.3	61100	60700	.00	.02	.420	.390	.22	.24
AUG 20...	.8	7.4	64600	65400	.00	.00	.000	.000	.73	.77
SEP 03...	.8	8.3	63500	65100	.00	.00	.310	.380	.55	.72

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 30...	3.1	1.1	1.100	.050	--	11	.9	7460	1190	98
NOV 28...	.49	.39	.020	.010	2.0	--	--	59	.97	65
DEC 04...	--	--	--	--	--	--	--	13	.19	79
19...	.76	.73	.010	.010	3.9	--	--	50	.94	64
27...	--	--	--	--	--	--	--	9	.15	55
JAN 16...	.18	.08	.030	.030	3.5	--	--	--	--	--
FEB 25...	--	--	--	--	--	--	--	61	.72	54
27...	.78	.30	.060	.050	--	2.8	1.6	12	.16	60
MAR 20...	--	--	--	--	--	--	--	27	.32	48
26...	.69	.42	.040	.070	1.8	--	--	23	.26	88
APR 23...	3.1	.59	.050	.040	4.6	--	--	5	.12	76
MAY 13...	.82	--	.040	.040	4.1	--	--	6	.24	69
JUN 25...	1.5	.26	.200	.000	--	4.4	2.1	300	11	96
JUL 23...	.64	.63	.030	.050	4.6	--	--	10	.02	42
AUG 20...	.73	.77	.030	.020	--	3.0	.5	115	.50	96
SEP 03...	.86	1.1	.020	.020	5.8	--	--	52	.37	95

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CK)
OCT 30...	1630	10	8	2	1000	300	700	0	0	2	56
DEC 19...	1215	--	--	--	--	--	--	--	--	--	--
FEB 27...	1330	22	21	1	600	0	600	0	0	0	80
MAR 26...	1500	--	--	--	--	--	--	--	--	--	--
MAY 13...	1515	--	--	--	--	--	--	--	--	--	--
JUN 25...	1115	7	0	7	400	200	200	0	0	0	30
AUG 20...	0830	3	0	3	500	0	500	0	0	0	80
SEP 03...	1345	--	--	--	--	--	--	--	--	--	--

DATE	CHRO- MIUM, SUS- PENDE RECOV. (UG/L AS CK)	CHRO- MIUM, DIS- SOLVED (UG/L AS CK)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 30...	40	16	17	17	0	62	59	3	26000	26000	100
DEC 19...	--	--	--	--	--	--	--	--	--	--	--
FEB 27...	20	60	2	0	2	4	3	1	420	210	210
MAR 26...	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	--	--	--	--	--	--	--	--	--	--	--
JUN 25...	0	40	3	3	0	21	17	4	5100	5100	50
AUG 20...	40	40	1	0	1	2	1	1	590	180	410
SEP 03...	--	--	--	--	--	--	--	--	--	--	--

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV. (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDE RECOV- ERABLE (UG/L AS NI)
OCT 30...	29	29	0	1400	1300	70	4.2	2.9	1.3	48	48
DEC 19...	--	--	--	--	--	--	--	--	--	--	--
FEB 27...	4	4	0	180	10	170	1.2	.5	.7	3	3
MAR 26...	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	--	--	--	--	--	--	--	--	--	--	--
JUN 25...	11	10	1	280	270	10	.0	.0	.1	35	30
AUG 20...	0	0	2	170	40	130	.0	.0	.3	3	3
SEP 03...	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 30...	0	1	0	1	0	0	0	170	150	20
DEC 19...	--	--	--	--	0	--	--	--	--	--
FEB 27...	0	1	0	1	1	1	0	50	20	30
MAR 26...	--	--	--	--	0	--	--	--	--	--
MAY 13...	--	--	--	--	0	--	--	--	--	--
JUN 25...	5	2	0	2	0	0	0	80	50	30
AUG 20...	0	1	0	1	0	0	0	60	0	60
SEP 03...	--	--	--	--	0	--	--	--	--	--

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

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	NOV 28,79 0945	MAR 1,80 0000	MAY 13,80 1515	JUN 25,80 1115
TOTAL CELLS/ML	920	430	15000	45000
DIVERSITY: DIVISION	0.9	0.0	0.5	1.5
..CLASS	0.9	0.0	0.5	1.5
..ORDER	0.9	0.0	0.6	1.9
...FAMILY	1.3	1.5	0.8	2.4
....GENUS	1.3	1.6	0.8	3.1

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	--	-	2100	5
....CHODATELLA	--	-	--	-	--	-	700	2
....OOCYSTIS	--	-	--	-	--	-	880	2
....SELENASTRUM	--	-	--	-	--	-	--	-
....WESTELLA	--	-	--	-	--	-	700	2
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	270	2	2100	5
....TETRASTRUM	--	-	--	-	--	-	1400	3
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	400	3	*	0
CHRYSOPHYTA								
..BACILLARIOPHYCEAE								
..CENTRALES								
...CHAETOCERACEAE								
....CHAETOCEROS	--	-	--	-	14000#	89	2300	5
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	270	2	6500	15
....MELOSTRA	--	-	--	-	--	-	1600	4
....STEPHANODISCUS	--	-	--	-	--	-	880	2
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	1100	2
...CYMBELLACEAE								
....AMPHORA	--	-	36	8	--	-	--	-
....CYMBELLA	14	2	--	-	--	-	--	-
...EUNOTIACEAE								
....EUNOTIA	--	-	51	12	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	--	-	--	-
...SYNEDRA	14	2	10	2	--	-	*	0
...NAVICULACEAE								
....ENTOMONEIS	--	-	--	-	130	1	--	-
....NAVICULA	170#	19	41	9	--	-	530	1
....PLAGIOTROPIS	--	-	5	1	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	72	8	290#	67	130	1	530	1
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
....CRYPTOCHYSIDACEAE								
....CHROOMONAS	--	-	--	-	130	1	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	130	1	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
....CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	--	-	2100	5
...HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	650#	70	--	-	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	1800	4
....OSCILLATORIA	--	-	--	-	--	-	19000#	43
PYRRHOPHYTA (FIRE ALGAE)								
..DINOPHYCEAE								
...PERIDINIALES								
....GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	130	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%



## RED RIVER BASIN

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

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 23,80 0945	AUG 20,80 0830	SEP 3,80 1345
TOTAL CELLS/ML	2700	890	890
DIVERSITY: DIVISION	0.9	1.9	1.9
..CLASS	0.9	1.9	1.9
..ORDER	1.5	2.2	2.0
...FAMILY	1.6	2.6	2.2
....GENUS	1.6	2.6	2.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	*	0	--	-	--	-
....CHODATELLA	--	-	--	-	--	-
...OOCYSTIS	--	-	--	-	--	-
...SELENASTRUM	*	0	--	-	--	-
...WESTELLA	--	-	--	-	--	-
...SCENEDESMACEAE						
...SCENEDESMUS	--	-	--	-	--	-
...TETRASTRUM	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	26	1	26	3	120	13
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...CHAETOCERACEAE						
...CHAETOCEROS	--	-	--	-	--	-
...COSCINODISCACEAE						
....CYCLOTELLA	26	1	13	1	--	-
....MELOSIRA	--	-	--	-	--	-
...STEPHANODISCUS	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	--	-
...CYMBELLACEAE						
....AMPHORA	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	--	-
...EUNOTIACEAE						
...EUNOTIA	--	-	--	-	--	-
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	39	4
...SYNEDRA	--	-	--	-	--	-
...NAVICULACEAE						
...ENTOMONEIS	--	-	--	-	--	-
...NAVICULA	64	2	39	4	26	3
...PLAGIOTROPIS	--	-	--	-	--	-
...NITZSCHACEAE						
...NITZSCHIA	120	4	26	3	90	10
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHKYSIDACEAE						
....CHROOMONAS	*	0	100	12	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	77	3	310#	35	26	3
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	280	11	64	7	13	1
...HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	--	-
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	--	-
....OSCILLATORIA	1900#	73	150#	17	440#	49
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	90	3	150#	17	140#	16

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## RED RIVER BASIN

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

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	305.5	43900	30400	25000	16000	13200	2900	2400	*
NOV.	1979	211.0	63400	44900	25600	24300	13800	3900	2200	*
DEC.	1979	192.3	76400	55100	28600	30200	15700	4400	2270	*
JAN.	1980	270.3	70700	50500	36900	27500	20000	4200	3040	*
FEB.	1980	260.4	66600	47100	33100	25400	17800	4100	2860	*
MAR.	1980	124.0	72400	51800	17300	28200	9440	4300	1430	*
APR.	1980	491.9	45500	31400	41800	16600	22000	3000	4010	*
MAY	1980	4818	17600	11600	150000	5800	75400	1400	17600	*
JUNE	1980	2581.0	19100	12500	87000	6200	43400	1500	10400	*
JULY	1980	26.19	82500	60100	4250	33200	2350	4500	320	*
AUG.	1980	48.37	72000	51600	6750	28100	3680	4200	549	*
SEPT	1980	964.28	39400	26900	70200	14100	36700	2700	7000	*
TOTAL		10293.24	**	**	527000	**	274000	**	54100	**
WTD. AVG.		28	27900	19000	**	9800	**	1900	**	**

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76400	30500	79700	80200	67300	71800	75400	62300	24600	76100	87900	85000
2	81300	58800	74500	77200	73500	71300	76800	30500	35400	77200	83900	82100
3	80300	67500	73600	83500	66700	71400	84700	34900	46500	81000	83700	84200
4	79100	72100	74800	77700	66300	70300	80000	45000	60100	80700	84400	8280
5	78600	71800	76200	81200	68900	81600	72700	56800	75100	79900	82600	80000
6	78400	73600	77500	81100	75000	73100	74800	60000	81400	82900	90900	78900
7	78300	73700	77200	81700	65000	73800	78400	63300	84100	83300	86500	79500
8	78200	72500	76400	85300	60200	73500	78800	67000	87800	82800	82200	67900
9	80200	72400	75700	77500	59400	73200	80000	70700	86300	82400	83000	68300
10	78700	72600	73800	74200	60100	69800	81400	70000	83600	81800	83800	29700
11	79100	73000	72400	76600	59800	65900	79500	71800	24800	81000	83600	50800
12	78000	72800	75400	81400	65500	56900	82300	73200	12100	83100	78600	68100
13	77400	68500	70500	82600	70800	74500	81500	75900	14300	86500	81400	65000
14	79100	68000	68100	78000	68600	78200	80000	65500	16700	86200	81100	32500
15	76800	71100	69900	73800	67700	71900	78800	16400	18000	85500	85100	14000
16	76400	72300	79100	68100	66500	74300	81500	11900	17600	84400	84500	20000
17	75200	72200	87200	78200	65200	72000	80000	16300	24500	84000	78500	53700
18	74100	73700	83100	74200	65100	72400	81300	19700	18800	86400	77100	87400
19	77800	72800	75300	55300	65200	76100	81400	21000	22500	88500	79100	72000
20	78900	36900	78900	52500	82000	75500	75900	27500	24900	82400	78700	78000
21	84000	59700	72700	60500	73000	75100	75600	28300	30300	81200	60400	81000
22	83500	70000	75700	66000	70200	75500	76300	29000	33800	86200	65900	83000
23	81700	73900	77500	72200	71800	71400	76100	29900	21900	81000	76600	81200
24	80500	72700	77600	72500	70000	73300	32800	38300	50600	82300	82400	76500
25	76800	77500	77600	75500	70500	70300	29000	54800	66000	81900	83600	75000
26	76000	82500	78200	76800	71000	74800	26800	58600	68100	78500	81600	41400
27	77400	73400	77500	78000	71300	70500	40500	19700	69500	82000	81500	34300
28	77600	72000	72200	79600	69900	70000	48800	25000	73100	83800	85200	58300
29	77200	81900	77800	80200	70900	79800	63000	4210	69200	84100	85000	65900
30	38000	82900	82200	62600	---	82000	41400	7500	75100	87100	90800	90900
31	26100	---	81800	69500	---	82500	---	19600	---	86500	89500	---
MEAN	75500	69800	76500	74600	68200	73300	69900	41100	47200	82900	81900	63100

## RED RIVER BASIN

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	9.0	5.0	12.0	7.0	4.0	21.0	20.0	30.0	39.0	37.0	31.0
2	25.0	15.0	12.0	11.0	6.0	14.0	17.0	22.0	27.0	36.0	38.0	30.0
3	20.0	5.0	4.0	5.0	9.0	8.0	17.0	25.0	27.0	33.0	39.0	32.0
4	25.5	20.0	5.0	4.0	6.0	17.0	14.0	25.0	24.0	35.0	39.0	32.0
5	27.0	21.0	16.0	2.0	8.0	10.0	23.0	27.0	28.0	37.0	38.0	34.0
6	20.0	7.0	7.0	2.5	8.0	24.0	21.0	29.0	32.0	36.0	35.0	33.0
7	29.0	12.0	15.0	5.0	7.0	28.0	23.0	27.0	34.0	38.0	35.0	34.0
8	31.0	10.0	11.0	4.0	10.0	12.0	20.0	26.0	28.0	39.0	35.0	32.0
9	22.0	10.0	14.0	7.0	9.0	22.0	24.0	27.0	27.0	35.0	35.0	31.0
10	20.0	4.0	17.0	10.0	7.0	20.0	29.0	29.0	29.0	39.0	35.0	20.0
11	29.0	11.0	8.0	10.0	5.0	20.0	17.0	23.0	24.0	36.0	32.0	31.0
12	27.0	12.0	3.0	15.0	5.0	18.0	14.0	24.0	30.0	38.0	31.0	34.0
13	15.0	13.0	3.0	18.0	10.0	15.0	20.0	27.0	---	39.0	33.0	30.0
14	24.0	9.0	4.0	13.0	9.0	22.0	25.0	23.0	---	39.0	35.0	35.0
15	18.0	8.0	6.0	10.0	4.0	30.0	23.0	23.0	23.0	35.0	33.0	30.0
16	24.0	17.0	7.0	7.0	---	23.0	27.0	20.0	35.0	36.0	35.0	27.0
17	24.0	16.0	5.0	13.0	23.0	10.0	24.0	25.0	34.0	36.0	31.0	18.0
18	25.0	18.0	10.0	13.0	17.0	10.0	28.0	25.0	26.0	35.0	32.0	28.0
19	25.0	12.0	12.0	5.0	16.0	12.0	30.0	26.0	35.0	36.0	33.0	29.0
20	28.0	17.0	6.0	7.0	18.0	23.0	---	25.0	35.0	33.0	35.0	30.0
21	26.0	9.0	13.0	5.0	25.0	18.0	25.0	19.0	36.0	34.0	30.0	33.0
22	18.0	10.0	10.0	6.0	10.0	15.0	27.0	19.0	35.0	38.0	32.0	20.0
23	20.0	12.0	12.0	5.0	10.0	15.0	23.0	27.0	30.0	38.0	30.0	20.0
24	21.0	18.0	10.0	7.0	11.0	15.0	23.0	23.0	38.0	40.0	35.0	22.0
25	23.0	16.0	13.0	11.0	8.0	9.0	23.0	30.0	32.0	35.0	32.0	---
26	25.0	15.0	11.0	---	9.0	10.0	17.0	28.0	32.0	36.0	33.0	24.0
27	20.0	5.0	13.0	5.0	11.0	20.0	21.0	21.0	38.0	35.0	30.0	13.0
28	21.0	3.0	7.0	6.0	23.0	25.0	11.0	25.0	30.0	37.0	32.0	20.0
29	15.0	1.0	4.0	6.0	8.0	15.0	30.0	27.0	37.0	35.0	33.0	20.0
30	10.0	5.0	5.0	6.0	---	20.0	20.0	32.0	38.0	38.0	34.0	26.0
31	8.0	---	8.0	5.0	---	14.0	---	27.0	---	39.0	34.0	---
MEAN	22.0	11.5	9.0	8.0	10.5	16.5	22.0	25.0	31.0	36.5	34.0	27.5

## RED RIVER BASIN

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## 07299570 RED RIVER NEAR QUANAH, TX

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

DRAINAGE AREA.--8,321 mi<sup>2</sup> (21,551 km<sup>2</sup>), of which 4,769 mi<sup>2</sup> (12,352 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records good. Several small diversions above station for irrigation. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station No. 07299540.

AVERAGE DISCHARGE.--20 years (water years 1961-80), 146 ft<sup>3</sup>/s (4.135 m<sup>3</sup>/s), 105,800 acre-ft/yr (130 hm<sup>3</sup>/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,000 ft<sup>3</sup>/s (142 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
May 16	1315	10,500	297	9.29	2.832
May 30	0700	*14,300	405	9.83	2.996
June 12	0800	10,300	292	9.26	2.822

Minimum discharge, no flow Aug. 25, 26, Sept. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	162	6.6	9.8	14	6.1	6.3	40	603	4.6	.01	.02
2	1.0	72	7.5	10	20	5.7	12	32	242	3.8	.01	.04
3	1.1	42	8.0	9.4	20	7.2	12	23	143	2.8	.02	.03
4	.77	28	8.0	9.3	19	7.8	8.6	28	102	2.1	.02	.02
5	1.1	20	8.0	9.9	18	5.1	9.0	20	71	1.9	.01	.02
6	1.2	15	7.0	11	17	4.7	4.9	14	48	1.3	.01	.03
7	1.2	12	6.6	9.3	21	5.6	3.2	9.7	34	1.2	.02	.03
8	1.2	12	6.6	8.4	37	5.4	1.9	8.9	69	.93	.02	.12
9	1.0	12	6.6	8.5	35	4.7	2.3	7.0	43	.81	.02	.10
10	.81	9.7	7.5	9.5	55	5.1	2.3	5.4	32	.64	.02	.07
11	1.3	9.1	8.5	8.3	52	6.0	1.7	4.3	21	.49	.03	.07
12	1.5	10	13	7.1	50	12	1.9	2.8	3570	.42	.03	.06
13	1.3	9.1	13	7.5	52	9.8	1.9	2.1	1100	.31	.03	.07
14	1.5	9.1	18	8.0	44	8.0	1.9	4.1	331	.21	.03	.07
15	2.4	8.7	19	8.2	34	5.2	2.1	3220	164	.14	.03	.07
16	3.1	8.2	18	8.3	26	5.2	1.9	7870	108	.10	.02	.06
17	2.8	7.8	14	9.0	28	3.4	1.6	1330	84	.12	.02	3.9
18	2.8	6.9	12	9.1	30	3.1	1.7	272	68	.09	.02	2.0
19	2.9	6.2	12	53	36	3.0	2.0	103	60	.08	.02	.54
20	2.3	34	13	70	42	3.6	2.1	52	50	.06	.02	.06
21	1.9	29	14	84	36	3.0	1.8	320	48	.07	.12	.01
22	1.5	23	13	59	22	3.4	1.8	175	37	.04	.36	.00
23	1.9	18	15	44	15	15	2.0	60	29	.02	.01	.00
24	2.4	13	11	34	14	7.4	30	30	18	.01	.01	.04
25	2.7	11	9.6	29	12	5.2	417	18	32	.01	.00	.03
26	2.8	9.6	9.1	24	10	4.5	429	13	19	.01	.00	.90
27	2.9	8.5	9.6	20	9.4	11	150	190	12	.01	.01	4.8
28	2.8	7.0	13	19	9.0	19	77	275	8.6	.03	.01	48
29	3.0	6.2	11	18	8.9	32	46	2300	6.6	.02	.02	33
30	40	5.8	9.9	16	---	20	37	7600	6.0	.02	.01	14
31	109	---	9.1	15	---	10	---	1560	---	.01	.01	---
TOTAL	203.48	624.9	337.2	645.6	786.3	247.2	1272.9	25589.3	7159.2	22.35	.97	108.16
MEAN	6.56	20.8	10.9	20.8	27.1	7.97	42.4	825	239	.72	.031	3.61
MAX	109	162	19	84	55	32	429	7870	3570	.46	.36	48
MIN	.77	5.8	6.6	7.1	8.9	3.0	1.6	2.1	6.0	.01	.00	.00
AC-FT	404	1240	669	1280	1560	490	2520	50760	14200	44	1.9	215
CAL YR 1979	TOTAL	70367.28	MEAN 193	MAX 10600	MIN .77	AC-FT 139600						
WTR YR 1980	TOTAL	36997.56	MEAN 101	MAX 7870	MIN .00	AC-FT 73380						

## RED RIVER BASIN

07299570 RED RIVER NEAR QUANAH, TX

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
OCT 03...	1135	1.2	18.0	42	.15	--	--
NOV 14...	1635	8.8	15.5	112	2.7	--	--
DEC 27...	1220	9.5	9.0	16	.41	--	--
FEB 05...	1245	18	10.0	50	2.4	--	--
MAR 20...	0945	3.8	10.0	65	.67	--	--
APR 29...	1135	46	20.0	5310	660	74	90
MAY 21...	1155	298	20.0	3600	2900	60	67
JUN 10...	1025	32	24.0	689	60	--	--
JUN 10...	1430	99	32.0	5360	1430	29	31
JUL 22...	0820	.05	23.5	14	.00	--	--
SEP 02...	1045	.05	29.0	14	.00	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM
OCT 03...	--	--	--	97	--	--	--
NOV 14...	--	--	--	99	--	--	--
DEC 27...	--	--	--	90	--	--	--
FEB 05...	--	--	--	88	--	--	--
MAR 20...	--	--	--	96	--	--	--
APR 29...	98	98	98	99	99	100	--
MAY 21...	76	86	88	90	98	99	100
JUN 10...	--	--	--	97	--	--	--
JUN 10...	90	96	97	98	99	100	--
JUL 22...	--	--	--	90	--	--	--
SEP 02...	--	--	--	88	--	--	--



## RED RIVER BASIN

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## 07299670 GROESBECK CREEK AT STATE HIGHWAY 6 NEAR QUANAH, TX

LOCATION.--Lat 34°21'16", long 99°44'24", Hardeman County, Hydrologic Unit 11130101, near left bank on downstream side of bridge on State Highway 6, 2 mi (3 km) downstream from confluence of North and South Groesbeck Creeks, 4 mi (6 km) north of Quanah, and 9 mi (14 km) upstream from mouth.

DRAINAGE AREA.--303 mi<sup>2</sup> (785 km<sup>2</sup>).

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

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

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

AVERAGE DISCHARGE.--18 years (water years 1963-80), 13.8 ft<sup>3</sup>/s (0.391 m<sup>3</sup>/s), 0.62 in/yr (16 mm/yr), 10,000 acre-ft/yr (12.3 hm<sup>3</sup>/yr).

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

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

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
May 16	0030	*2,060 58.3	16.72 5.096
May 31	1600	1,400 39.6	15.61 4.758

Minimum discharge, 0.58 ft<sup>3</sup>/s (0.016 m<sup>3</sup>/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	6.5	7.7	6.9	7.7	6.5	5.0	8.7	193	4.9	2.5	2.6
2	5.3	6.0	7.9	7.1	7.7	6.6	5.0	7.2	35	4.9	2.4	2.3
3	4.8	6.1	7.9	7.0	7.7	6.9	5.1	6.2	16	4.6	2.4	2.1
4	4.7	6.1	7.8	7.1	7.7	7.2	4.8	6.3	9.4	4.5	2.5	2.2
5	6.0	5.8	7.9	7.2	7.7	7.0	4.6	9.5	8.4	4.5	2.5	2.1
6	5.8	5.9	8.0	7.2	7.4	6.9	4.6	8.0	7.8	4.4	2.4	2.1
7	5.8	7.3	8.2	6.8	7.6	6.5	4.5	6.9	7.4	4.4	2.1	2.1
8	5.4	6.7	7.5	7.2	8.4	6.5	4.1	6.5	7.4	4.3	2.0	2.2
9	4.3	6.2	7.1	7.5	8.4	7.0	4.1	6.0	7.3	4.3	2.0	2.7
10	5.2	6.0	9.7	7.0	7.9	7.3	4.4	6.2	7.0	4.3	2.1	2.8
11	6.3	6.1	9.1	7.0	7.7	6.9	4.6	6.0	6.9	4.4	2.1	2.4
12	6.6	6.4	8.2	6.8	7.6	7.2	4.1	6.1	7.0	4.5	2.0	2.1
13	6.2	6.3	8.1	7.2	7.5	7.0	3.8	5.8	7.0	4.4	2.0	2.5
14	7.2	6.2	8.0	7.4	7.6	6.7	3.9	5.7	7.2	4.2	1.9	2.4
15	6.9	6.3	8.2	7.7	7.5	6.8	3.9	427	7.4	4.0	1.9	2.4
16	7.0	6.2	7.5	8.6	7.4	6.7	3.8	1040	8.1	4.2	1.8	2.2
17	7.4	6.3	8.6	8.3	7.7	6.6	4.0	194	7.6	4.2	1.8	2.0
18	6.7	6.6	8.6	7.7	7.7	6.4	4.0	31	7.4	4.2	1.7	1.9
19	6.1	6.8	8.6	30	7.6	6.6	4.0	16	7.8	4.2	1.8	3.4
20	6.0	12	8.8	67	7.6	6.7	4.4	12	7.4	4.0	1.8	2.8
21	5.8	101	8.8	30	7.1	6.6	4.2	10	7.0	4.0	1.9	2.5
22	5.2	35	8.9	14	7.0	6.6	4.0	8.9	8.4	4.0	1.9	2.6
23	5.4	11	8.9	10	7.2	7.0	4.2	8.3	8.6	3.8	2.0	2.6
24	5.7	8.3	9.3	9.0	6.8	7.3	5.2	8.0	6.9	3.6	2.0	3.1
25	6.9	7.6	9.0	8.6	6.8	6.6	5.0	7.6	6.2	3.4	1.9	2.9
26	6.5	7.4	8.7	8.3	6.7	6.5	182	7.7	5.4	3.5	2.0	3.0
27	6.4	7.3	7.4	8.3	6.6	6.4	29	8.1	5.4	3.5	2.1	3.6
28	6.3	7.5	7.7	8.0	6.6	6.4	12	11	5.2	3.3	1.8	3.9
29	5.7	7.4	7.9	8.0	6.6	5.9	7.2	15	4.9	3.1	.69	3.7
30	25	7.5	7.3	8.0	---	5.7	6.6	9.1	5.1	2.6	3.5	3.8
31	11	---	6.8	8.0	---	5.2	---	470	---	2.5	3.6	---
TOTAL	209.3	331.8	254.1	348.9	215.5	206.2	346.1	2378.8	435.6	124.7	65.09	79.0
MEAN	6.75	11.1	8.20	11.3	7.43	6.65	11.5	76.7	14.5	4.02	2.10	2.63
MAX	25	101	9.7	67	8.4	7.3	182	1040	193	4.9	3.6	3.9
MIN	4.3	5.8	6.8	6.8	6.6	5.2	3.8	5.7	4.9	2.5	.69	1.9
CFSM	.02	.04	.03	.04	.03	.02	.04	.25	.05	.01	.007	.009
IN.	.03	.04	.03	.04	.03	.03	.04	.29	.05	.02	.01	.01
AC-FT	415	658	504	692	427	409	686	4720	864	247	129	157
CAL YR 1979	TOTAL	4660.20	MEAN 12.8	MAX 551	MIN 3.4	CFSM .04	IN .57	AC-FT 9240				
WTR YR 1980	TOTAL	4995.09	MEAN 13.6	MAX 1040	MIN .69	CFSM .05	IN .61	AC-FT 9910				

## 07299840 GREENBELT LAKE NEAR CLARENDON, TX

LOCATION.--Lat 35°00'02", long 100°53'40", Donley County, Hydrologic Unit 11120201, on upstream side near right end of dam on Salt Fork Red River and 4.3 mi (6.9 km) north of Clarendon.

DRAINAGE AREA.--457 mi<sup>2</sup> (1,184 km<sup>2</sup>), of which 191 mi<sup>2</sup> (495 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1967 to current year. Prior to October 1973, published as Greenbelt Reservoir. Water-quality records: Chemical analyses: October 1969 to September 1978.

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

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft (1,770 m) long. Deliberate impoundment began Dec. 5, 1966, and the dam was completed in August 1967. The dam is the property of Greenbelt Municipal and Industrial Water Authority and was built to impound water for municipal and industrial uses by the cities of Childress, Clarendon, Crowell, Hedley, and Quanah. The spillway is an uncontrolled open cut through natural ground, 1,450 ft (442 m) wide and located at the left end of dam, designed to discharge 184,000 ft<sup>3</sup>/s (5,210 m<sup>3</sup>/s) at an elevation of 2,684.0 ft (818.08 m). A morning-glory-type drop inlet with a 26 ft 8.5-inch-diameter (8.14 m) opening at crest discharges into a 7- by 7-foot (2 by 2 m) concrete conduit. The outlet works consists of a 36-inch (914 mm) pipe that is controlled by two 20-inch (508 mm) valves that control the discharge into a stilling basin and to a water treatment plant. The capacity table, dated April 1964, is based on Geological Survey topographic maps dated 1962. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

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

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 44,650 acre-ft (55.1 hm<sup>3</sup>) June 26-28, 1975, elevation, 2,655.71 ft (809.460 m); minimum, 2,950 acre-ft (3.64 hm<sup>3</sup>) Aug. 29, 30, 1967, elevation, 2,607.37 ft (794.726 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 36,250 acre-ft (44.7 hm<sup>3</sup>) Oct. 1, elevation, 2,650.33 ft (807.821 m); minimum observed, 30,410 acre-ft (37.5 hm<sup>3</sup>) Sept. 30, elevation, 2,646.03 ft (806.510 m).

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

2,645.0	29,120	2,649.0	34,360
2,647.0	31,660	2,651.0	37,230

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36250	35740	35460	35350	35330	35390	35400	35380	35710	34810	32940	31340
2	36210	35770	35460	35350	35330	35450	35430	35320	35690	34750	32860	31300
3	36120	35770	35460	35350	35330	35450	35390	35280	35660	34730	32820	31230
4	36060	35740	35430	35320	35350	35400	35400	35230	35640	34660	32760	31180
5	36050	35740	35430	35320	35350	35400	35400	35210	35640	34600	32640	31140
6	36030	35740	35430	35290	35360	35460	35380	35210	35600	34530	32620	31120
7	35970	35730	35430	35290	35360	35390	35320	35160	35560	34460	32560	31110
8	35890	35730	35430	35280	35390	35420	35320	35190	35490	34400	32500	31080
9	35830	35710	35400	35280	35390	35420	35330	35160	35450	34330	32440	31050
10	35770	35710	35400	35280	35390	35420	35300	35180	35450	34250	32390	31040
11	35710	35710	35400	35260	35400	35460	35250	35110	35640	34210	32350	30990
12	35690	35710	35400	35260	35430	35420	35220	35110	35630	34130	32280	30950
13	35660	35700	35380	35260	35460	35430	35190	35070	35600	34060	32230	30910
14	35660	35700	35380	35260	35450	35430	35180	35110	35520	33990	32190	30890
15	35660	35660	35350	35260	35420	35460	35190	35570	35500	33920	32190	30850
16	35630	35660	35350	35260	35430	35380	35150	35610	35490	33840	32150	30800
17	35630	35630	35350	35290	35430	35360	35120	35590	35460	33780	32110	30740
18	35630	35630	35350	35290	35470	35350	35110	35590	35420	33690	32030	30710
19	35570	35600	35320	35320	35500	35360	35280	35600	35380	33610	32010	30650
20	35520	35770	35320	35350	35490	35300	35590	35600	35330	33570	31970	30600
21	35400	35770	35320	35380	35520	35300	35530	35610	35290	33580	31950	30580
22	35320	35540	35350	35380	35520	35300	35470	35590	35250	33520	31910	30550
23	35300	35540	35380	35350	35520	35210	35450	35560	35210	33460	31860	30520
24	35290	35520	35400	35350	35520	35260	35560	35570	35160	33410	31830	30520
25	35280	35490	35400	35350	35500	35280	35560	35500	35120	33360	31770	30500
26	35250	35470	35400	35330	35520	35330	35420	35520	35090	33310	31700	30470
27	35210	35470	35400	35330	35530	35430	35450	35500	35050	33240	31630	30460
28	35220	35470	35380	35350	35540	35400	35450	35630	34970	33170	31570	30430
29	35350	35470	35380	35350	35430	35430	35400	35700	34940	33140	31510	30430
30	35540	35470	35380	35330	---	35420	35390	35690	34870	33070	31440	30410
31	35730	---	35350	35330	---	35260	---	35670	---	33000	31400	---
MAX	36250	35770	35460	35380	35540	35460	35590	35700	35710	34810	32940	31340
MIN	35210	35470	35320	35260	35330	35210	35110	35070	34870	33000	31400	30410
(†)	2649.97	2649.79	2649.70	2649.69	2649.76	2649.64	2649.73	2649.93	2649.36	2648.01	2646.80	2646.03
(±)	-570	-260	-120	-20	+100	-170	+130	+280	-800	-1870	-1600	-990
(††)	371	280	289	280	291	317	346	349	489	754	609	451

CAL YR 1979 MAX 38630 MIN 35210 ± -2090 †† 4291  
WTR YR 1980 MAX 36250 MIN 30410 ± -5890 †† 4826

† Elevation, in feet, at end of month.

± Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial uses by Greenbelt Water Authority.

## RED RIVER BASIN

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07299840 GREENBELT LAKE NEAR CLARENDON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
FEB 04...	1415	1910	5.0	240	82	49	28	330	9.3

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 04...	7.8	190	0	300	350	.8	5.6	1160

## 07300000 SALT FORK RED RIVER NEAR WELLINGTON, TX

LOCATION.--Lat 34°57'27", long 100°13'14", Collingsworth County, Hydrologic Unit 11120202, near center of stream on downstream side of bridge on U.S. Highway 83, 4 mi (6 km) downstream from Fort Worth and Denver (Burlington) Railway Co. bridge, 4.5 mi (7.2 km) south of Lutie, and 7.2 mi (11.6 km) north of Wellington.

DRAINAGE AREA.--1,222 mi<sup>2</sup> (3,165 km<sup>2</sup>), of which 209 mi<sup>2</sup> (541 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,941.41 ft (591.742 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--14 years (water years 1953-66) prior to completion of Greenbelt Lake, 72.6 ft<sup>3</sup>/s (2.056 m<sup>3</sup>/s), 52,600 acre-ft/yr (64.9 hm<sup>3</sup>/yr); 14 years (water years 1967-80) regulated, 47.3 ft<sup>3</sup>/s (1.340 m<sup>3</sup>/s), 34,270 acre-ft/yr (42.3 hm<sup>3</sup>/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,050 ft<sup>3</sup>/s (171 m<sup>3</sup>/s) May 15 at 2200 hours, gage height, 6.99 ft (2.131 m); minimum, 0.33 ft<sup>3</sup>/s (0.009 m<sup>3</sup>/s) Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	17	13	25	17	20	25	98	157	32	2.2	2.5
2	8.7	11	13	28	20	22	23	113	114	20	2.0	2.5
3	7.8	9.2	15	29	33	21	34	60	70	8.7	1.8	2.0
4	7.2	9.7	16	28	42	20	26	27	30	7.1	1.4	1.0
5	8.3	11	18	26	40	22	20	26	20	5.6	1.8	.85
6	8.9	9.5	16	30	27	25	17	26	17	5.6	1.6	.72
7	8.7	10	16	26	22	23	14	24	17	8.7	1.1	.88
8	9.0	14	16	24	20	22	12	24	12	10	1.4	1.4
9	7.4	17	16	23	18	21	12	26	18	6.3	1.4	2.1
10	7.9	16	16	27	18	20	13	24	17	11	1.1	6.1
11	8.4	16	17	30	25	29	12	20	541	8.7	1.6	4.8
12	8.7	18	14	26	41	59	11	14	389	6.3	2.2	15
13	7.9	16	13	28	32	50	12	12	125	6.3	2.8	7.6
14	7.9	17	13	28	31	32	12	14	42	7.1	4.4	3.7
15	10	17	14	29	29	23	12	2590	59	6.3	5.6	2.9
16	9.9	17	12	27	26	22	12	1570	40	5.0	3.2	2.4
17	10	17	15	26	24	15	11	451	43	5.6	2.2	1.7
18	11	17	18	25	24	15	11	279	50	5.6	2.2	2.1
19	11	15	18	28	30	17	12	102	51	5.0	3.6	1.7
20	8.8	24	23	40	37	14	12	76	233	4.0	4.4	1.2
21	7.8	21	24	50	24	17	12	330	185	8.7	3.6	1.1
22	6.2	14	23	39	21	17	12	427	98	6.3	2.0	.71
23	6.8	15	21	32	19	27	14	173	112	3.6	1.4	1.3
24	7.5	17	22	27	20	26	682	80	60	3.6	1.6	1.9
25	7.7	18	20	27	22	25	133	64	54	2.8	1.8	1.9
26	7.9	17	21	25	21	15	75	36	39	2.5	2.8	4.2
27	8.0	16	21	20	22	26	52	353	37	4.4	4.0	12
28	8.3	14	24	18	25	208	26	1040	49	3.6	2.5	9.2
29	10	13	26	17	21	105	17	2340	59	2.8	2.5	6.1
30	120	15	26	16	---	72	36	860	36	2.5	1.8	4.9
31	63	---	25	16	---	33	---	213	---	2.8	2.2	---
TOTAL	430.7	458.4	565	840	751	1063	1372	11492	2774	218.5	74.2	106.46
MEAN	13.9	15.3	18.2	27.1	25.9	34.3	45.7	371	92.5	7.05	2.39	3.55
MAX	120	24	26	50	42	208	682	2590	541	32	5.6	15
MIN	6.2	9.2	12	16	17	14	11	12	12	2.5	1.1	.71
AC-FT	854	909	1120	1670	1490	2110	2720	22790	5500	433	147	211
CAL YR 1979	TOTAL	20332.70	MEAN 55.7	MAX 2340	MIN 1.4	AC-FT 40330						
WTR YR 1980	TOTAL	20145.26	MEAN 55.0	MAX 2590	MIN .71	AC-FT 39960						

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

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURES: October 1967 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,190 micromhos May 11, 1970; minimum daily, 743 micromhos June 2, 1978. WATER TEMPERATURES: Maximum daily, 39.0°C June 28, 1977; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,540 micromhos Feb. 1; minimum daily, 1,000 micromhos May 30.

WATER TEMPERATURES: Maximum daily, 38.0°C June 29; minimum daily, 0.0°C Dec. 17, Jan. 27, 29, Feb. 1, 16.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (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 10...	1445	8.0	3210	7.6	21.0	1700	1600	520	97	170
JAN 03...	1405	28	2930	--	7.0	1400	1300	430	84	190
MAR 31...	0930	33	2840	--	8.0	1300	1100	360	91	210
APR 30...	1700	36	2820	--	20.0	1300	1200	400	81	190
MAY 06...	1425	28	2880	7.9	29.0	1300	1100	380	80	210
JUN 10...	1140	16	3040	--	26.0	1600	1400	490	84	180
JUL 22...	1130	3.9	3030	--	32.0	1700	1600	530	87	130
AUG 31...	0730	2.3	2970	--	23.0	1700	1600	540	85	120
SEP 30...	1030	5.0	3090	--	24.0	1700	1600	550	88	130

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 10...	1.8	4.0	140	0	1600	230	.3	21	2710
JAN 03...	2.2	4.2	170	0	1200	290	.6	19	2300
MAR 31...	2.6	5.7	180	0	1100	310	.7	18	2180
APR 30...	2.3	5.3	170	0	1200	280	.5	15	2260
MAY 06...	2.6	6.0	160	0	1100	310	.7	13	2180
JUN 10...	2.0	4.9	160	0	1400	290	.6	13	2540
JUL 22...	1.4	4.2	140	0	1500	200	.6	16	2540
AUG 31...	1.3	4.3	170	0	1500	190	.6	24	2550
SEP 30...	1.4	4.2	170	0	1500	200	.6	21	2580



## RED RIVER BASIN

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

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	430.7	3040	2430	2820	270	309	1300	1520	1500
NOV.	1979	458.4	3260	2640	3270	280	347	1400	1760	1600
DEC.	1979	565	3200	2580	3930	280	422	1400	2120	1600
JAN.	1980	840	3050	2430	5520	270	606	1300	2980	1500
FEB.	1980	751	2940	2330	4710	260	528	1300	2550	1400
MAR.	1980	1063	2930	2310	6640	260	744	1300	3590	1400
APR.	1980	1372	2330	1770	6540	220	800	970	3580	1100
MAY	1980	11492	1810	1310	40700	180	5450	730	22500	800
JUNE	1980	2774	2570	1980	14800	230	1760	1100	8090	1200
JULY	1980	218.5	3060	2440	1440	270	158	1300	776	1500
AUG.	1980	74.2	3020	2390	480	270	53	1300	259	1500
SEPT	1980	106.46	3110	2490	716	270	78	1300	387	1500
TOTAL		20145.26	**	**	91600	**	11300	**	50200	**
WTD. AVG.		55	2230	1680	**	210	**	920	**	1000

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3200	2960	3190	3210	3540	3150	3080	2510	2390	3050	3010	2960
2	3230	3330	3210	3150	3190	3020	3010	2320	2470	3040	3020	3000
3	3220	3390	3190	3040	2750	3050	2920	2410	2570	3090	3000	3030
4	3200	3340	3200	3080	2490	3110	2980	2680	2590	3080	3020	3000
5	3220	3380	3230	3110	2750	3100	3030	2950	2500	3070	2980	3010
6	3250	3280	3220	2870	2880	3090	3060	3010	2760	3170	3010	3020
7	3280	3320	3190	2990	2930	3120	3100	3030	2920	3080	2990	3020
8	3250	3300	3170	3050	2980	3140	3260	3110	3070	3090	3020	3050
9	3320	3320	3220	3100	3020	3160	3150	3090	3060	3090	3010	3060
10	3210	3300	3230	3120	3000	3120	3060	3030	3040	3080	3030	3100
11	3250	3320	3260	3080	2600	3070	3200	3170	2440	3080	3040	3160
12	3290	3280	3180	3040	2860	2810	3030	3260	1900	3060	3010	3090
13	3280	3300	3130	3090	2930	2900	3170	3110	2620	3050	3040	3200
14	3340	3310	3200	3100	2920	3100	3060	3090	2820	3070	3020	3140
15	3300	3320	3240	3110	2950	3070	3090	1530	3020	3060	3090	3100
16	3310	3240	3280	3060	2980	3080	3040	1560	3050	3120	3030	3120
17	3320	3250	3530	3070	3100	3170	3210	2240	3000	3030	3010	3100
18	3310	3270	3060	3080	3170	3110	3080	2520	3130	3060	3000	3060
19	3370	3220	3120	3050	2830	3170	3140	2650	2940	3070	3010	3080
20	3340	3180	3340	2860	2840	3120	3040	2680	2450	3110	3020	3120
21	3280	3260	3130	2750	3030	3120	3090	2150	2590	2960	3000	3140
22	3460	3340	3120	2900	3120	3010	3130	2320	2860	3090	3050	3170
23	3390	3290	3190	2980	2950	3240	3190	2600	3000	3020	2960	3120
24	3420	3270	3080	3020	3000	3260	1900	2870	3050	3010	2990	3110
25	3440	3300	3150	3060	3030	3310	2020	2990	3090	3020	3000	3110
26	3450	3240	3230	3050	3100	3170	2540	3090	3100	2950	3010	3120
27	3400	3260	3200	3020	3180	2960	2730	1860	3060	2880	2990	3130
28	3380	3310	3210	3280	3140	2620	2760	1950	3110	3010	2980	3190
29	3320	3090	3180	3530	3120	2750	2910	1790	3100	3000	3000	3130
30	2750	3140	3160	3410	---	2800	2840	1000	3110	3050	3030	3110
31	2540	---	3240	3300	---	2860	---	2030	---	3040	2980	---
MEAN	3270	3270	3200	3080	2980	3060	2960	2540	2830	3050	3010	3090

## RED RIVER BASIN

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	8.0	10.0	4.0	.0	---	20.0	16.0	30.0	29.0	24.0	---
2	26.0	11.0	10.0	10.0	4.0	4.0	10.0	20.0	25.0	25.0	27.0	27.0
3	15.0	17.0	12.0	6.0	---	10.0	12.0	7.0	32.0	26.0	---	32.0
4	13.0	13.0	---	7.0	8.0	10.0	22.0	---	26.0	---	36.0	33.0
5	14.0	16.0	7.0	5.0	13.0	5.0	13.0	28.0	24.0	25.0	25.0	22.0
6	15.0	10.0	10.0	8.0	10.0	18.0	---	30.0	30.0	35.0	25.0	23.0
7	18.0	10.0	12.0	5.0	---	12.0	15.0	28.0	25.0	28.0	33.0	29.0
8	22.0	---	10.0	7.0	---	8.0	20.0	25.0	27.0	27.0	25.0	23.0
9	17.0	11.0	10.0	---	5.0	21.0	14.0	25.0	30.0	26.0	31.0	24.0
10	23.0	9.0	8.0	9.0	12.0	20.0	16.0	19.0	23.0	27.0	34.0	20.0
11	29.0	10.0	7.0	6.0	10.0	21.0	17.0	28.0	29.0	27.0	25.0	23.0
12	23.0	---	3.0	5.0	11.0	10.0	12.0	25.0	31.0	27.0	22.0	24.0
13	20.0	15.0	3.0	11.0	14.0	10.0	14.0	13.0	33.0	27.0	28.0	26.0
14	---	16.0	10.0	14.0	12.0	20.0	11.0	15.0	28.0	30.0	25.0	28.0
15	27.0	18.0	11.0	12.0	6.0	17.0	25.0	15.0	36.0	31.0	24.0	22.0
16	28.0	18.0	---	14.0	.0	15.0	18.0	15.0	32.0	35.0	28.0	---
17	24.0	18.0	.0	15.0	7.0	9.0	20.0	19.0	24.0	25.0	25.0	18.0
18	25.0	20.0	10.0	10.0	6.0	8.0	19.0	25.0	35.0	26.0	27.0	24.0
19	24.0	19.0	6.0	10.0	13.0	10.0	28.0	28.0	24.0	27.0	26.0	27.0
20	18.0	20.0	8.0	---	11.0	17.0	20.0	23.0	36.0	33.0	26.0	23.0
21	21.0	---	10.0	17.0	15.0	18.0	17.0	18.0	35.0	22.0	24.0	21.0
22	12.0	---	9.0	17.0	18.0	14.0	14.0	27.0	25.0	35.0	35.0	18.0
23	21.0	14.0	10.0	6.0	17.0	---	27.0	27.0	37.0	24.0	32.0	17.0
24	12.0	15.0	12.0	8.0	---	18.0	15.0	31.0	37.0	22.0	28.0	19.0
25	10.0	11.0	---	9.0	5.0	7.0	15.0	34.0	36.0	25.0	34.0	18.0
26	22.0	7.0	10.0	7.0	18.0	22.0	12.0	30.0	34.0	27.0	28.0	12.0
27	14.0	7.0	11.0	.0	22.0	15.0	20.0	24.0	31.0	23.0	23.0	15.0
28	14.0	---	8.0	---	18.0	17.0	15.0	20.0	34.0	24.0	32.0	15.0
29	25.0	3.0	10.0	.0	5.0	7.0	28.0	22.0	38.0	24.0	33.0	13.0
30	12.0	10.0	7.0	---	---	---	20.0	20.0	36.0	27.0	30.0	21.0
31	10.0	---	3.0	2.0	---	8.0	---	22.0	---	25.0	23.0	---
MEAN	19.0	13.0	8.5	8.5	10.5	13.5	17.5	22.5	31.0	27.0	28.0	22.0

## 07300500 SALT FORK RED RIVER AT MANGUM, OK

LOCATION.--Lat 34°51'32", long 99°30'28", in SW1/4SE1/4 sec.34, T.5 N., R.22 W., Greer County, Hydrologic Unit 11120202, near left bank on downstream side of pier of bridge on State Highway 34, 0.5 mi (0.8 km) south of Mangum, 13.0 mi (20.9 km) downstream from Fish Creek, and 35.5 mi (57.1 km) upstream from mouth.

DRAINAGE AREA.--1,566 mi<sup>2</sup> (4,056 km<sup>2</sup>), of which 209 mi<sup>2</sup> (541 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,490.87 ft (454.417 m) National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Services). Apr. 11, 1905, to June 30, 1906, nonrecording gage at site 0.2 mi (0.3 km) upstream at different datum. Oct. 1, 1937, to Nov. 8, 1938, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair.

AVERAGE DISCHARGE.--43 years (water years 1937-80), 87.7 ft<sup>3</sup>/s (2,484 m<sup>3</sup>/s), 63,540 acre-ft/yr (78.3 hm<sup>3</sup>/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,000 ft<sup>3</sup>/s (850 m<sup>3</sup>/s) May 29, gage height, 12.82 ft (3.908 m), no other peak above base of 6,000 ft<sup>3</sup>/s (170 m<sup>3</sup>/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	39	10	23	16	12	44	42	502	3.4	.00	.00
2	.00	25	11	23	18	9.6	34	55	250	2.7	.00	.00
3	.00	19	13	23	26	13	36	65	170	2.3	.00	.00
4	.00	14	15	23	37	21	32	72	123	2.3	.00	.00
5	.00	11	15	25	37	26	27	53	98	1.9	.00	.00
6	.00	10	14	26	36	24	24	46	78	1.7	.00	.00
7	.00	9.2	14	24	34	21	20	40	63	1.6	.00	.00
8	.00	9.6	13	26	36	22	16	33	51	1.4	.00	.00
9	.00	11	13	25	28	21	13	28	45	1.2	.00	.00
10	.00	11	14	26	29	20	12	27	45	.89	.00	.00
11	.00	11	15	24	45	21	10	25	42	.59	.00	.00
12	.00	12	15	23	46	28	9.2	22	43	.46	.00	.00
13	.00	12	16	23	46	28	9.0	17	81	.31	.00	.00
14	.00	12	15	25	41	31	8.2	15	56	.15	.00	.00
15	.00	12	16	25	35	32	7.7	1930	38	.04	.00	.00
16	.00	12	16	25	29	29	7.9	2260	30	.00	.00	.00
17	.00	13	12	25	24	25	8.1	255	30	.00	.00	.00
18	.00	13	8.4	26	28	21	7.6	84	20	.00	.00	.00
19	.00	13	12	35	34	19	7.7	58	20	.00	.00	.00
20	.00	18	26	50	31	17	7.0	58	24	.00	.00	.00
21	.00	16	27	42	33	15	6.4	54	57	.00	.00	.00
22	.00	13	24	45	33	15	6.3	50	39	.00	.00	.00
23	.00	13	24	42	27	22	6.2	43	29	.00	.00	.00
24	.00	13	23	34	24	21	109	33	20	.00	.00	.00
25	.00	13	21	28	22	21	520	26	16	.00	.00	.00
26	.00	13	21	24	21	22	100	23	10	.00	.00	.00
27	.00	13	20	18	21	25	72	255	7.3	.00	.00	.00
28	.00	13	22	18	21	35	57	78	5.6	.00	.00	.00
29	.00	8.4	21	24	20	92	44	3990	4.7	.00	.00	.00
30	2.5	9.2	22	24	---	72	39	8440	3.9	.00	.00	.00
31	28	---	22	16	---	59	---	1240	---	.00	.00	---
TOTAL	30.50	411.4	530.4	840	878	839.6	1300.3	19417	2001.5	20.94	.00	.00
MEAN	.98	13.7	17.1	27.1	30.3	27.1	43.3	626	66.7	.68	.000	.000
MAX	28	39	27	50	46	92	520	8440	502	3.4	.00	.00
MIN	.00	8.4	8.4	16	16	9.6	6.2	15	3.9	.00	.00	.00
AC-FT	60	816	1050	1670	1740	1670	2580	38510	3970	42	.00	.00
CAL YR 1979	TOTAL	16513.06	MEAN 45.2	MAX 1930	MIN .00	AC-FT 32750						
WTR YR 1980	TOTAL	26269.64	MEAN 71.8	MAX 8440	MIN .00	AC-FT 52110						

## RED RIVER BASIN

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07300500 SALT FORK RED RIVER AT MANGUM, OK--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1976 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L)	SULFATE DIS- SOLVED (MG/L AS SO4)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT 03...	1220	1200	7.5	21.0	6.9	17	590	6	<.50	1.5	.060

## RED RIVER BASIN

07301200 MCCLELLAN CREEK NEAR MCLEAN, TX

LOCATION.--Lat 35°19'45", long 100°36'32", Gray County, Hydrologic Unit 11120301, on left bank at downstream side of bridge on State Highway 273, 5 mi (8 km) upstream from mouth, and 6.9 mi (11.1 km) north of McLean.

DRAINAGE AREA.--759 mi<sup>2</sup> (1,966 km<sup>2</sup>), of which 299 mi<sup>2</sup> (774 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional low-flow measurements, 1965-67, October 1967 to September 1980 (discontinued).

REVISED RECORDS.--WDR TX-75-1: 1968-70, 1972, 1973(M), 1974.

GAGE.--Water-stage recorder. Datum of gage is 2,545.99 ft (776.018 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records poor. Flow is largely regulated by Lake McClellan, capacity 5,000 acre-ft (6.16 hm<sup>3</sup>), 18 mi (29 km) upstream. One small diversion from Lake McClellan. Flow is affected at times by discharge from flood-detention pool of a floodwater-retarding structure with detention capacity of 2,930 acre-ft (3.61 hm<sup>3</sup>). These structures control runoff from 17.0 mi<sup>2</sup> (44.0 km<sup>2</sup>).

AVERAGE DISCHARGE.--13 years, 20.1 ft<sup>3</sup>/s (0.569 m<sup>3</sup>/s), 14,560 acre-ft/yr (18.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft<sup>3</sup>/s (753 m<sup>3</sup>/s) May 29, 1975, gage height, 14.55 ft (4.435 m), from rating curve extended above 1,100 ft<sup>3</sup>/s (31.2 m<sup>3</sup>/s) on basis of contracted-opening measurement of peak stage; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1912, 21 ft (6.4 m) in May 1957, from information by local residents. Other major floods occurred in 1920, 1941, and 1951, stage unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,180 ft<sup>3</sup>/s (33.4 m<sup>3</sup>/s) Oct. 30, gage height, 8.07 ft (2.460 m); no flow June 25 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	3.4	9.0	13	15	5.0	14	12	12	.00	.00	.00
2	.04	2.1	9.0	9.1	20	4.0	14	8.0	10	.00	.00	.00
3	.01	2.7	9.2	11	27	6.0	20	6.9	8.1	.00	.00	.00
4	.03	4.1	9.6	6.6	30	10	14	8.0	9.0	.00	.00	.00
5	.15	4.1	9.0	8.6	32	4.1	10	10	13	.00	.00	.00
6	.20	2.1	8.8	11	29	4.1	8.0	5.3	7.4	.00	.00	.00
7	.17	3.4	8.7	10	31	6.9	8.0	4.4	4.7	.00	.00	.00
8	.13	5.0	8.5	9.0	20	6.9	8.0	3.7	7.5	.00	.00	.00
9	.10	8.0	9.6	10	15	8.0	6.9	3.7	10	.00	.00	.00
10	.13	5.9	9.8	11	17	8.0	5.0	3.3	9.5	.00	.00	.00
11	.20	5.0	9.2	13	18	8.0	5.0	3.5	114	.00	.00	.00
12	.29	4.1	8.0	13	19	14	5.9	3.1	28	.00	.00	.00
13	.20	4.1	9.0	12	20	6.9	10	3.1	10	.00	.00	.00
14	.40	3.4	14	12	16	5.9	10	4.0	4.5	.00	.00	.00
15	1.0	5.9	14	11	14	6.9	6.9	49	2.6	.00	.00	.00
16	1.0	8.0	10	8.7	8.0	5.0	6.9	14	2.1	.00	.00	.00
17	1.3	10	9.0	10	8.0	5.0	8.0	9.2	1.3	.00	.00	.00
18	.52	12	9.0	10	9.2	5.0	6.9	13	2.7	.00	.00	.00
19	4.1	12	10	10	10	4.1	5.9	8.3	4.1	.00	.00	.00
20	1.6	12	10	14	16	6.9	5.9	10	5.0	.00	.00	.00
21	1.0	9.2	12	11	14	5.9	3.4	13	2.7	.00	.00	.00
22	1.6	12	11	10	8.0	5.0	3.4	12	1.6	.00	.00	.00
23	4.1	10	11	11	8.0	9.2	3.4	9.3	.52	.00	.00	.00
24	2.7	11	12	8.9	12	12	12	8.6	.13	.00	.00	.00
25	3.4	13	14	11	12	14	10	9.4	.00	.00	.00	.00
26	2.7	13	17	10	8.0	20	8.0	11	.00	.00	.00	.00
27	2.7	13	16	9.0	9.2	24	5.0	14	.00	.00	.00	.00
28	2.7	12	16	8.0	12	13	5.0	20	.00	.00	.00	.00
29	2.7	11	14	7.0	10	12	4.1	16	.00	.00	.00	.00
30	304	10	14	8.0	---	12	6.9	11	.00	.00	.00	.00
31	9.8	---	11	10	---	13	---	12	---	.00	.00	---
TOTAL	349.04	231.5	341.4	316.9	467.4	270.8	240.5	318.8	270.45	.00	.00	.00
MEAN	11.3	7.72	11.0	10.2	16.1	8.74	8.02	10.3	9.02	.000	.000	.000
MAX	304	13	17	14	32	24	20	49	114	.00	.00	.00
MIN	.01	2.1	8.0	6.6	8.0	4.0	3.4	3.1	.00	.00	.00	.00
AC-FT	692	459	677	629	927	537	477	632	536	.00	.00	.00
CAL YR 1979	TOTAL	6557.18	MEAN	18.0	MAX	586	MIN	.01	AC-FT	13010		
WTR YR 1980	TOTAL	2806.79	MEAN	7.67	MAX	304	MIN	.00	AC-FT	5570		



## RED RIVER BASIN

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07301200 MCCLELLAN CREEK NEAR MCLEAN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1964 to September 1980 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 10...	1115	.14	1160	12.0	240	63	68	18	150
NOV 19...	1400	12	1150	--	280	92	76	22	140
JAN 03...	0950	11	1080	2.0	270	80	73	21	130
FEB 13...	1200	14	1070	10.0	280	75	81	19	120
MAR 24...	1700	11	1060	15.0	250	77	67	20	120
MAY 06...	1045	7.9	1110	21.0	250	72	68	20	130
JUN 16...	1405	3.2	1160	30.0	250	91	66	20	140

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 10...	4.2	2.6	220	0	91	210	.6	24	673
NOV 19...	3.6	3.7	230	0	140	180	.7	23	699
JAN 03...	3.5	3.1	230	0	120	160	.7	21	642
FEB 13...	3.1	3.1	250	0	130	150	.6	21	648
MAR 24...	3.3	3.5	210	0	130	160	.6	21	626
MAY 06...	3.6	4.0	220	0	130	170	1.1	20	652
JUN 16...	3.9	4.9	190	0	160	220	.7	22	727

## RED RIVER BASIN

## 07301300 NORTH FORK RED RIVER NEAR SHAMROCK, TX

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

DRAINAGE AREA.--1,082 mi<sup>2</sup> (2,802 km<sup>2</sup>), of which 379 mi<sup>2</sup> (982 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records poor. Some regulation by Lake McClellan, capacity 5,000 acre-ft (6.16 hm<sup>3</sup>), 41 mi (66 km) upstream. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 07301200. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--16 years, 32.4 ft<sup>3</sup>/s (0.918 m<sup>3</sup>/s), 23,470 acre-ft/yr (28.9 hm<sup>3</sup>/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,440 ft<sup>3</sup>/s (40.8 m<sup>3</sup>/s) May 15 at 2400 hours, gage height, 3.60 ft (1.097 m), no peak above base of 3,000 ft<sup>3</sup>/s (85.0 m<sup>3</sup>/s); no flow for many days

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	209	.53	15	73	4.2	7.7	68	.00	.00	.00	.00
2	.00	154	.34	17	81	4.9	8.9	43	.00	.00	.00	.00
3	.00	66	.53	17	60	5.7	5.7	31	.00	.00	.00	.00
4	.00	31	15	15	116	5.7	2.5	8.9	.00	.00	.00	.00
5	.00	25	12	17	48	6.7	1.8	1.2	.00	.00	.00	.00
6	.00	13	7.7	22	31	6.7	1.0	4.2	.00	.00	.00	.00
7	.00	10	4.2	25	25	4.9	.42	1.2	.00	.00	.00	.00
8	.00	13	3.0	22	24	4.2	.34	1.8	.00	.00	.00	.00
9	.00	73	3.0	20	25	3.6	.16	1.0	.00	.00	.00	.00
10	.00	60	3.6	15	39	2.1	.09	.50	.00	.00	.00	.00
11	.00	73	6.7	12	54	1.8	.02	.25	.00	.00	.00	.00
12	.00	73	6.7	17	35	1.5	.00	.10	.00	.00	.00	.00
13	.00	66	6.7	15	25	1.0	.00	.00	.00	.00	.00	.00
14	.00	43	6.7	13	20	.67	.00	.00	.00	.00	.00	.00
15	.00	25	6.7	54	17	.53	.00	270	.00	.00	.00	.00
16	.00	20	10	48	22	.34	.00	448	.00	.00	.00	.00
17	.00	17	10	43	13	.26	.00	81	.00	.00	.00	.00
18	.00	12	10	54	17	.20	.00	31	.00	.00	.00	.00
19	.00	7.7	10	48	8.9	.20	.00	7.7	.00	.00	.00	.00
20	.00	57	10	124	3.6	.03	.00	5.7	.00	.00	.00	.00
21	.00	2.5	12	81	1.2	.00	.00	194	.00	.00	.00	.00
22	.00	.67	13	60	.26	.00	.00	55	.00	.00	.00	.00
23	.00	.42	17	35	.34	1.8	.00	4.9	.00	.00	.00	.00
24	.00	.34	15	22	.34	8.9	220	1.0	.00	.00	.00	.00
25	.00	.53	13	25	.34	3.0	129	.34	.00	.00	.00	.00
26	.00	1.5	13	28	.20	4.2	100	.16	.00	.00	.00	.00
27	.00	2.5	17	25	15	2.5	54	.00	.00	.00	.00	.00
28	.00	1.5	17	48	20	6.7	98	.00	.00	.00	.00	.00
29	.00	1.5	17	39	4.2	4.2	66	.00	.00	.00	.00	.00
30	493	1.0	15	54	---	10	286	.00	.00	.00	.00	.00
31	291	---	17	81	---	7.7	---	.00	---	.00	.00	---
TOTAL	784.00	1060.16	299.40	1111	779.38	104.23	981.63	1259.95	.00	.00	.00	.00
MEAN	25.3	35.3	9.66	35.8	26.9	3.36	32.7	40.6	.000	.000	.000	.000
MAX	493	209	17	124	116	10	286	448	.00	.00	.00	.00
MIN	.00	.34	.34	12	.20	.00	.00	.00	.00	.00	.00	.00
AC-FT	1560	2100	594	2200	1550	207	1950	2500	.00	.00	.00	.00
CAL YR 1979	TOTAL	9625.20	MEAN 26.4	MAX 822	MIN .00	AC-FT 19090						
WTR YR 1980	TOTAL	6379.75	MEAN 17.4	MAX 493	MIN .00	AC-FT 12650						

## RED RIVER BASIN

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

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1964 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 20...	1015	14	2230	13.0	810	720	250	46	180
JAN 03...	1600	17	2380	6.0	710	570	210	44	230
FEB 07...	0930	18	2500	2.0	800	670	240	49	230
MAY 02...	1630	42	2760	21.0	760	630	220	50	280

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
NOV 20...	2.7	5.3	120	0	640	330	.4	18	1530
JAN 03...	3.8	4.7	160	0	470	450	.6	25	1510
FEB 07...	3.5	4.8	160	0	500	460	.5	19	1580
MAY 02...	4.4	7.3	150	0	440	590	1.0	14	1680

## RED RIVER BASIN

07301410 SWEETWATER CREEK NEAR KELTON, TX

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

DRAINAGE AREA.--287 mi<sup>2</sup> (743 km<sup>2</sup>), of which 20 mi<sup>2</sup> (50 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records fair except those for periods of no gage-height record, June 13 to Sept. 2, which are poor. Diversion above station for ranch use.

AVERAGE DISCHARGE.--18 years (water years 1963-80), 13.9 ft<sup>3</sup>/s (0.394 m<sup>3</sup>/s), 0.71 in/yr (18 mm/yr), 10,070 acre-ft/yr (12.4 hm<sup>3</sup>/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 225 ft<sup>3</sup>/s (6.37 m<sup>3</sup>/s) Oct. 30, gage height, 9.64 ft (2.938 m), no peak above base of 500 ft<sup>3</sup>/s (14.2 m<sup>3</sup>/s); minimum daily, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) Aug. 31 to Sept. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.42	19	7.5	11	12	11	19	27	17	1.6	.15	.01		
2	.37	14	8.0	11	13	10	17	28	15	1.4	.14	.01		
3	.37	12	8.9	11	14	10	18	23	14	1.3	.13	.04		
4	.39	10	9.0	11	14	11	18	20	13	1.2	.10	.06		
5	.46	8.9	9.5	11	14	12	17	18	13	1.0	.10	.08		
6	.48	7.9	9.3	12	13	13	16	18	12	.94	.10	.08		
7	.49	8.0	9.2	11	14	13	15	17	11	.80	.10	.08		
8	.44	8.2	8.8	10	13	14	14	16	10	.75	.08	.08		
9	.42	8.5	8.8	10	12	16	14	16	9.6	.68	.08	.09		
10	.47	8.4	9.5	12	12	15	14	15	8.9	.60	.08	.15		
11	.64	8.1	9.4	11	13	14	14	14	8.6	.52	.08	.13		
12	.77	8.1	8.8	10	15	14	13	13	8.1	.48	.07	.12		
13	.77	7.9	9.1	11	15	14	13	12	7.6	.40	.05	.10		
14	.77	8.0	9.5	11	15	14	13	12	6.8	.38	.05	.10		
15	.84	7.9	10	11	14	14	13	40	6.2	.34	.05	.10		
16	.91	7.9	10	10	13	14	12	71	5.5	.30	.05	.08		
17	.91	8.0	9.9	10	13	14	12	34	5.0	.26	.05	.10		
18	.99	8.4	9.5	11	15	14	11	44	4.5	.24	.04	.08		
19	1.1	8.1	11	12	15	14	11	33	4.1	.22	.04	.08		
20	.99	8.1	11	11	14	14	11	24	3.7	.20	.04	.08		
21	.91	7.8	11	10	13	13	10	25	3.4	.20	.04	.07		
22	.91	7.6	11	12	13	14	9.9	21	3.1	.20	.03	.08		
23	.99	8.0	10	16	13	15	9.6	19	2.9	.21	.03	.07		
24	1.2	8.0	9.3	15	13	16	17	17	2.7	.21	.03	.07		
25	1.2	8.1	9.5	14	13	15	43	16	2.5	.21	.03	.07		
26	1.3	8.2	9.8	13	13	14	25	14	2.4	.18	.03	.07		
27	1.3	8.1	9.7	12	13	16	21	17	2.2	.18	.03	.18		
28	1.3	7.9	10	12	13	67	18	26	2.1	.18	.02	.15		
29	2.3	7.5	10	11	13	40	17	26	2.0	.18	.02	.15		
30	117	7.0	10	11	---	26	15	22	1.8	.15	.02	.15		
31	47	---	11	11	---	21	---	18	---	.15	.01	---		
TOTAL	188.41	263.6	298.0	355	390	522	470.5	716	208.7	15.66	1.87	2.71		
MEAN	6.08	8.79	9.61	11.5	13.4	16.8	15.7	23.1	6.96	.51	.060	.090		
MAX	117	19	11	16	15	67	43	71	17	1.6	.15	.18		
MIN	.37	7.0	7.5	10	12	10	9.6	12	1.8	.15	.01	.01		
CFSM	.02	.03	.04	.04	.05	.06	.06	.09	.03	.002	.000	.000		
IN.	.03	.04	.04	.05	.05	.07	.07	.10	.03	.00	.00	.00		
AC-FT	374	523	591	704	774	1040	933	1420	414	31	3.7	5.4		
CAL YR 1979	TOTAL	4099.38	MEAN	11.2	MAX	123	MIN	.37	CFSM	.04	IN	.57	AC-FT	8130
WTR YR 1980	TOTAL	3432.45	MEAN	9.38	MAX	117	MIN	.01	CFSM	.04	IN	.48	AC-FT	6810

## RED RIVER BASIN

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07301410 SWEETWATER CREEK NEAR KELTON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 10...	1700	.50	1280	--	19.0	540	360	150	41	80
NOV 20...	1210	8.1	918	--	15.0	370	110	110	24	63
JAN 04...	0925	11	848	--	3.0	340	78	100	22	57
FEB 07...	1240	13	753	--	4.5	290	74	82	20	49
MAR 18...	1650	14	832	8.2	15.0	340	89	98	22	53
MAY 02...	1145	28	779	--	16.0	280	18	81	19	62
JUN 09...	1640	10	944	--	26.0	380	140	110	25	60
JUL 21...	1730	.20	1340	--	31.0	520	380	140	42	91
SEP 02...	1600	.01	1440	--	32.0	500	420	120	48	120

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 10...	1.5	3.2	220	0	450	62	.6	22	917
NOV 20...	1.4	3.4	320	0	180	44	.7	24	607
JAN 04...	1.3	2.7	320	0	150	40	.7	22	552
FEB 07...	1.3	2.6	260	0	140	37	.5	23	482
MAR 18...	1.3	2.8	300	0	140	36	.6	25	525
MAY 02...	1.6	4.9	320	0	93	43	1.2	28	490
JUN 09...	1.3	2.8	290	0	210	43	.7	27	621
JUL 21...	1.7	4.3	170	0	490	65	.6	25	942
SEP 02...	2.3	3.3	98	0	560	86	.7	35	1020



## RED RIVER BASIN

07307760 MIDDLE PEASE RIVER NEAR PADUCAH, TX

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

DRAINAGE AREA.--1,128 mi<sup>2</sup> (2,922 km<sup>2</sup>), of which 65 mi<sup>2</sup> (168 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to September 1980.

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

REMARKS.--Water-discharge records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 362 ft<sup>3</sup>/s (10.3 m<sup>3</sup>/s) May 20, 1980, at 1800 hours, gage height, 3.69 ft (1.125 m); minimum, 0.75 ft<sup>3</sup>/s (0.02 m<sup>3</sup>/s) May 13, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 362 ft<sup>3</sup>/s (10.3 m<sup>3</sup>/s) May 20 at 1800 hours, gage height, 3.69 ft (1.125 m), no peak above base of 500 ft<sup>3</sup>/s (14.2 m<sup>3</sup>/s); minimum, 0.75 ft<sup>3</sup>/s (0.02 m<sup>3</sup>/s) May 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	4.7	11	3.9	5.8	4.0	4.0	3.8	4.5	2.3	2.2	2.4
2	3.5	4.7	11	3.7	5.8	3.5	5.7	4.0	4.4	2.3	2.4	2.3
3	3.5	4.2	7.4	3.8	5.3	4.2	4.3	2.6	3.9	2.3	2.6	2.2
4	4.0	4.2	3.1	3.8	5.2	4.0	3.9	2.6	3.5	2.2	2.7	2.0
5	4.0	4.2	3.0	3.9	4.1	3.7	3.9	2.1	3.3	2.3	2.7	2.0
6	4.0	3.8	3.1	3.8	3.8	3.9	3.8	2.3	3.2	2.2	3.0	2.0
7	4.0	4.2	3.1	3.7	5.2	3.9	3.2	1.9	3.3	2.2	3.3	2.0
8	4.0	4.7	3.1	3.7	5.0	3.8	3.6	7.2	12	2.2	3.3	2.1
9	4.0	5.2	3.1	3.7	4.0	4.2	3.5	2.0	5.8	2.2	3.4	9.1
10	4.0	4.7	3.3	4.2	4.5	4.5	3.5	1.7	3.7	2.2	3.4	7.8
11	4.0	4.7	3.4	4.2	5.0	4.7	3.5	1.2	6.1	2.0	3.2	3.0
12	4.0	6.4	10	4.2	5.6	4.5	3.4	1.1	84	2.0	3.0	1.9
13	4.0	4.2	9.6	4.2	5.1	4.4	3.6	.98	41	2.0	2.9	1.8
14	3.5	4.7	12	4.2	4.7	4.7	3.8	1.8	31	1.8	2.9	1.8
15	3.5	4.7	7.9	4.2	4.2	4.7	3.7	55	18	1.8	2.9	1.8
16	3.5	4.7	6.2	4.2	4.0	4.4	3.7	67	8.6	2.0	2.7	1.9
17	3.8	4.7	5.8	4.2	3.5	4.3	3.7	93	5.9	2.0	2.7	1.9
18	3.8	4.7	5.8	4.2	4.0	3.9	3.7	40	8.5	2.0	2.4	1.8
19	3.4	4.7	5.8	51	4.5	4.2	3.8	19	20	2.0	2.3	1.7
20	3.4	58	5.8	35	5.3	3.7	3.6	50	5.1	2.0	3.2	1.8
21	3.4	18	5.8	29	4.4	3.2	3.3	34	3.7	2.4	4.9	1.8
22	3.8	15	5.1	26	4.2	3.1	3.3	64	2.8	2.3	1.7	1.9
23	4.2	14	4.1	20	3.7	3.8	3.4	27	3.1	2.3	1.6	2.0
24	4.2	14	4.2	13	4.1	4.3	13	12	3.5	2.3	1.7	1.9
25	4.7	14	4.2	9.0	4.4	4.3	11	6.9	3.1	2.2	1.8	2.3
26	4.7	12	4.2	8.3	4.2	4.3	6.8	4.5	3.0	2.4	1.8	11
27	4.7	11	4.4	8.3	4.2	14	4.6	3.8	3.1	2.8	1.8	9.9
28	4.2	11	4.2	7.6	4.1	9.3	4.2	4.1	2.6	2.7	2.0	6.6
29	4.7	11	3.8	7.0	4.2	6.2	3.4	3.9	2.3	2.3	2.2	5.5
30	23	11	3.9	7.0	---	5.0	4.4	4.1	2.4	2.3	2.3	4.4
31	5.2	---	3.8	6.4	---	4.1	---	4.0	---	2.2	2.5	---
TOTAL	142.2	277.1	171.2	299.4	132.1	144.8	133.3	527.58	305.4	68.2	81.5	100.6
MEAN	4.59	9.24	5.52	9.66	4.56	4.67	4.44	17.0	10.2	2.20	2.63	3.35
MAX	23	58	12	51	5.8	14	13	93	84	2.8	4.9	11
MIN	3.4	3.8	3.0	3.7	3.5	3.1	3.2	.98	2.3	1.8	1.6	1.7
AC-FT	282	550	340	594	262	287	264	1050	606	135	162	200
CAL YR 1979	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		
WTR YR 1980	TOTAL	2383.38	MEAN	6.51	MAX	93	MIN	.98	AC-FT	4730		

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1979 to september 1980.

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 CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 51,500 micromhos June 2, 3; minimum daily, 5,770 micromhos May 17.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
OCT 17...	0935	3.7	46700	18.5	4300	--	1300	250	--	--
DEC 03...	1215	3.8	47200	10.5	4300	4200	1300	250	9600	64
JAN 15...	1300	4.2	46500	13.5	4300	4200	1300	250	10000	67
FEB 04...	1250	5.2	45700	12.0	4300	4200	1300	250	10000	67
25...	1315	4.2	--	14.5	--	--	--	--	--	--
MAR 19...	1350	4.3	--	19.0	--	--	--	--	--	--
APR 08...	0740	4.0	--	7.0	--	--	--	--	--	--
28...	1305	4.3	45300	27.0	4000	3900	1200	240	10000	69
28...	1345	4.3	--	27.0	--	--	--	--	--	--
MAY 15...	--	53	--	--	--	--	--	--	--	--
20...	--	240	--	--	--	--	--	--	--	--
20...	0735	157	19800	16.0	1900	1900	610	100	4200	42
21...	0735	157	--	16.0	--	--	--	--	--	--
JUN 08...	--	34	--	--	--	--	--	--	--	--
09...	1430	4.6	43200	27.0	3900	3800	1200	230	9800	68
30...	1150	2.8	--	31.5	--	--	--	--	--	--
JUL 21...	1350	2.4	49800	31.5	4600	4500	1400	260	11000	71
AUG 12...	1100	3.1	--	26.0	--	--	--	--	--	--
SEP 01...	1250	2.4	--	31.0	--	--	--	--	--	--

[illegible]

## RED RIVER BASIN

07307760 MIDDLE PEASE RIVER NEAR PADUCAH, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
FEB 04...	1250	5.2	12.0	11	.16	77	--	--	--
25...	1315	4.2	14.5	11	.12	75	--	--	--
MAR 19...	1350	4.3	19.0	23	.27	87	--	--	--
APR 08...	0740	4.0	7.0	55	.60	45	--	--	--
28...	1345	4.3	27.0	39	.46	92	--	--	--
MAY 15...	--	53	--	3290	471	75	86	93	100
20...	--	240	--	9750	6320	95	99	99	100
21...	0735	157	16.0	245	104	94	--	--	--
JUN 08...	--	34	--	4480	411	87	96	99	100
09...	1430	4.6	27.0	26	.32	93	--	--	--
30...	1150	2.8	31.5	33	.25	73	--	--	--
JUL 21...	1350	2.4	31.5	19	.12	89	--	--	--
AUG 12...	1100	3.1	26.0	36	.30	--	--	--	--
SEP 01...	1250	2.4	31.0	9	.06	91	--	--	--

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1979	142.2	42400	29100	11200	15200	5850	3100	1210	*
NOV.	1979	277.1	38100	26100	19500	13700	10200	2800	2130	*
DEC.	1979	171.2	46200	31700	14600	16600	7690	3400	1570	*
JAN.	1980	299.4	36400	25000	20200	13000	10500	2800	2240	*
FEB.	1980	132.1	45100	30900	11000	16200	5780	3300	1190	*
MAR.	1980	144.8	46200	31700	12400	16700	6510	3400	1330	*
APR.	1980	133.3	43500	29900	10700	15600	5620	3300	1170	*
MAY	1980	527.58	17600	12100	17200	6100	8710	1500	2100	*
JUNE	1980	305.4	25200	17300	14300	8900	7370	2000	1640	*
JULY	1980	68.2	47800	32800	6040	17300	3180	3500	643	*
AUG.	1980	81.5	47200	32300	7120	17000	3740	3500	760	*
SEPT	1980	100.6	41900	28800	7810	15000	4070	3200	863	*
TOTAL		2383.38	**	**	152000	**	79300	**	16900	**
WTD. AVG.		6.5	34500	23600	**	12000	**	2600	**	**

## RED RIVER BASIN

105

07307760 MIDDLE PEASE RIVER NRSR PADUCAH, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47400	46900	47100	46100	45400	46200	42500	43000	51100	47600	49800	48500
2	47200	46900	47300	46200	45900	46100	42000	43300	51500	47700	49900	42500
3	46900	47200	47200	46300	45800	46200	41900	43400	51500	47500	50100	41500
4	46400	47400	46900	46300	45700	46500	42200	43600	51200	46800	50300	40900
5	46600	47300	47200	45800	46300	46300	42500	43800	50900	46900	50000	40900
6	46500	47300	47500	46500	46100	46000	43200	44000	50300	47000	48800	40300
7	46200	46900	47400	46500	46200	46400	44400	44300	48500	47100	47700	39600
8	46300	47000	47100	46500	42000	46500	45700	41300	35300	47200	47200	39800
9	45900	46800	46900	46100	44500	46400	45000	43500	43200	47600	47100	37300
10	45800	46700	46700	46300	44400	46500	44200	44300	49500	48100	47500	37200
11	46000	46600	47500	46900	45100	46800	44300	45500	47000	48200	47300	41300
12	45900	46100	45200	46700	45200	47400	44600	46300	7350	48300	47500	42300
13	45700	46500	44500	46600	44700	47600	45000	46700	10500	48400	47600	40500
14	46400	46000	41700	46400	44100	47400	45400	45500	19800	48400	47100	39900
15	46300	46600	45300	46500	42700	47600	44900	19000	26700	48500	47400	39800
16	46900	46600	46900	46400	42000	47800	45200	17700	39800	49000	47600	41100
17	46600	46500	47600	46700	43700	47900	45800	5770	48500	49500	48500	41500
18	44400	46600	46800	46900	44300	47600	46300	11100	47700	49500	49400	43100
19	44600	46800	46600	8270	44800	45900	45700	20400	27300	49700	50000	43400
20	47800	8360	46700	31200	45700	47200	45300	19800	39400	49700	49800	44000
21	49700	36500	46700	39500	46100	47700	46000	21900	41500	49800	43800	45200
22	49000	45600	47000	42300	46000	48100	46400	6110	42000	47700	40600	45500
23	47100	46400	46600	43500	46400	49200	46200	13200	42200	46300	41300	45200
24	49300	46600	46700	43900	46300	50400	43500	22900	43500	46500	42000	44600
25	49500	46800	46800	43800	45400	49900	37000	33100	44800	46700	42800	44500
26	49800	47100	46400	43900	45100	49400	39900	40900	45000	46800	43500	44600
27	49800	47300	45900	44200	45200	46700	45000	45500	45400	47000	44200	40500
28	49300	47200	45900	44500	45400	41200	45300	48100	45800	47200	44900	43900
29	49300	47400	46100	44200	45700	40800	45100	49600	46900	47400	45600	43900
30	17600	47400	46200	44000	---	41200	43000	50100	48000	47600	46600	45300
31	45000	---	46200	45200	---	41700	---	50400	---	48100	47800	---
MEAN	46200	45200	46500	43700	45000	46500	44100	35300	41400	47900	46900	42300

## RED RIVER BASIN

07307800 PEASE RIVER NEAR CHILDRESS, TX

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

DRAINAGE AREA.--2,754 mi<sup>2</sup> (7,133 km<sup>2</sup>), of which 559 mi<sup>2</sup> (1,448 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records fair. Three small diversions for irrigation above station. Flow is affected at times by discharge from the flood-detention pools of six floodwater-retarding structures with a combined detention capacity of 1,360 acre-ft (1.68 hm<sup>3</sup>). These structures control runoff from 6.97 mi<sup>2</sup> (18.1 km<sup>2</sup>) in the Kent Creek drainage basin.

AVERAGE DISCHARGE.--15 years (water years 1961-62, 1967-80), 57.1 ft<sup>3</sup>/s (1.617 m<sup>3</sup>/s), 0.35 in/yr (9 mm/yr), 41,370 acre-ft/yr (51.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft<sup>3</sup>/s (538 m<sup>3</sup>/s) June 9, 1960, gage height, 13.59 ft (4.142 m), from rating curve extended above 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s) on basis of runoff comparisons with nearby stations; no flow Aug. 10-22, 1969, May 25, 26, 1971.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,790 ft<sup>3</sup>/s (50.7 m<sup>3</sup>/s) May 15 at 1515 hours, gage height, 9.67 ft (2.947 m), no peak above base of 2,200 ft<sup>3</sup>/s (62.3 m<sup>3</sup>/s); minimum, 0.03 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Aug. 25, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	7.1	3.3	7.1	5.4	2.4	3.5	5.2	87	.74	.18	.10
2	1.6	3.4	3.3	6.8	6.0	3.1	4.8	24	38	.65	.17	.09
3	1.7	2.4	3.3	6.1	5.9	4.6	5.6	24	21	.57	.17	.08
4	2.1	2.2	2.7	9.7	5.8	5.3	4.1	9.2	14	.51	.19	.11
5	2.5	2.0	2.4	6.9	5.5	3.3	4.7	5.3	8.9	.40	.18	.11
6	2.6	1.5	2.1	5.8	5.0	4.5	4.8	4.6	5.8	.34	.18	.11
7	2.6	1.2	2.1	4.9	4.9	5.3	4.3	3.7	3.6	.35	.17	.11
8	2.5	2.7	1.4	5.8	12	4.2	3.1	3.5	14	.35	.18	.11
9	1.8	1.8	1.4	6.4	8.3	4.3	3.4	4.2	13	.33	.18	.78
10	2.0	1.4	2.2	6.4	10	4.4	4.0	4.4	6.5	.32	.17	.28
11	2.1	1.6	2.4	5.8	11	4.4	3.3	3.4	27	.30	.16	.55
12	2.2	3.0	5.6	4.9	9.0	5.0	2.4	3.0	301	.26	.12	.23
13	1.9	2.9	7.9	5.4	8.4	3.4	2.6	2.1	138	.23	.13	.19
14	2.1	4.1	13	6.4	7.6	3.7	3.2	3.4	53	.22	.13	.22
15	2.1	4.1	13	6.4	7.5	4.1	3.5	638	21	.22	.12	.20
16	2.1	4.5	5.7	5.7	8.6	5.1	3.3	622	10	.25	.12	.19
17	2.7	4.5	4.1	5.2	9.8	3.0	3.0	363	4.9	.25	.12	.19
18	2.7	4.5	5.1	5.2	11	3.2	2.7	114	5.5	.19	.12	.21
19	2.8	4.1	5.0	102	16	4.3	2.9	53	107	.16	.13	.20
20	2.2	276	5.6	59	14	4.0	3.2	86	38	.16	.11	.23
21	1.6	67	5.4	29	10	4.0	3.0	285	15	.16	.23	.23
22	.68	19	6.0	14	10	4.2	2.6	209	4.9	.18	.10	.20
23	.80	6.9	5.0	12	8.6	5.1	2.8	85	1.2	.19	.09	.20
24	1.1	3.7	4.8	9.7	8.0	3.5	8.0	46	.69	.17	.08	.23
25	1.4	3.3	5.4	8.2	7.5	3.8	12	31	.69	.19	.08	.26
26	1.8	2.7	6.4	9.2	5.4	4.9	11	25	.69	.19	.08	1.2
27	2.1	2.4	6.7	7.5	5.6	6.9	5.9	176	.69	.17	.09	10
28	1.9	2.7	6.8	6.4	5.9	16	4.9	221	.69	.19	.09	9.2
29	2.5	2.7	6.0	6.4	3.6	7.2	4.1	80	.60	.18	.09	6.3
30	132	3.0	5.8	6.0	---	5.1	4.3	47	.51	.19	.08	4.8
31	33	---	6.5	5.8	---	4.5	---	37	---	.19	.08	---
TOTAL	223.08	448.4	156.4	386.1	236.3	146.8	131.0	3218.0	942.86	8.80	4.12	36.91
MEAN	7.20	14.9	5.05	12.5	8.15	4.74	4.37	104	31.4	.28	.13	1.23
MAX	132	276	13	102	16	16	12	638	301	.74	.23	10
MIN	.68	1.2	1.4	4.9	3.6	2.4	2.4	2.1	.51	.16	.08	.08
CFSM	.003	.007	.002	.006	.004	.002	.002	.05	.01	.000	.000	.001
IN.	.00	.01	.00	.01	.00	.00	.00	.05	.02	.00	.00	.00
AC-FT	442	889	310	766	469	291	260	6380	1870	17	8.2	73

CAL YR 1979 TOTAL 35138.58 MEAN 96.3 MAX 4440 MIN .68 CFSM .04 IN .60 AC-FT 69700  
WTR YR 1980 TOTAL 5938.77 MEAN 16.2 MAX 638 MIN .08 CFSM .007 IN .10 AC-FT 11780

## RED RIVER BASIN

107

07307800 PEASE RIVER NEAR CHILDRESS, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to current year.

WATER TEMPERATURES: July 1968 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 43,800 micromhos Apr. 11, 1974; minimum daily, 1,580 micromhos Nov. 20, 1979.

WATER TEMPERATURES: Maximum daily, 37.0°C on several days during summer months of 1969, 1976, 1978, and 1980; minimum daily, 0.0°C on several days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 41,600 micromhos Apr. 7; minimum daily, 1,580 micromhos Nov. 20.

WATER TEMPERATURES: Minimum daily, 37.0°C July 11; minimum daily, 1.0°C Ja. 28, 29, Feb. 8.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L 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)
OCT 11...	1125	5.2	--	21.5	--	--	--	--	--	--	--
23...	1500	23	34100	21.0	3900	--	1200	230	--	--	--
NOV 14...	1505	4.2	37800	17.0	3100	3000	950	180	5900	46	40
JAN 15...	1405	6.4	38400	12.0	4000	3900	1200	240	8400	58	40
FEB 25...	1445	7.5	39000	17.5	4000	3900	1200	250	8300	57	55
APR 08...	1020	3.1	40200	13.0	4300	4200	1300	250	8600	57	27
MAY 21...	0925	150	6740	16.0	1000	940	340	46	1100	15	11
JUN 09...	1705	11	27200	30.5	2800	2700	850	170	5400	44	21
JUL 21...	1530	.16	33700	34.0	4100	4000	1200	260	6900	47	51

DATE	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 11...	--	--	--	--	--	--	--	35	.49	96
23...	--	--	3100	11000	--	--	--	--	--	--
NOV 14...	130	0	2500	9600	--	10	19200	--	--	--
JAN 15...	150	0	3300	13000	--	10	26300	--	--	--
FEB 25...	150	0	3400	13000	--	9.8	26300	--	--	--
APR 08...	140	0	3200	14000	--	7.7	27500	--	--	--
MAY 21...	120	0	930	1800	.5	6.8	4290	--	--	--
JUN 09...	120	0	2500	8200	--	6.6	17200	--	--	--
JUL 21...	100	0	3200	12000	--	.3	23700	--	--	--



## RED RIVER BASIN

07307800 PEASE RIVER NEAR CHILDRESS, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
OCT							
03...	1000	1.7	16.5	50	.23	--	--
11...	1125	5.2	21.5	35	.49	--	--
NOV							
14...	1505	4.2	17.0	7	.08	--	--
DEC							
03...	1320	2.4	12.0	16	.10	--	--
26...	1555	6.4	13.5	6	.10	--	--
JAN							
15...	1405	6.4	12.0	9	.16	--	--
FEB							
04...	1555	7.4	13.5	15	.30	--	--
25...	1445	7.5	17.5	7	.14	--	--
MAR							
19...	1555	4.7	21.0	6	.08	--	--
APR							
08...	1020	3.1	13.0	31	.26	--	--
28...	1540	4.8	29.0	22	.29	--	--
MAY							
21...	0925	151	16.0	4520	1840	56	68
JUN							
09...	1705	10	30.5	151	4.3	--	--
30...	1250	.69	32.0	28	.05	--	--
JUL							
21...	1530	.16	34.0	8	.00	--	--
AUG							
12...	1215	.03	31.0	18	.00	--	--
SEP							
01...	1440	.11	30.0	5	.00	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM
OCT							
03...	--	--	--	34	--	--	--
11...	--	--	--	96	--	--	--
NOV							
14...	--	--	--	42	--	--	--
DEC							
03...	--	--	--	79	--	--	--
26...	--	--	--	56	--	--	--
JAN							
15...	--	--	--	83	--	--	--
FEB							
04...	--	--	--	66	--	--	--
25...	--	--	--	53	--	--	--
MAR							
19...	--	--	--	57	--	--	--
APR							
08...	--	--	--	63	--	--	--
28...	--	--	--	77	--	--	--
MAY							
21...	81	90	95	96	99	99	100
JUN							
09...	--	--	--	99	--	--	--
30...	--	--	--	91	--	--	--
JUL							
21...	--	--	--	32	--	--	--
AUG							
12...	--	--	--	87	--	--	--
SEP							
01...	--	--	--	33	--	--	--

## RED RIVER BASIN

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07307800 PEASE RIVER NEAR CHILDRESS, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	223.08	15900	10000	6030	4900	2980	1600	936	*
NOV.	1979	448.4	9880	6250	7570	3100	3790	930	1120	1100
DEC.	1979	156.4	36900	23700	10000	12200	5170	3100	1310	*
JAN.	1980	386.1	24600	15800	16400	8000	8380	2200	2260	*
FEB.	1980	236.3	38000	24500	15600	12700	8090	3200	2010	*
MAR.	1980	146.8	38900	25200	9980	13100	5170	3200	1270	*
APR.	1980	131.0	37400	24100	8530	12500	4410	3100	1100	*
MAY	1980	3218.0	9120	5620	48800	2700	23300	990	8630	1200
JUNE	1980	942.86	11600	7160	18200	3500	8790	1200	3100	*
JULY	1980	8.80	33900	21700	516	11100	263	3000	70	*
AUG.	1980	4.12	33600	21500	239	11000	122	2900	33	*
SEPT	1980	36.91	35900	23100	2300	11900	1190	3000	304	*
TOTAL		5938.77	**	**	144000	**	71600	**	22100	**
WTD. AVG.		16	14300	9000	**	4500	**	1400	**	**

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34500	25000	37500	38400	38900	38700	40000	38700	9420	33300	35500	32000
2	33900	33500	37000	35600	38000	38300	39800	17500	16100	33900	35800	32400
3	32200	36900	37200	36500	38300	38000	39600	16700	22300	34600	35100	33600
4	33400	37000	37400	35500	38400	38200	41000	29000	25400	34700	35000	33500
5	34100	36400	37700	38200	38100	38400	41100	35400	31700	32200	32000	33800
6	35200	36500	37500	39000	38200	38800	41000	37600	33500	32000	36000	34000
7	34100	36800	37300	38100	38300	38100	41600	39400	35000	31500	32500	32500
8	32700	35400	37400	38200	31000	38600	40400	37200	26600	34600	34800	31000
9	32200	37500	37600	38300	33500	39000	40300	37900	29700	34900	31800	24700
10	31600	38600	37500	38300	37100	38500	40100	41000	36900	33400	31400	31100
11	34000	38400	38100	37500	38200	38900	40000	40600	23700	33800	31500	30900
12	33300	37300	32200	38500	38700	37500	39400	40200	6610	35100	31300	32000
13	34000	37700	36200	38000	38500	39000	40000	39500	5950	35400	33900	32700
14	34300	37800	34600	38100	38400	39300	40100	36000	10700	35300	34700	32500
15	34900	37700	36500	38400	38600	39500	40400	5350	22300	32200	33400	32400
16	35100	34600	38100	38200	37500	39000	41000	6500	25700	32500	33600	32200
17	35300	32300	37600	38400	35700	39300	41100	7880	27400	32200	33800	32400
18	36600	30000	37000	38500	39800	39000	37600	9200	31400	34500	34100	31800
19	37800	32100	37400	2900	38300	39400	36900	17700	7530	35700	32500	32700
20	34500	1580	37800	18100	39900	39700	33500	23000	13400	33900	34100	33100
21	31200	7550	35800	27600	39700	40000	31300	7040	22400	33800	32700	38100
22	33400	26700	37900	33700	39200	40400	34100	5650	30000	34300	34000	32000
23	34000	31400	38000	36900	39000	40900	33800	11800	32600	34800	33900	30600
24	34700	35400	37900	37900	38700	39500	33000	19400	33500	34600	34500	31500
25	36900	36900	37700	38100	38800	39700	32500	29100	33000	34200	34400	32500
26	37000	37100	37300	38300	39400	39400	30500	28900	32500	33800	33400	34000
27	36400	37300	37800	38600	39100	38500	38400	8450	33300	33700	33200	32700
28	37800	37000	37400	38300	38900	37500	39200	5880	33300	34700	33300	38200
29	36600	37200	37700	38200	39000	39400	39900	11400	32500	35000	31200	39600
30	7920	37400	37900	38000	---	39900	37100	23200	33200	35200	35700	39300
31	14900	---	35500	36400	---	40700	---	23100	---	34800	31800	---
MEAN	33000	33200	37100	35600	38100	39100	38200	23600	25300	34000	33600	33000

## RED RIVER BASIN

07307800 PEASE RIVER NEAR CHILDRESS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	11.0	10.0	11.0	8.0	---	14.0	20.0	26.0	28.0	27.0	24.0
2	22.0	13.0	11.0	8.0	3.0	---	16.0	---	27.0	29.0	28.0	26.0
3	20.0	12.0	12.0	5.0	13.0	---	18.0	23.0	25.0	29.0	28.0	27.0
4	21.0	13.0	16.0	6.0	12.0	---	17.0	23.0	27.0	28.0	26.0	28.0
5	24.0	12.0	11.0	5.0	7.0	---	17.0	23.0	28.0	32.0	32.0	25.0
6	22.0	13.0	12.0	9.0	10.0	---	23.0	25.0	27.0	28.0	28.0	26.0
7	22.0	13.0	6.0	5.0	7.0	---	25.0	25.0	28.0	28.0	28.0	26.0
8	22.0	11.0	5.0	5.0	1.0	15.0	24.0	21.0	---	28.0	27.0	25.0
9	11.0	11.0	11.0	4.0	2.0	---	24.0	20.0	24.0	27.0	29.0	24.0
10	12.0	8.0	14.0	14.0	2.0	---	21.0	25.0	28.0	28.0	24.0	24.0
11	14.0	13.0	8.0	6.0	9.0	16.0	23.0	27.0	27.0	37.0	26.0	24.0
12	14.0	13.0	4.0	10.0	10.0	18.0	10.0	21.0	28.0	27.0	27.0	26.0
13	16.0	13.0	4.0	17.0	15.0	19.0	14.5	21.0	30.0	27.0	28.0	26.0
14	22.0	13.0	7.0	8.0	16.0	16.0	15.0	17.0	30.0	28.0	26.0	26.0
15	18.0	13.0	7.0	14.0	8.0	16.0	20.0	16.0	27.0	28.0	25.0	24.0
16	21.0	13.0	4.0	14.0	5.0	17.0	24.0	20.0	27.0	27.0	27.0	24.0
17	19.0	14.0	3.0	11.0	4.0	12.0	18.0	25.0	28.0	27.0	32.0	25.0
18	23.0	14.0	8.0	---	---	14.0	23.0	25.0	30.0	28.0	28.0	26.0
19	21.0	---	8.0	10.0	---	19.0	20.0	26.0	29.0	28.0	27.0	25.0
20	22.0	15.0	7.0	4.0	---	16.0	26.0	22.0	29.0	29.0	32.0	25.0
21	21.0	10.0	9.0	9.0	17.0	16.5	23.0	25.0	27.0	26.0	28.0	24.0
22	16.0	10.0	11.0	6.0	14.0	---	---	25.0	27.0	29.0	28.0	23.0
23	18.0	6.0	12.0	7.0	13.0	14.0	---	23.0	28.0	27.0	27.0	20.0
24	9.0	13.0	14.0	14.0	15.0	13.0	---	25.0	27.0	34.0	32.0	24.0
25	19.0	12.0	13.0	6.0	14.0	14.0	14.0	25.0	30.0	28.0	29.0	---
26	19.0	13.0	11.0	4.0	17.0	18.0	16.0	23.0	28.0	36.0	32.0	---
27	22.0	6.0	10.0	5.0	22.0	16.0	20.0	23.0	33.0	29.0	29.0	18.0
28	25.0	4.0	9.0	1.0	19.0	18.0	26.0	27.0	27.0	27.0	26.0	17.0
29	23.0	6.0	6.0	1.0	---	12.0	24.0	25.0	28.0	26.0	25.0	21.0
30	14.0	10.0	11.0	2.0	---	16.0	26.0	27.0	28.0	27.0	26.0	23.0
31	13.0	---	4.0	3.0	---	16.0	---	29.0	---	27.0	28.0	---
MEAN	19.0	11.5	9.0	7.5	10.5	16.0	20.0	23.5	28.0	28.5	28.0	24.0

## RED RIVER BASIN

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07308200 PEASE RIVER NEAR VERNON, TX

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

DRAINAGE AREA.--3,488 mi<sup>2</sup> (9,034 km<sup>2</sup>), of which 559 mi<sup>2</sup> (1,448 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

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

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

AVERAGE DISCHARGE.--20 years (water years 1961-80), 108 ft<sup>3</sup>/s (3.059 m<sup>3</sup>/s), 78,250 acre-ft/yr (96.5 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,000 ft<sup>3</sup>/s (878 m<sup>3</sup>/s) Sept. 19, 1965, gage height, 18.50 ft (5.639 m); no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,000 ft<sup>3</sup>/s (623 m<sup>3</sup>/s) May 15 at 1945 hours, gage height, 17.00 ft (5.182 m), no other peak above base of 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	31	17	20	25	19	17	9.7	129	12	.00	.00
2	5.8	48	17	20	27	20	17	9.0	94	10	.00	.00
3	5.0	32	16	19	26	20	16	8.4	92	9.0	.00	2.5
4	5.0	22	16	19	24	19	13	8.0	86	8.0	.00	2.4
5	4.6	16	15	19	23	18	13	7.6	70	7.1	.00	.04
6	4.2	12	14	18	22	18	12	18	61	6.2	.00	.00
7	4.2	11	14	17	21	18	11	16	56	5.3	.00	.00
8	3.9	10	14	16	25	16	11	13	73	4.5	.00	.00
9	3.3	9.4	14	17	20	17	10	11	89	3.8	.00	.06
10	2.7	8.8	14	16	20	16	10	10	70	3.4	.00	.03
11	2.4	8.6	14	15	26	17	10	6.9	59	2.8	.00	.00
12	2.7	9.0	14	16	33	17	9.6	5.3	54	2.3	.00	.00
13	2.2	8.9	15	15	31	16	9.7	3.5	46	1.7	.00	.00
14	2.2	8.6	16	15	29	15	9.7	10	107	1.4	.00	.00
15	4.9	8.6	15	16	28	15	9.7	7760	102	1.0	.00	.00
16	93	7.9	17	16	25	15	9.7	6960	73	.79	.00	.00
17	22	7.6	24	16	23	14	9.6	870	59	.66	.00	.00
18	15	7.0	23	16	27	14	9.1	487	49	.44	.00	.00
19	12	7.1	21	19	34	14	9.7	319	50	.28	.00	.00
20	8.6	40	19	213	35	13	9.1	200	49	.17	.00	.00
21	6.7	215	18	256	33	13	8.9	181	52	.12	.00	.00
22	5.0	188	17	125	31	13	8.3	140	63	.10	.00	.00
23	4.2	75	18	77	27	16	8.2	228	49	.06	.00	.00
24	4.6	44	18	57	25	15	11	181	39	.03	.00	.00
25	4.7	34	18	47	23	14	10	105	29	.02	.00	.00
26	4.7	31	18	41	26	13	11	67	25	.01	.00	.00
27	4.0	27	16	38	25	15	16	347	20	.00	.00	.04
28	3.6	23	29	35	25	18	12	1280	17	.00	.00	.66
29	3.6	20	23	31	23	16	12	393	15	.00	.00	.17
30	8.1	19	22	28	---	15	11	266	13	.00	.00	.02
31	14	---	20	21	---	15	---	462	---	.00	.00	---
TOTAL	317.3	989.5	546	1294	762	494	334.3	20382.4	1790	81.18	.00	5.92
MEAN	10.2	33.0	17.6	41.7	26.3	15.9	11.1	657	59.7	2.62	.000	.20
MAX	93	215	29	256	35	20	17	7760	129	12	.00	2.5
MIN	2.2	7.0	14	15	20	13	8.2	3.5	13	.00	.00	.00
AC-FT	629	1960	1080	2570	1510	980	663	40430	3550	161	.00	12
CAL YR 1979	TOTAL	77152.50	MEAN	211	MAX 8500	MIN 1.0	AC-FT	153000				
WTR YR 1980	TOTAL	26996.60	MEAN	73.8	MAX 7760	MIN .00	AC-FT	53550				

## RED RIVER BASIN

07308200 PEASE RIVER NEAR VERNON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 03...	1330	5.1	12100	21.0	2100	2000	590	160	2000
NOV 15...	0845	8.8	13400	5.0	2200	2100	640	150	2400
DEC 27...	1515	16	16400	11.5	2400	2300	700	160	2900
FEB 05...	1540	230	17000	13.0	2000	1900	580	140	3000
MAR 20...	1330	134	16500	15.0	2600	2500	740	180	2900
APR 29...	1430	11	15500	28.5	2500	2400	700	180	2600
MAY 10...	1345	3310	3740	18.0	730	610	240	31	510
JUN 10...	1400	71	6780	--	1400	1300	410	100	970
JUL 22...	1130	.13	13600	28.5	2700	2500	720	210	2300

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 03...	19	14	180	0	1700	3400	.4	16	7970
NOV 15...	22	12	180	0	1800	3800	.4	15	8910
DEC 27...	26	13	160	0	1800	5000	.4	12	10700
FEB 05...	29	12	180	0	730	5200	.3	9.1	9760
MAR 20...	25	14	160	0	2000	5000	.3	8.3	10900
APR 29...	23	13	160	0	2000	4500	.5	5.8	10100
MAY 10...	8.2	9.5	140	0	580	810	.6	7.0	2260
JUN 10...	11	12	140	0	1200	1600	.6	6.3	4370
JUL 22...	19	14	210	0	2000	4100	.5	13	9460

## RED RIVER BASIN

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

LOCATION.--Lat 34°06'36", long 98°31'53", Cotton County, Okla., Hydrologic Unit 11130102, on left bank at downstream side of bridge on U.S. Highways 277 and 281, 2.5 mi (4.0 km) northeast of Burkburnett, and at mile 933 (1,501 km).

DRAINAGE AREA.--20,570 mi<sup>2</sup> (53,280 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 952.57 ft (290.343 m) National Geodetic Vertical Datum of 1929. July 11, 1924, to Aug. 31, 1925, nonrecording gage at site 1,000 ft (305 m) downstream at same datum. Dec. 16, 1959, to Jan. 11, 1960, nonrecording gage at present site and datum.

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

AVERAGE DISCHARGE.--20 years (water years 1961-80), 884 ft<sup>3</sup>/s (25.03 m<sup>3</sup>/s), 640,500 acre-ft/yr (790 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,800 ft<sup>3</sup>/s (1,780 m<sup>3</sup>/s) Oct. 19, 1965, gage height, 11.46 ft (3.493 m); maximum gage height, 12.64 ft (3.853 m) July 27, 1975; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft<sup>3</sup>/s (255 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
May 18	0930	38,100 1,080	11.79 3.594
June 1	1300	*42,200 1,200	12.11 3.691

Minimum discharge, 18.0 ft<sup>3</sup>/s (0.51 m<sup>3</sup>/s) Sept. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	342	235	247	208	203	159	370	37700	376	104	122
2	91	563	207	213	190	203	257	309	14400	357	98	139
3	79	496	198	195	204	204	355	236	4850	338	92	165
4	76	401	190	190	217	212	315	346	3370	325	98	170
5	79	309	178	186	227	207	242	354	2980	313	107	148
6	79	248	172	165	222	203	211	472	2850	344	119	130
7	72	208	173	154	214	197	164	322	2810	363	116	120
8	63	186	169	158	241	186	145	301	3030	363	104	117
9	61	170	165	158	257	181	132	309	3930	350	119	117
10	66	146	166	154	257	172	135	260	3610	338	119	103
11	80	138	155	150	279	164	116	212	2980	325	113	95
12	76	143	165	158	290	152	106	177	2760	307	122	89
13	60	128	174	154	313	154	101	130	2350	284	132	72
14	62	124	186	154	340	154	105	131	3970	273	129	58
15	81	120	204	154	352	158	113	1340	2860	262	116	53
16	94	119	204	154	315	159	111	12800	2300	247	110	45
17	137	117	213	158	317	144	105	27900	1970	227	110	42
18	214	115	217	154	307	147	111	33400	1660	204	116	40
19	226	111	195	158	284	139	116	10600	1510	190	136	37
20	169	162	186	162	269	130	116	4750	1380	178	174	33
21	129	331	182	1110	276	121	113	3820	1200	174	150	27
22	98	1320	182	1060	272	120	104	3000	1030	165	146	22
23	100	1590	195	915	246	133	98	2410	915	169	146	25
24	93	889	204	556	247	113	100	2510	854	174	174	25
25	87	534	208	449	241	110	119	1900	752	174	178	22
26	83	442	199	383	229	126	435	1470	659	168	143	19
27	82	353	195	313	229	147	1900	1150	574	165	126	51
28	78	277	247	279	228	190	1050	6430	496	178	110	79
29	76	245	370	257	208	200	669	17200	434	158	107	91
30	90	235	376	227	---	177	488	20400	404	132	107	91
31	75	---	296	213	---	167	---	27500	---	116	107	---
TOTAL	2961	10562	6406	9138	7479	5073	8291	182509	110588	7737	3828	2347
MEAN	95.5	352	207	295	258	164	276	5887	3686	250	123	78.2
MAX	226	1590	376	1110	352	212	1900	33400	37700	376	178	170
MIN	60	111	155	150	190	110	98	130	404	116	92	19
AC-FT	5870	20950	12710	18130	14830	10060	16450	362000	219400	15350	7590	4660
CAL YR 1979	TOTAL	293772	MEAN 805	MAX 19400	MIN 49	AC-FT 582700						
WTR YR 1980	TOTAL	356919	MEAN 975	MAX 37700	MIN 19	AC-FT 707900						



07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to current year.  
WATER TEMPERATURES: July 1968 to current year.

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

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

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

WATER TEMPERATURES (1968-80): Maximum daily, 35.5°C June 29, 1980; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 12,700 micromhos Feb. 26; minimum daily, 1,290 micromhos June 1.  
WATER TEMPERATURES: Maximum daily, 35.5°C June 29; minimum daily 0.0°C on several days during January, February, and March.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 16...	1215	95	8400	8.2	20.0	6.0	9.3	108	5.6	310	130
NOV 05...	1740	284	11500	8.0	15.5	500	9.0	96	4.2	2900	3300
DEC 04...	1040	190	6940	8.2	6.0	80	11.3	94	1.3	1800	1500
JAN 15...	0915	154	9550	8.2	10.0	3.8	10.4	99	1.7	55	38
FEB 20...	1010	242	11400	8.3	10.5	45	10.3	99	2.0	K16	77
MAR 18...	0950	147	9900	8.2	7.0	11	11.3	97	5.7	1200	K1800
APR 22...	0900	116	10300	8.0	17.0	6.5	8.2	89	5.6	K5	65
MAY 20...	1010	2510	3090	7.9	21.0	230	7.5	87	3.6	1200	3700
JUN 10...	0920	3970	3180	8.2	23.0	170	7.4	80	2.8	2600	560
JUL 22...	1010	174	6080	8.0	27.0	27	7.5	97	4.0	21	K9
AUG 19...	0930	136	5320	8.1	25.5	15	7.9	100	4.1	210	K380
SEP 16...	0930	42	6200	7.9	22.5	15	8.0	98	3.6	42	130

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 16...	1600	1400	400	140	1300	14	13	170	0	1300	2200
NOV 05...	1500	1400	430	96	2100	24	21	140	0	1200	3400
DEC 04...	1300	1100	340	100	1100	13	10	240	0	950	1800
JAN 15...	1700	1500	420	150	1600	17	12	200	0	1300	2600
FEB 20...	1800	1600	490	140	2000	21	11	220	2	1400	3200
MAR 18...	1800	1600	440	160	1800	19	12	180	0	1400	2800
APR 22...	1800	1700	450	160	1800	19	12	160	0	1500	2800
MAY 20...	540	430	160	34	420	7.9	9.3	130	0	440	680
JUN 10...	610	480	170	45	390	6.9	9.3	170	0	400	650
JUL 22...	1200	1100	290	110	830	11	12	140	0	950	1300
AUG 19...	1200	1200	300	120	750	9.3	11	120	0	1100	1200
SEP 16...	1300	1200	310	120	910	11	7.1	140	0	1000	1600

## RED RIVER BASIN

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## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)
OCT 16...	.4	9.8	5490	5450	.01	.01	.080	.070	1.4	.53
NOV 05...	.4	8.2	7420	7330	.64	.62	.350	.190	2.5	2.4
DEC 04...	.4	11	4520	4430	.79	.79	.230	.190	1.1	.75
JAN 15...	.4	3.6	6200	6180	.07	.06	.120	.100	.36	.31
FEB 20...	.1	5.8	7590	7360	.39	.36	.120	.120	1.2	.17
MAR 18...	.4	.6	6700	6700	.00	.00	.170	.120	1.0	.86
APR 22...	.5	2.4	6880	6800	.02	.02	.170	.130	1.0	.65
MAY 20...	.2	6.3	1870	1820	.28	.27	.240	.190	2.0	.57
JUN 10...	.3	10	1940	1750	.61	.38	--	--	--	--
JUL 22...	.7	7.8	4040	3570	.03	.03	.060	.000	1.4	.68
AUG 19...	.6	8.3	3590	3550	.30	.00	.170	--	--	--
SEP 16...	.5	11	4120	4030	.00	.00	.040	.020	1.3	.60
DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 16...	1.5	.60	.070	.000	14	--	--	--	--	--
NOV 05...	2.8	2.6	.380	.030	17	--	--	1020	782	90
DEC 04...	1.3	.94	.280	.110	2.1	--	--	225	115	70
JAN 15...	.48	.41	.070	.030	--	6.8	--	25	10	79
FEB 20...	1.3	.29	.080	.010	3.8	--	--	141	92	52
MAR 18...	1.2	.98	.110	.030	--	8.5	3.0	41	16	61
APR 22...	1.2	.78	.130	.010	14	--	--	59	18	46
MAY 20...	2.2	.76	.360	.040	42	--	--	4930	33400	46
JUN 10...	--	--	.480	.070	--	--	--	1610	17300	42
JUL 22...	1.5	.68	.120	.010	--	6.2	4.0	293	138	29
AUG 19...	--	--	.120	.050	--	--	--	45	17	92
SEP 16...	1.3	.62	.050	.010	--	10	3.3	36	4.1	96

## RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
DEC 04...	1040	--	--	--	--	--	--	--	--	--	--
JAN 15...	0915	2	0	2	300	100	200	1	1	0	10
FEB 20...	1010	--	--	--	--	--	--	--	--	--	--
MAR 18...	0950	1	0	1	400	300	100	0	0	0	20
JUN 10...	0920	--	--	--	--	--	--	--	--	--	--
JUL 22...	1010	5	1	4	200	0	200	0	0	0	10
AUG 19...	0930	--	--	--	--	--	--	--	--	--	--
SEP 16...	0930	6	2	4	200	0	200	0	0	0	10

DATE	CHRO- MIUM, SUS- PENDE RECOV. (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
DEC 04...	--	--	--	--	--	--	--	--	--	--	--
JAN 15...	0	10	0	0	0	6	6	0	210	180	30
FEB 20...	--	--	--	--	--	--	--	--	--	--	--
MAR 18...	20	0	2	2	0	2	1	1	390	360	30
JUN 10...	--	--	--	--	--	--	--	--	--	--	--
JUL 22...	10	0	0	0	0	13	12	1	920	850	70
AUG 19...	--	--	--	--	--	--	--	--	--	--	--
SEP 16...	10	0	1	1	0	3	3	0	450	430	20

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV. (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDE RECOV- ERABLE (UG/L AS NI)
DEC 04...	--	--	--	--	--	--	--	--	--	--	--
JAN 15...	3	3	0	50	20	30	.0	.0	.0	2	0
FEB 20...	--	--	--	--	--	--	--	--	--	--	--
MAR 18...	3	3	0	50	10	40	.1	.1	.0	4	4
JUN 10...	--	--	--	--	--	--	--	--	--	--	--
JUL 22...	6	6	0	150	140	10	.4	.0	.4	6	2
AUG 19...	--	--	--	--	--	--	--	--	--	--	--
SEP 16...	3	3	0	150	140	10	.2	.2	.0	5	4

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 04...	--	--	--	--	0	--	--	--	--	--
JAN 15...	5	4	1	3	0	0	0	30	10	20
FEB 20...	--	--	--	--	0	--	--	--	--	--
MAR 18...	0	3	0	3	0	0	0	20	0	20
JUN 10...	--	--	--	--	0	--	--	--	--	--
JUL 22...	4	2	0	2	1	1	0	20	0	20
AUG 19...	--	--	--	--	0	--	--	--	--	--
SEP 16...	1	1	0	1	0	0	0	40	30	10

## RED RIVER BASIN

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## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB, TOTAL (UG/L)	PCB, 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)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV											
05...	1740	ND	--	ND	--	ND	--	ND	--	ND	--
05...	1748	--	ND	--	ND	--	ND	--	ND	--	ND
FEB											
20...	1010	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL (UG/L)
NOV											
05...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
05...	--	ND	--	ND	--	ND	--	ND	--	ND	--
FEB											
20...	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)
NOV											
05...	--	ND	--	ND	--	ND	--	ND	--	ND	--
05...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
FEB											
20...	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	METHYL TRI- THION, TOTAL (UG/L)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV											
05...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
05...	--	ND	--	ND	--	ND	--	ND	--	--	--
FEB											
20...	ND	--	ND	--	ND	--	ND	--	--	--	--

## RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	DEC 4,79 1040	MAR 18,80 0950	MAY 20,80 1010	JUN 10,80 0920				
TOTAL CELLS/ML	11000	13000	1500	24000				
DIVERSITY: DIVISION	0.8	0.6	1.6	1.4				
..CLASS	0.8	0.6	1.6	1.4				
...ORDER	1.4	0.7	1.7	2.1				
...FAMILY	1.5	1.2	2.1	3.0				
....GENUS	1.5	1.6	2.2	3.5				
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...CHARACIACEAE								
...SCHROEDERIA	--	-	--	-	--	-	--	-
...COELASTRACEAE								
...COELASTRUM	--	-	--	-	--	-	700	3
...MICRACTINIACEAE								
...GOLENKINIA	--	-	--	-	--	-	--	-
...MICRACTINIUM	--	-	--	-	--	-	700	3
...OOCYSTACEAE								
...ANKISTRODESMUS	84	1	8100# 64	--	--	--	1600	7
...CHODATELLA	--	-	--	-	--	-	--	-
...DICTYOSPHAERIUM	--	-	770 6	--	--	--	5300# 22	
...KIRCHNERIELLA	--	-	--	-	--	-	*	0
...OOCYSTIS	--	-	97 1	--	--	--	350	1
...SELENASTRUM	--	-	--	-	--	-	--	-
...TETRAEDRON	--	-	--	-	--	-	--	-
...TREUBARIA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
...SCENEDESMUS	960	9	1500 12	--	--	--	4100# 17	
...TETRASTRUM	--	-	--	-	--	-	350	1
...TETRASPORALES								
...COCCOMYXACEAE								
...ELAKATOTHRIX	--	-	--	-	--	-	--	-
...PALMELLACEAE								
...GLOEOCYSTIS	--	-	--	-	--	-	700	3
...VOLVOCALES								
...CHLAMYDOMONADACEAE								
...CHLAMYDOMONAS	140	1	97 1	220 14	--	--	970	4
...PLATYMONAS	*	0	--	-	--	-	--	-
CHRYSOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...CHAETOCERACEAE								
...CHAETOCEROS	--	-	--	-	--	-	180	1
...COSCINODISCACEAE								
...CYCLOTELLA	280	3	1900# 15	55 4	--	--	2200 9	
...MELOSIRA	--	-	--	-	--	-	180	1
...PENNALES								
...CYMBELLACEAE								
...RHOPALODIA	--	-	--	-	27 2	--	--	-
...FRAGILARIACEAE								
...FRAGILARIA	--	-	--	-	--	-	180	1
...SYNEDRA	--	-	--	-	27 2	--	180	1
...NAVICULACEAE								
...MASTOGLOIA	--	-	--	-	27 2	--	--	-
...NAVICULA	56	1	--	-	110 7	--	--	-
...NITZSCHACEAE								
...NITZSCHIA	100	1	97 1	190 13	--	--	1400	6
..CHRYSOPHYCEAE								
...CHRYSONOMADALES								
...OCHROMONADACEAE								
...OCHROMONAS	*	0	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
...CHROOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE								
...CRYPTOMONAS	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## RED RIVER BASIN

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07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980---Continued

DATE TIME	DEC 4,79 1040		MAR 18,80 0950		MAY 20,80 1010		JUN 10,80 0920	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	7500#	70	--	-	--	-	3400	14
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-
..OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	--	-	--	-
....OSCILLATORIA	1600	15	--	-	820#	54	1300	5
EUGLENOPHYTA (EUGLENIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	*	0	--	-	27	2	350	1
....TRACHELOMONAS	*	0	--	-	27	2	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 22,80 1010	AUG 19,80 0930	SEP 16,80 0930			
TOTAL CELLS/ML	410000	740000	380000			
DIVERSITY: DIVISION	0.4	0.2	0.3			
..CLASS	0.4	0.2	0.3			
...ORDER	0.9	0.3	1.2			
...FAMILY	1.1	0.5	1.4			
....GENUS	1.2	1.4	2.2			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
...SCHROEDERIA	*	0	--	-	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	*	0	1900	1
...MICRACTINIACEAE						
....GOLENKINIA	--	-	--	-	*	0
...MICRACTINIUM	*	0	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	*	0	*	0	*	0
....CHODATELLA	--	-	*	0	*	0
...DICTYOSPHAERIUM	3300	1	*	0	*	0
...KIRCHNERIELLA	--	-	--	-	--	-
...OOCYSTIS	5000	1	*	0	2600	1
...SELENASTRUM	*	0	*	0	--	-
...TETRAEDRON	*	0	--	-	*	0
...TREUBARIA	--	-	--	-	*	0
...SCENEDESMACEAE						
...SCENEDESMUS	10000	2	3800	1	3400	1
...TETRASTRUM	*	0	--	-	--	-
...TETRASPORALES						
...COCCOMYXACEAE			*	0	--	-
...ELAKATOTHRIX	--	-	--	-	--	-
...PALMELLACEAE						
...GLOEOCYSTIS	--	-	--	-	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE					*	0
...CHLAMYDOMONAS	--	-	--	-	--	-
...PLATYMONAS	--	-	--	-	--	-



## RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980--Continued

DATE TIME	JUL 22,80 1010	AUG 19,80 0930	SEP 16,80 0930			
TOTAL CELLS/ML	410000	740000	380000			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHRYSTOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...CHAETOCERACEAE						
...CHAETOCEROS	--	-	--	-	--	-
...COSCINODISCACEAE						
...CYCLOTELLA	4800	1	*	0	3000	1
...MELOSIRA	--	-	--	-	*	0
..PENNALES						
...CYMBELLACEAE						
...RHODALODIA	--	-	--	-	--	-
...FRAGILARIACEAE						
...FRAGILARIA	--	-	--	-	--	-
...SYNEDRA	*	0	--	-	--	-
...NAVICULACEAE						
...MASTOGLOIA	--	-	--	-	--	-
...NAVICULA	*	0	--	-	--	-
...NITZSCHACEAE						
...NITZSCHIA	*	0	*	0	*	0
.CHRYSTOPHYCEAE						
..CHRYDOMONADALES						
...OCHROMONADACEAE						
...OCHROMONAS	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE			*	0	--	-
...CHROOMONAS	--	-				
...CRYPTOMONADACEAE					*	0
...CRYPTOMONAS	--	-	--	-		
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	8000	2	6700	1	23000	6
...ANACYSTIS	36000	9	6700	1	110000#	29
..HORMOGONALES						
...NOSTOCACEAE						
...ANABAENA	5500	1	*	0	--	-
...ANABAENOPSIS	--	-	*	0	6400	2
...OSCILLATORIACEAE						
...LYNGBYA	--	-	340000#	46	75000#	20
...OSCILLATORIA	330000#	80	360000#	49	150000#	39
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE			*	0	--	-
...EUGLENA	--	-	--	-	--	-
...TRACHELOMONAS	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## RED RIVER BASIN

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07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	2961	8280	5190	41500	2100	17100	1100	9070	1400
NOV.	1979	10562	5410	3340	95400	1300	38100	780	22300	990
DEC.	1979	6406	8760	5520	95400	2300	39600	1200	20500	1500
JAN.	1980	9138	7540	4720	117000	1900	48000	1000	25500	1300
FEB.	1980	7479	11000	7030	142000	3000	61000	1400	27900	*
MAR.	1980	5073	10200	6470	88600	2700	37600	1300	18000	*
APR.	1980	8291	7040	4400	98400	1800	40200	980	21900	1200
MAY	1980	182509	2150	1280	633000	480	236000	340	169600	440
JUNE	1980	110588	3340	2040	609000	800	238000	500	149700	640
JULY	1980	7737	6430	3970	83000	1600	33100	930	19500	1200
AUG.	1980	3828	5330	3260	33700	1300	13200	800	8250	1000
SEPT	1980	2347	5080	3100	19700	1200	7670	760	4840	970
TOTAL		356919	**	**	2056000	**	810000	**	497000	**
WTD. AVG.		975	3480	2130	**	840	**	520	**	650

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8940	5500	7570	8580	10000	11000	9600	7180	1290	8050	5980	5460
2	9000	3180	7990	8730	10200	10900	9590	7980	1430	8080	6330	4720
3	9110	3610	6900	9180	10000	10700	7220	8600	2000	7930	6550	4400
4	9220	7060	7240	9320	10400	10500	7600	7000	2360	6600	6600	4180
5	9200	11200	7930	9300	10000	10600	9340	6780	3340	6880	6700	3950
6	9220	9820	8480	9400	10600	10900	10500	7000	3580	7170	6390	4200
7	9150	8380	8640	9610	10400	10600	9300	5550	3700	7180	5930	4340
8	9250	8820	8730	9780	9780	10400	9170	6380	3620	7790	5700	4290
9	9380	9570	8930	9760	9420	10300	9740	7540	3060	6280	5520	4360
10	9400	9680	8890	9740	9350	10200	10400	9720	3220	6090	5400	4390
11	9320	9130	8980	9800	9170	10100	11000	8230	4440	5950	5300	4890
12	9280	8880	8660	9910	9540	9890	11400	7840	4700	5920	5050	4850
13	9360	9240	8720	9920	10000	9930	10400	8650	4370	5900	5030	5320
14	9420	9350	8750	9840	10100	9960	9620	9140	7220	5880	4970	5600
15	9240	9400	8660	9800	11600	10100	9590	4200	9820	5840	5070	6010
16	8600	9370	8790	9770	12000	9960	9660	1910	9540	5920	5330	6430
17	8100	9310	9230	9720	11800	10000	10000	1590	8070	5910	5440	6490
18	7890	9340	9480	9630	12000	10100	10300	1950	7210	5920	5370	6840
19	6370	9480	9720	9470	12000	10200	10200	2230	6760	6060	5430	6950
20	5590	9090	10000	8910	11800	10100	10300	3110	6420	6030	5270	7260
21	7000	5300	10700	5000	11700	9990	10300	3560	6490	5850	4740	7470
22	7240	4250	10800	3650	11800	10000	10400	4320	7140	5810	5100	7710
23	7670	3050	10300	4600	12000	9860	10500	4190	7480	5960	5060	7260
24	7780	3190	10200	5570	11800	9910	10600	5040	8080	5920	4820	7350
25	8230	3670	10200	7770	12000	9990	9480	5650	8160	5670	4520	7370
26	8780	3420	9830	9350	12700	10100	7500	6220	7730	5480	4370	7580
27	9050	3860	9780	9800	12300	9670	4800	6210	7900	5420	4560	5450
28	8950	5340	8770	10500	11700	9430	4650	2670	7940	5300	4860	5360
29	8930	6840	8300	10600	11400	9350	4550	1440	7790	5280	4970	5900
30	8610	7320	6780	10100	---	9540	4850	1370	7910	5220	5470	5600
31	8940	---	7040	10000	---	9810	---	1390	---	5630	5570	---
MEAN	8590	7190	8870	8940	11000	10100	9090	5310	5760	6220	5400	5730

## RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	11.5	7.0	9.0	1.5	.0	20.0	18.5	24.0	32.5	32.0	26.0
2	19.0	12.0	8.0	9.0	7.0	.0	14.5	18.5	23.5	33.5	31.5	27.5
3	18.0	7.5	9.5	4.0	7.0	9.0	15.5	23.0	26.5	30.0	26.5	24.5
4	14.5	11.5	10.5	3.5	11.5	14.0	17.5	23.5	26.5	30.0	30.0	28.0
5	16.0	13.5	11.0	3.0	12.0	10.0	19.0	21.5	26.5	29.0	29.0	29.0
6	18.0	11.5	10.0	8.5	11.0	13.5	21.5	22.0	26.0	30.0	29.5	31.0
7	21.0	9.5	11.5	3.0	5.5	16.5	19.0	28.0	29.0	31.0	27.0	30.5
8	18.0	14.5	10.0	6.0	2.0	14.0	17.0	16.5	24.5	32.0	32.0	28.5
9	13.0	11.5	9.5	6.5	.0	16.0	20.0	18.0	24.5	31.0	28.5	28.5
10	14.5	7.0	11.5	12.0	.0	14.5	21.0	20.5	27.0	33.0	30.5	25.0
11	14.5	10.5	11.5	8.5	1.5	13.0	19.5	25.0	27.0	32.0	26.0	29.5
12	19.5	11.5	3.0	9.0	1.0	10.5	9.0	26.5	26.5	32.0	28.5	27.0
13	13.5	12.5	3.5	10.5	5.0	10.0	9.5	21.0	28.0	31.0	26.5	32.5
14	13.0	10.5	6.5	10.0	8.5	9.0	17.0	17.0	24.5	31.5	35.0	32.5
15	16.5	14.5	9.5	13.0	9.0	13.5	21.0	17.0	26.5	32.0	31.0	31.0
16	18.5	14.0	1.0	13.5	.0	19.0	17.0	17.0	26.0	33.5	31.5	26.5
17	21.0	10.5	1.0	13.0	4.0	12.0	20.0	17.0	25.0	33.0	31.0	17.0
18	20.5	17.5	5.5	14.0	8.5	14.0	23.0	20.0	27.0	31.5	31.0	32.0
19	20.5	15.0	5.0	12.5	15.0	13.0	20.0	20.0	26.0	29.0	30.5	28.0
20	21.0	19.5	6.0	5.5	13.0	14.5	29.0	22.0	25.5	33.0	32.5	29.5
21	21.0	17.0	11.0	5.5	12.0	16.5	19.5	20.0	28.0	32.0	33.0	28.0
22	14.5	9.0	15.0	5.5	14.5	14.0	23.5	21.0	28.0	31.0	29.0	24.5
23	17.0	9.5	9.5	8.0	9.0	18.0	24.0	23.5	26.5	31.0	31.5	22.0
24	14.0	9.0	11.0	9.5	10.0	6.5	23.5	25.0	29.0	25.0	32.0	20.0
25	16.0	9.0	7.0	9.0	10.5	8.5	21.5	28.0	32.0	32.0	26.0	23.0
26	14.5	10.5	12.0	4.0	10.5	17.5	13.5	27.5	28.0	25.0	29.5	17.0
27	23.0	8.0	11.5	1.0	16.5	14.0	15.0	24.0	28.0	32.5	30.0	15.5
28	22.0	7.0	10.0	.0	14.0	21.0	16.5	25.0	26.5	31.5	24.5	15.5
29	21.0	5.5	7.0	.0	8.5	14.5	23.0	23.5	35.5	33.5	29.5	17.0
30	16.5	4.5	6.5	.0	---	16.5	18.5	22.5	---	31.0	29.0	18.0
31	11.5	---	4.0	.0	---	18.0	---	25.0	---	31.0	30.0	---
MEAN	17.5	11.0	8.0	7.0	8.0	13.0	19.0	22.0	27.0	31.0	30.0	25.5

## RED RIVER BASIN

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## 07311600 NORTH WICHITA RIVER NEAR PADUCAH, TX

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

DRAINAGE AREA.--540 mi<sup>2</sup> (1,399 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

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

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

AVERAGE DISCHARGE.--19 years (water years 1962-80), 20.4 ft<sup>3</sup>/s (0.578 m<sup>3</sup>/s), 0.51 in/yr (13 mm/yr), 14,780 acre-ft/yr (18.2 hm<sup>3</sup>/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,000 ft<sup>3</sup>/s (142 m<sup>3</sup>/s), May 15 at 2400 hours, gage height, 11.41 ft (3.478 m), no other peak above base of 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s); minimum, 7.2 ft<sup>3</sup>/s (0.20 m<sup>3</sup>/s) Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	12	13	12	11	11	12	13	18	11	9.8	8.1
2	12	12	13	12	11	11	12	13	22	11	9.8	8.7
3	11	13	13	12	11	12	12	12	19	11	10	11
4	12	13	13	12	11	11	12	12	18	10	10	9.2
5	12	13	13	12	11	11	12	12	18	11	10	9.1
6	12	12	13	12	11	11	12	12	18	10	9.8	9.1
7	12	13	13	12	11	11	12	24	17	10	9.6	8.8
8	12	13	13	12	12	11	12	121	42	9.9	9.5	9.2
9	11	13	13	12	11	11	12	23	96	9.8	9.6	12
10	11	13	13	12	12	11	12	16	29	9.7	9.6	12
11	12	13	12	11	12	12	12	14	140	9.9	10	11
12	12	13	13	12	11	11	11	13	142	10	10	9.8
13	12	13	13	12	12	11	12	12	32	9.9	10	9.4
14	12	13	14	12	11	11	12	12	21	9.9	10	9.3
15	12	13	13	12	11	12	12	1230	19	9.7	10	9.1
16	12	14	12	11	12	12	12	1960	18	9.2	11	9.2
17	12	14	12	11	12	11	12	83	15	9.2	9.2	8.6
18	13	14	12	11	12	12	12	36	24	9.2	8.8	9.2
19	12	13	12	13	12	11	12	28	24	9.2	8.5	9.4
20	12	61	12	15	12	11	13	24	25	9.2	8.5	9.1
21	12	77	12	16	11	12	13	283	17	8.8	13	9.0
22	11	23	12	14	12	12	12	58	16	9.4	13	8.6
23	12	16	14	12	11	12	12	29	15	9.5	8.8	9.1
24	12	15	12	11	11	11	13	23	14	9.8	8.5	9.6
25	12	14	12	11	11	12	13	20	13	10	8.1	9.5
26	12	14	11	11	11	12	149	18	12	11	8.1	11
27	12	14	11	11	11	12	21	17	12	10	8.1	15
28	12	13	12	11	12	12	15	31	11	10	8.5	14
29	12	13	12	11	11	12	13	19	11	10	8.8	12
30	16	13	12	11	---	11	13	18	12	10	8.5	11
31	13	---	12	11	---	12	---	18	---	9.9	8.1	---
TOTAL	374	520	387	370	330	355	514	4204	890	307.2	295.2	300.1
MEAN	12.1	17.3	12.5	11.9	11.4	11.5	17.1	136	29.7	9.91	9.52	10.0
MAX	16	77	14	16	12	12	149	1960	142	11	13	15
MIN	11	12	11	11	11	11	11	12	11	8.8	8.1	8.1
AC-FT	742	1030	768	734	655	704	1020	8340	1770	609	586	595
CAL YR 1979	TOTAL	9564.2	MEAN	26.2	MAX	961	MIN	9.0	AC-FT	18970		
WTR YR 1980	TOTAL	8846.5	MEAN	24.2	MAX	1960	MIN	8.1	AC-FT	17550		

## RED RIVER BASIN

07311600 NORTH WICHITA RIVER NEAR PADUCAH, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD---Chemical analyses: October 1967 to September 1976.

Water temperatures: October 1967 to September 1976.

Sediment analyses: October 1977 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. STIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. STIEVE DIAM. % FINER THAN .125 MM
FEB 04...	1250	12	9.5	13	.42	--	--	--	--	--	79	--
MAR 19...	1250	12	13.0	49	1.6	--	--	--	--	--	90	--
APR 28...	1230	14	18.0	173	6.5	--	--	--	--	--	100	--
MAY 20...	1400	25	22.0	48	3.2	--	--	--	--	--	--	--
JUN 09...	1325	114	23.0	5680	1750	69	85	96	98	98	99	100
JUL 21...	1255	8.9	29.5	35	.84	--	--	--	--	--	96	--
SEP 01...	1140	8.1	25.0	45	.98	--	--	--	--	--	98	--

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX

LOCATION.--Lat 33°49'14", long 99°47'10", Foard-Knox County line, Hydrologic Unit 11130204, near right bank on downstream side of bridge on State Highway 6, 4.5 mi (7.2 km) north of Truscott, about 47.6 mi (76.6 km) upstream from confluence with South Wichita River, and 188.4 mi (303.1 km) upstream from mouth.

DRAINAGE AREA.--937 mi<sup>2</sup> (2,427 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,351.78 ft (412.023 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 2, 1960, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--20 years (water years 1961-80), 58.1 ft<sup>3</sup>/s (1.645 m<sup>3</sup>/s), 0.84 in/yr (21 mm/yr), 42,090 acre-ft/yr (51.9 hm<sup>3</sup>/yr).

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

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
May 15	1700	*9,050	256	18.50	5.639
May 27	1715	1,060	30.0	10.18	3.103

Minimum discharge, 2.0 ft<sup>3</sup>/s (0.057 m<sup>3</sup>/s) Jan. 31 (result of a freezeup).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	22	16	17	18	15	13	8.9	43	11	7.1	6.9
2	12	19	16	17	20	14	13	8.1	35	11	6.2	8.0
3	12	17	16	16	22	15	13	8.1	33	11	7.2	6.3
4	12	17	16	16	21	17	12	6.0	29	9.6	7.6	7.6
5	12	20	15	16	21	15	11	5.4	24	8.9	7.5	8.2
6	12	15	14	17	21	16	11	4.8	21	8.9	6.7	7.2
7	12	12	14	16	20	15	10	4.3	19	8.9	5.5	7.1
8	11	15	14	16	19	15	9.3	151	30	9.9	5.2	6.9
9	9.7	20	14	16	18	16	9.8	98	52	11	5.7	6.9
10	9.7	18	14	17	17	17	9.1	39	96	11	5.3	7.2
11	9.7	18	14	16	22	16	10	18	48	11	6.7	9.6
12	10	18	17	15	24	15	9.1	7.4	163	9.6	7.3	8.3
13	10	18	20	15	27	12	9.9	4.8	118	8.8	8.3	6.7
14	10	17	21	15	25	12	9.5	163	60	8.2	7.5	6.6
15	15	17	24	16	24	12	9.3	4430	42	9.0	7.3	6.3
16	13	16	24	16	22	13	8.1	4160	35	8.9	66	6.0
17	13	15	17	16	20	13	7.0	612	28	8.1	19	5.4
18	14	15	20	16	22	14	5.8	159	25	8.1	12	6.0
19	14	15	18	21	25	16	5.8	97	27	8.0	9.4	6.7
20	14	100	18	59	25	17	6.1	75	32	7.4	7.4	6.7
21	13	97	18	76	22	16	5.7	71	36	8.1	6.7	6.7
22	13	75	18	50	21	16	4.8	283	26	8.9	7.1	6.7
23	12	45	20	40	20	17	4.6	92	23	9.0	11	7.4
24	11	30	24	31	20	14	8.0	65	20	9.5	10	8.9
25	12	24	22	25	20	13	12	53	19	10	7.7	8.9
26	12	20	18	22	20	14	54	45	16	9.2	6.3	12
27	13	19	17	20	19	16	102	269	15	9.0	5.6	49
28	13	18	21	18	20	22	34	153	13	10	5.9	48
29	13	17	21	17	19	21	16	74	12	8.6	12	41
30	24	16	19	16	---	19	9.7	77	12	7.9	9.9	27
31	21	---	18	16	---	16	---	88	---	7.6	9.4	---
TOTAL	394.1	785	558	700	614	479	442.6	11368.5	1152	286.1	306.5	356.2
MEAN	12.7	26.2	18.0	22.6	21.2	15.5	14.8	367	38.4	9.23	9.89	11.9
MAX	24	100	24	76	27	22	102	4430	163	11	66	49
MIN	9.7	12	14	15	17	12	4.6	4.8	12	7.4	5.2	5.4
CFSM	.01	.03	.02	.02	.02	.02	.02	.39	.04	.01	.01	.01
IN.	.02	.03	.02	.03	.02	.02	.02	.45	.05	.01	.01	.01
AC-FT	782	1560	1110	1390	1220	950	878	22550	2280	567	608	707
CAL YR 1979	TOTAL	20111.4	MEAN	55.1	MAX	1900	MIN	3.8	AC-FT	39890		
WTR YR 1980	TOTAL	17442.0	MEAN	47.7	MAX	4430	MIN	4.6	AC-FT	34600		



07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to current year.

WATER TEMPERATURES: July 1968 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 33,800 micromhos Aug. 19, 1970; minimum daily, 840 micromhos Sept. 23, 1969.

WATER TEMPERATURES (1968-80): Maximum daily, 39.0°C Aug. 21, 23, 1969, Aug. 22, 1973; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 26,500 micromhos Aug. 8; minimum daily, 1,000 micromhos May. 15.

WATER TEMPERATURES: Minimum daily 0.0°C Jan. 29

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
OCT 02...	1415	12	--	--	24.5	--	--	--	--	--	--
NOV 13...	1155	18	--	--	8.0	--	--	--	--	--	--
DEC 03...	1015	16	18500	--	3.5	2500	2400	720	170	3400	30
JAN 15...	1100	16	19900	--	11.0	2800	2700	820	190	3700	30
FEB 25...	1050	20	--	--	7.5	--	--	--	--	--	--
MAR 19...	1055	14	--	--	10.5	--	--	--	--	--	--
19...	1100	14	20900	--	10.5	2900	2800	840	200	3700	30
APR 07...	1105	11	--	--	19.0	--	--	--	--	--	--
28...	1030	36	5820	7.7	15.0	910	830	270	58	940	14
MAY 15...	1615	8650	662	--	16.0	240	150	82	9.5	37	1.0
16...	1120	4100	--	--	15.0	--	--	--	--	--	--
20...	1130	80	9130	--	22.0	1500	1300	420	100	1500	17
JUN 09...	1115	34	15900	--	22.0	2500	2400	720	170	2800	24
30...	1020	12	--	--	27.5	--	--	--	--	--	--
JUL 21...	1031	35	24700	--	28.0	3800	3700	1100	260	4700	33
AUG 12...	0915	8.1	--	--	24.5	--	--	--	--	--	--
SEP 01...	0900	7.0	--	--	24.0	--	--	--	--	--	--

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 02...	--	--	--	--	--	--	--	--	23	.75	95
NOV 13...	--	--	--	--	--	--	--	--	27	1.3	95
DEC 03...	17	180	0	2000	5700	--	6.6	12100	43	1.9	98
JAN 15...	20	170	0	2300	5900	--	5.1	13000	--	--	--
FEB 25...	--	--	--	--	--	--	--	--	43	2.3	90
MAR 19...	--	--	--	--	--	--	--	--	14	.53	95
19...	33	150	0	2400	6600	--	2.1	13900	--	--	--
APR 07...	--	--	--	--	--	--	--	--	46	1.4	93
28...	15	96	0	570	1600	--	4.4	3510	548	53	99
MAY 15...	5.1	120	0	150	51	.5	8.8	403	5240	122000	98
16...	--	--	--	--	--	--	--	--	5310	58800	90
20...	18	170	0	1100	2400	.5	5.9	5630	187	40	98
JUN 09...	18	130	0	2000	4700	--	4.1	10500	211	19	100
30...	--	--	--	--	--	--	--	--	153	5.0	99
JUL 21...	48	99	0	3300	8000	--	.3	17500	44	4.2	97
AUG 12...	--	--	--	--	--	--	--	--	17	.37	91
SEP 01...	--	--	--	--	--	--	--	--	146	2.8	98

## RED RIVER BASIN

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07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
OCT							
02...	1415	12	24.5	23	.75	--	--
NOV							
13...	1155	18	8.0	27	1.3	--	--
DEC							
03...	1015	16	3.5	43	1.9	--	--
FEB							
25...	1050	20	7.5	43	2.3	--	--
MAR							
19...	1055	14	10.5	14	.53	--	--
APR							
07...	1105	11	19.0	46	1.4	--	--
28...	1030	36	15.0	548	53	--	--
MAY							
15...	1615	8650	16.0	5240	122000	--	--
16...	1120	4100	15.0	5310	58800	63	76
20...	1130	80	22.0	187	40	--	--
JUN							
09...	1115	34	22.0	211	19	--	--
30...	1020	12	27.5	153	5.0	--	--
JUL							
21...	1031	35	28.0	44	4.2	--	--
AUG							
12...	0915	8.1	24.5	17	.37	--	--
SEP							
01...	0900	7.0	24.0	146	2.8	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
OCT							
02...	--	--	--	95	--	--	--
NOV							
13...	--	--	--	95	--	--	--
DEC							
03...	--	--	--	98	--	--	--
FEB							
25...	--	--	--	90	--	--	--
MAR							
19...	--	--	--	95	--	--	--
APR							
07...	--	--	--	93	--	--	--
28...	--	--	--	99	--	--	--
MAY							
15...	--	--	--	98	--	--	--
16...	83	86	90	90	91	94	100
20...	--	--	--	98	--	--	--
JUN							
09...	--	--	--	100	--	--	--
30...	--	--	--	99	--	--	--
JUL							
21...	--	--	--	97	--	--	--
AUG							
12...	--	--	--	91	--	--	--
SEP							
01...	--	--	--	98	--	--	--

## RED RIVER BASIN

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1979	394.1	20700	14000	14900	6300	6740	2600	2780	*
NOV.	1979	785	13100	8610	18200	3800	7950	1700	3650	*
DEC.	1979	558	18700	12500	18900	5600	8400	2400	3620	*
JAN.	1980	700	16700	11100	20900	4900	9200	2200	4100	*
FEB.	1980	614	17500	11700	19300	5200	8540	2300	3760	*
MAR.	1980	479	20200	13600	17700	6100	7940	2600	3320	*
APR.	1980	442.6	13600	9070	10800	4000	4800	1800	2100	*
MAY	1980	11368.5	2270	1390	42700	550	16800	330	10000	390
JUNE	1980	1152	11900	7740	24100	3300	10400	1600	4920	*
JULY	1980	286.1	23000	15800	12200	7300	5620	2800	2200	*
AUG.	1980	306.5	21900	15000	12400	6900	5690	2700	2240	*
SEPT	1980	356.2	19700	13400	12900	6000	5810	2500	2390	*
TOTAL		17442.0	**	**	225000	**	97900	**	45100	**
WTD. AVG.		48	7270	4780	**	2100	**	960	**	1100

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20600	19800	18000	18900	18100	19800	20100	13000	10300	19500	25600	20600
2	20700	20400	18300	19200	17400	19700	20100	14700	13000	20000	25900	22800
3	20500	20700	18500	19300	16500	19600	20200	15600	14300	20300	25500	23300
4	20600	20800	18700	19500	18400	19500	20000	16800	15300	20600	25200	23800
5	20800	20000	19000	19400	18900	19800	20300	17700	15600	20800	25800	24600
6	20600	20600	19400	19200	19300	19900	20600	18300	16100	21100	26000	25000
7	20400	20700	19300	19400	19200	20000	20800	8530	16300	21400	26300	25200
8	20700	20200	19400	19600	18000	19800	21400	10700	14700	21800	26500	24600
9	21000	18000	19500	19800	18100	20000	21500	6750	16200	22300	25900	23900
10	20900	18600	19700	19500	17900	20000	21400	6260	18400	22400	26200	23200
11	21000	19000	19900	19700	17300	20100	21600	9690	19500	22600	25800	24700
12	20700	19600	19000	19800	18000	20100	21800	10800	4940	22700	25700	24800
13	20800	19900	18400	19900	13800	20200	21900	12200	2480	23000	25800	24200
14	21000	19700	18100	19700	12500	20300	21700	2530	5760	23400	25800	24000
15	19800	20000	18300	19900	10300	20400	21600	1000	8110	23600	25900	23500
16	20400	19900	18400	19700	14600	20300	21700	1270	9860	23900	15500	23600
17	20300	19800	18900	19500	16300	20500	21800	3500	11400	24100	16100	23900
18	20000	20000	18400	19600	17500	20600	21900	5660	12700	24300	15900	24000
19	20100	19900	19200	18700	18000	20800	22000	8020	14200	24500	18100	24200
20	20200	5980	19100	14300	18300	20600	21900	9420	15400	24600	20400	24500
21	21000	7500	19100	10300	18700	20800	21800	10300	16200	24700	22200	24900
22	20900	5500	19200	12800	18800	21000	22000	3500	17100	24500	23900	25100
23	21400	6080	18800	14800	19000	20800	21900	5340	17400	24400	24500	24300
24	21800	9610	18300	16700	19300	20600	21100	6960	16600	24400	25200	24100
25	21700	10400	18400	16900	19500	20700	19700	8580	15500	24500	25700	23900
26	21900	12400	18600	16400	19500	20800	7470	10200	15100	24600	25600	21500
27	21600	12900	18700	17000	19600	20600	3760	3170	16800	24400	25500	13000
28	21800	14600	17900	16500	19700	19800	6280	3620	17400	24200	25000	14100
29	21700	15700	18400	15800	19800	19900	8740	8500	18300	24500	24200	15600
30	19300	17200	18500	17900	---	20000	11200	10400	19000	24900	24500	18700
31	20000	---	18700	18100	---	20000	---	10300	---	25200	24400	---
MEAN	20800	16500	18800	18000	17700	20200	18900	8820	14100	23100	24000	22800

## RED RIVER BASIN

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07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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

## RED RIVER BASIN

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX

LOCATION.--Lat 33°38'39", long 99°48'02", Knox County, Hydrologic Unit 11130205, on right bank at upstream side of bridge on State Highway 6, 2 mi (3 km) downstream from Panhandle and Santa Fe Railway Co. bridge, 4 mi (6 km) north of Benjamin, and 41 mi (66 km) upstream from confluence with North Wichita River.

DRAINAGE AREA.--584 mi<sup>2</sup> (1,513 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,334.23 ft (406.673 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 2, 1960, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--20 years (water years 1961-80), 37.5 ft<sup>3</sup>/s (1.062 m<sup>3</sup>/s), 0.87 in/yr (22 mm/yr), 27,170 acre-ft/yr (33.5 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft<sup>3</sup>/s (368 m<sup>3</sup>/s) Oct. 18, 1960, gage height, 15.40 ft (4.694 m); maximum gage height, 16.48 ft (5.023 m) Oct. 18, 1965; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft<sup>3</sup>/s (22.7 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
May 15	1300	*6,200 176	15.70 4.785
May 27	1815	2,120 60.0	13.84 4.218
Sept. 27	1000	1,010 78.6	10.00 3.048

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.99	2.5	6.5	4.8	5.3	4.7	3.8	32	2.0	.00	.00
2	.00	1.1	2.4	5.7	7.0	5.3	78	4.0	26	1.7	.00	.00
3	.00	1.2	3.6	5.0	6.4	5.8	9.3	3.9	23	1.1	.00	.00
4	.00	1.8	2.9	4.9	5.7	5.4	5.1	4.3	19	.88	.00	.00
5	.00	1.8	3.3	4.9	5.2	4.8	4.2	4.4	18	.68	.00	.00
6	.00	1.6	2.6	6.0	5.1	5.2	4.0	4.9	17	.50	.00	.00
7	.00	1.8	3.0	4.9	5.7	5.1	3.5	4.2	15	.34	.00	.00
8	.00	2.3	2.7	4.9	7.0	5.1	2.8	4.5	21	.23	.00	.00
9	.00	2.1	3.0	4.8	6.1	5.1	3.1	3.8	16	.15	.00	.44
10	.00	1.9	3.3	5.8	6.0	5.1	3.2	3.5	18	.03	.00	2.4
11	.00	2.5	3.6	4.8	8.0	4.7	2.6	3.3	17	.01	.00	.96
12	.00	3.0	5.8	4.4	8.0	4.7	2.5	4.6	16	.01	.00	.03
13	.00	3.2	6.2	6.0	8.3	4.1	2.7	3.1	15	.00	.00	.04
14	.00	4.0	6.3	5.7	8.3	4.2	3.1	38	12	.00	.00	.03
15	.00	2.9	6.7	5.7	8.0	4.3	3.3	2560	11	.00	4.6	.00
16	.00	2.7	5.7	6.5	8.0	4.4	3.3	2190	10	.00	100	.00
17	.00	2.8	5.8	6.1	8.0	4.0	3.1	792	8.3	.00	1.8	.00
18	.00	2.8	6.4	6.1	8.0	4.1	3.3	175	8.0	.00	1.5	.00
19	.00	3.5	5.6	6.2	7.6	4.1	2.8	100	6.4	.00	.02	.00
20	.00	161	5.5	26	6.7	3.9	2.8	74	5.3	.00	.00	.00
21	.13	58	5.0	18	6.7	3.5	2.8	63	4.9	.00	.00	.00
22	.26	9.8	5.6	13	6.4	3.7	2.7	51	4.6	.05	.00	.00
23	.15	5.8	6.4	12	6.4	4.2	2.8	47	4.3	.00	.00	.00
24	.11	4.6	6.0	9.8	6.0	3.7	2.9	43	4.0	.00	.00	.00
25	.20	3.8	5.3	7.1	6.0	3.6	2.7	37	3.8	.00	.00	.00
26	.24	3.3	6.1	5.5	5.3	3.8	2.6	39	3.5	.00	.00	.00
27	.32	2.8	5.4	4.9	5.5	4.4	2.8	565	3.1	.00	.00	464
28	.39	2.2	10	4.8	5.5	5.1	3.2	100	2.9	.00	.00	174
29	.40	2.3	8.7	4.7	5.5	5.1	4.6	45	2.5	.00	.01	46
30	1.3	2.3	6.0	4.6	---	4.8	4.2	50	2.2	.00	.06	27
31	1.9	---	5.8	4.5	---	4.6	---	48	---	.00	.00	---
TOTAL	5.40	299.89	157.2	219.8	191.2	141.2	178.7	7069.3	349.8	7.68	107.99	714.90
MEAN	.17	10.0	5.07	7.09	6.59	4.55	5.96	228	11.7	.25	3.48	23.8
MAX	1.9	161	10	26	8.3	5.8	78	2560	32	2.0	100	464
MIN	.00	.99	2.4	4.4	4.8	3.5	2.5	3.1	2.2	.00	.00	.00
CFSM	.000	.02	.009	.01	.01	.008	.01	.39	.02	.000	.006	.04
IN.	.00	.02	.01	.01	.01	.01	.01	.45	.02	.00	.01	.05
AC-FT	11	595	312	436	379	280	354	14020	694	15	214	1420
CAL YR 1979	TOTAL	5149.37	MEAN 14.1	MAX 380	MIN .00	AC-FT 10210						
WTR YR 1980	TOTAL	9443.06	MEAN 25.8	MAX 2560	MIN .00	AC-FT 18730						

## RED RIVER BASIN

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07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, 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.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 48,900 micromhos May 13, 1971; minimum daily, 901 micromhos Sept. 6, 1973.

WATER TEMPERATURES: Maximum daily, 38.0°C Sept. 7, 1969; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 45,900 micromhos Oct. 25; minimum daily, 1,090 micromhos May 15.

WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 17; minimum daily, 0.0°C on several days during winter months.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 23...	0900	.15	44900	6.0	6100	--	1600	520	--
NOV 13...	0925	3.7	39400	6.5	5000	4900	1300	420	8000
DEC 03...	0900	3.6	32700	2.0	4400	4300	1200	330	6300
JAN 15...	0930	5.7	34600	10.5	4400	4300	1200	340	6700
MAR 19...	0900	4.1	38100	10.0	4800	4700	1300	380	7700
APR 07...	0915	3.8	37500	15.5	5100	4900	1400	380	7300
MAY 20...	0930	69	12200	20.5	2000	1900	600	130	2000
SEP 27...	0800	233	827	15.0	--	--	--	--	--

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 23...	--	--	--	--	4100	15000	--	--
NOV 13...	49	54	84	0	2500	14000	1.1	26300
DEC 03...	42	38	110	0	3000	11000	2.1	21900
JAN 15...	44	41	150	0	3100	12000	2.2	23500
MAR 19...	48	46	160	0	2800	12000	2.4	24300
APR 07...	45	42	150	0	3200	13000	2.7	25400
MAY 20...	19	20	130	0	1500	3500	5.0	7820
SEP 27...	--	--	--	--	340	26	--	--



## RED RIVER BASIN

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	5.40	43300	28900	422	15000	219	3300	48	*
NOV.	1979	299.89	14400	9530	7720	4600	3720	1700	1360	*
DEC.	1979	157.2	32100	21400	9060	10600	4520	3200	1340	*
JAN.	1980	219.8	30700	20400	12100	10100	6010	3100	1840	*
FEB.	1980	191.2	30400	20200	10400	10000	5170	3100	1590	*
MAR.	1980	141.2	36200	24100	9170	12200	4640	3300	1240	*
APR.	1980	178.7	22200	14800	7130	7500	3600	2000	963	*
MAY	1980	7069.3	3680	2420	46200	1100	21200	520	9930	690
JUNE	1980	349.8	21900	14500	13700	7000	6580	2600	2430	*
JULY	1980	7.68	30400	20200	419	10000	207	3100	64	*
AUG.	1980	107.99	5330	3500	1020	1600	461	800	233	1000
SEPT	1980	714.90	4270	2810	5420	1300	2470	620	1200	820
TOTAL		9443.06	**	**	123000	**	58800	**	22200	**
WTD. AVG.		26	7280	4820	**	2300	**	870	**	1200

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	38100	29400	26900	29400	27300	36800	43100	13200	30400	---	---
2	---	16900	30100	30400	30900	33200	4100	42600	18600	30600	---	---
3	---	22500	32600	32000	30300	34700	6130	43000	19600	30900	---	---
4	---	27700	33000	32300	31100	34500	25200	40400	19800	30500	---	---
5	---	35000	32800	32600	28000	35200	30100	40100	20700	30700	---	---
6	---	42000	33000	32700	32700	34800	34000	40000	21900	30500	---	---
7	---	40300	33100	33200	32600	35000	37500	40600	22400	29700	---	---
8	---	41300	33400	33400	25300	35500	38800	38700	22200	29400	---	---
9	---	40900	33200	33600	24600	35600	38500	38600	18300	29200	---	28500
10	---	40400	33700	33500	23800	36100	38300	39200	19700	28900	---	26100
11	---	39800	40600	33400	29800	35900	39200	39000	23200	28700	---	18200
12	---	39500	30600	34000	30300	36000	39900	40300	24300	28500	---	10400
13	---	39300	31100	34400	31000	37300	40100	41900	24700	---	---	12500
14	---	39200	31400	34400	31100	37200	40300	10400	25000	---	---	14600
15	---	39000	32000	34500	29900	37500	40800	1090	25100	---	14900	---
16	---	38800	31800	34300	28000	37300	41400	2700	25700	---	4690	---
17	---	38600	32700	34600	26100	37500	41800	2120	25900	---	7270	---
18	---	38500	33800	34300	29700	38000	42200	5420	26000	---	15300	---
19	---	38200	33300	34000	30500	38100	42000	8540	26200	---	20400	---
20	---	8070	32700	25500	31300	38100	41900	11900	26300	---	---	---
21	45500	8500	32900	27600	31600	38300	42000	14200	26500	---	---	---
22	45100	13900	32800	27300	31700	38100	42100	16200	26600	21400	---	---
23	44900	24700	31600	29200	32500	38500	42200	17600	27400	---	---	---
24	45200	25500	31800	30800	33300	37200	42500	19100	28000	---	---	---
25	45900	26700	32900	31000	34000	37900	42800	20600	28800	---	---	---
26	44800	27600	32900	31200	34200	38300	42700	21300	29000	---	---	---
27	44000	28100	33100	30400	34000	37500	42500	4310	29200	---	---	2820
28	43900	27900	29200	30100	34200	35400	42700	7890	29600	---	---	3130
29	44500	28600	30100	31000	34300	36300	42800	18700	29800	---	27500	11600
30	43700	30300	31000	31700	---	37200	42900	15200	29900	---	26300	21200
31	41500	---	31200	32200	---	37500	---	13600	---	---	---	---
MEAN	44500	31500	32400	31800	30600	36400	37500	23800	24500	29200	16600	14900

## RED RIVER BASIN

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07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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

## RED RIVER BASIN

07312000 LAKE KEMP NEAR MABELLE, TX

LOCATION.--Lat 33°45'30", long 99°09'03", Baylor County, Hydrologic Unit 11130206, in outlet gate tower near center of dam on Wichita River, 6.2 mi (10.0 km) north of Mabelle, 13 mi (21 km) northeast of Seymour, and 126.7 mi (203.9 km) upstream from mouth.

DRAINAGE AREA.--2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>).

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 8,890 ft (2,710 m) long. The original dam was completed Aug. 25, 1923, but deliberate impoundment had begun Oct. 1, 1922. Enlargement of the dam was completed in November 1973. The uncontrolled emergency spillway, 3,000 ft (910 m) wide, is located approximately 600 ft (180 m) to right and slightly upstream from right end of dam. The controlled outlet works near center of dam consist of two hydraulically operated slide gates 5 ft 8 in by 13 ft (1.7 by 4 m) with a 13-foot-diameter (4.0 m) conduit and spillway basin. The dam and lake are owned by the city of Wichita Falls and the Wichita County Water Improvement District No. 2. Water is used for irrigation in the Wichita River Valley, oilfield operation, municipal, and industrial uses. The capacity table is based on a resurvey made in 1973. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

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

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 420,900 acre-ft (519 hm<sup>3</sup>) June 30, 1941, elevation, 1,152.0 ft (351.13 m), present datum; minimum since first appreciable storage, 26,160 acre-ft (32.3 hm<sup>3</sup>) June 30, 1953, elevation, 1,108.0 ft (337.72 m), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 177,800 acre-ft (219 hm<sup>3</sup>) June 5 at 1000 hours, elevation, 1,137.17 ft (346.609 m); minimum, 97,440 acre-ft (120 hm<sup>3</sup>) Sept. 25, 26, elevation, 1,126.20 ft (343.266 m).

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

1,126.0	96,310	1,134.0	148,900
1,128.0	108,000	1,136.0	166,200
1,130.0	120,400	1,138.0	186,700
1,132.0	133,800		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145200	134800	140100	143000	144900	146600	138300	130600	176600	161700	129800	107100
2	144500	134800	140100	143000	145100	146500	138300	130400	177100	160400	129000	106600
3	143700	134600	140000	143000	145200	146800	138700	130200	177300	159100	128100	105700
4	143000	134500	140200	143000	145200	146500	138800	129800	177400	157800	127100	105000
5	142600	134500	140100	143000	145400	146500	138800	129700	177400	156600	127100	104600
6	142000	134300	140100	143000	145200	146900	139000	129200	177400	155400	125300	104000
7	141500	134200	140000	142900	145600	146800	138600	129000	177300	154100	124400	103500
8	140900	134500	140000	142800	145600	146900	138600	129500	176900	152900	123700	103100
9	140000	134300	140000	142800	145600	147000	138500	129600	176400	151700	123100	102600
10	139300	134200	140300	143200	145600	146900	138700	129800	176000	150600	122600	102400
11	138800	134200	140000	143000	145700	146400	137500	129600	175400	149700	122100	102200
12	137900	134200	140200	143000	145800	146300	137000	129400	174500	148800	121600	101900
13	137400	134200	140200	143100	146000	145500	136400	128900	173500	147800	120900	101600
14	136800	134200	140300	143300	146300	144900	135700	129300	172700	146700	120200	101300
15	136600	134200	140300	143100	146300	144600	135100	133900	171800	145800	119700	101100
16	136700	134200	140000	143300	146400	143900	134700	141200	171000	144800	118800	100600
17	136700	134200	140100	143300	146300	143500	134100	150100	170100	143800	118200	100300
18	136600	134500	140200	143200	146700	142800	133800	159500	169200	142900	117400	99970
19	136700	134200	140300	143400	147100	142200	133500	163100	168800	142000	116700	99560
20	136600	136100	140300	143900	147200	141800	133200	164900	168800	141200	116000	99040
21	136700	139700	140500	144700	147200	141200	133000	166100	168800	140400	115200	98470
22	136100	140300	140400	145000	147100	140800	132600	166900	168700	139600	114600	97780
23	136100	140400	140800	145200	147100	140500	132300	168000	168700	138600	113900	97780
24	135800	140600	140800	145200	147100	139500	132900	168600	168200	137500	113200	97730
25	135700	140600	140900	145300	147100	139100	132600	169100	167600	136500	112400	97500
26	135500	140600	140900	145200	147100	138600	131900	169400	166800	135500	111700	97500
27	135500	140400	140900	144900	147200	138400	131500	169800	165800	134500	110800	104100
28	135300	140300	142400	145000	147100	138500	131300	172300	164900	133500	110000	111300
29	135000	140200	142900	145200	147100	138600	131200	174900	163800	132500	109200	114200
30	135700	140100	142900	144900	---	138200	131200	175700	162900	131700	108600	114800
31	134900	---	143000	144900	---	138200	---	176200	---	130700	107800	---
MAX	145200	140600	143000	145300	147200	147000	139000	176200	177400	161700	129800	114800
MIN	134900	134200	140000	142800	144900	138200	131200	128900	162900	130700	107800	97500
(†)	1132.15	1132.86	1133.24	1133.50	1133.78	1132.61	1131.62	1137.02	1135.64	1131.55	1127.97	1129.12
(‡)	-10900	+5200	+2900	+1900	+2200	-8900	-7000	+45000	-13300	-32200	-22900	+7000
CAL YR 1979	MAX	169800	MIN	134200	†	-10100						
WTR YR 1980	MAX	177400	MIN	97500	‡	-31000						

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## RED RIVER BASIN

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07312100 WICHITA RIVER NEAR MABELLE, TX

LOCATION.--Lat 33°45'36", long 99°08'33", Baylor County, Hydrologic Unit 11130206, near left bank on downstream side of bridge on U.S. Highways 183 and 283, 0.3 mi (0.5 km) downstream from Lake Kemp Dam, 6.2 mi (10.0 km) north of Mabelle, and 13 mi (21 km) northeast of Seymour.

DRAINAGE AREA.--2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>), all of which is above Lake Kemp Dam.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 1,062.72 ft (323.917 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--21 years, 146 ft<sup>3</sup>/s (4.135 m<sup>3</sup>/s), 105,800 acre-ft/yr (130 hm<sup>3</sup>/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,770 ft<sup>3</sup>/s (50.1 m<sup>3</sup>/s) Apr. 11 at 0945 hours, gage height, 6.61 ft (2.015 m); minimum, 0.34 ft<sup>3</sup>/s (0.010 m<sup>3</sup>/s) part of each day Feb. 20-22, Mar. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	228	.64	.53	.58	.75	.51	.82	138	1.3	439	326	317
2	228	.64	.48	.53	.70	.49	.89	138	1.2	507	345	320
3	229	.64	.48	.52	.64	.51	.81	138	1.2	508	360	320
4	228	.64	.48	.48	.67	.52	.85	138	1.2	508	360	306
5	228	.64	.53	.48	.69	.50	.76	137	1.2	508	359	210
6	227	.64	.48	.51	.63	.57	.70	135	12	507	358	209
7	226	.64	.48	.48	.64	.60	.68	136	133	505	359	209
8	227	.70	.48	.48	.66	.61	.60	136	134	503	305	209
9	230	.64	.48	.50	.61	.59	.63	135	207	508	219	209
10	226	.64	.48	.47	.59	.62	.64	135	262	427	218	146
11	226	.59	.53	.45	.59	151	222	135	285	367	217	106
12	226	.64	.59	.43	.48	235	290	133	384	367	217	105
13	228	.64	.52	.59	.49	235	289	134	384	367	217	105
14	225	.64	.52	.92	.48	234	287	135	384	367	285	105
15	149	.64	.50	.88	.48	234	287	59	385	367	323	106
16	.91	.64	.57	.90	.54	238	287	1.9	387	367	322	107
17	.77	.64	.58	.94	.44	239	199	1.5	387	367	323	107
18	.70	.64	.63	1.0	.70	237	140	1.5	387	354	323	107
19	.70	.64	.63	.91	.52	237	140	1.5	391	335	322	175
20	.64	4.0	.64	1.2	.45	237	138	1.5	180	335	321	210
21	.64	4.7	.63	1.2	.40	237	138	1.5	2.4	335	322	210
22	.64	1.4	.61	.93	.45	237	138	1.4	2.0	335	322	212
23	.64	1.3	.71	.95	.44	236	138	1.3	1.7	380	321	84
24	.59	.84	.53	.91	.46	238	139	1.3	148	453	320	2.1
25	.59	.84	.52	.90	.49	237	139	1.3	238	452	320	2.0
26	.59	.84	.54	.88	.50	240	139	1.3	238	449	319	2.0
27	.59	.77	.56	.84	.62	185	138	1.4	311	449	319	31
28	.59	.70	4.1	.84	.52	1.3	138	1.3	354	448	320	15
29	.59	.64	.77	.77	.53	1.6	138	1.3	355	439	319	3.2
30	.64	.53	.61	.77	---	.86	138	1.3	356	327	317	2.0
31	.53	---	.59	.77	---	.85	---	1.3	---	326	317	---
TOTAL	3341.35	28.73	20.78	23.01	16.16	3897.13	3669.38	1984.6	6314.2	12906	9595	4251.3
MEAN	108	.96	.67	.74	.56	126	122	64.0	210	416	310	142
MAX	230	4.7	4.1	1.2	.75	240	290	138	391	508	360	320
MIN	.53	.53	.48	.43	.40	.49	.60	1.3	1.2	326	217	2.0
AC-FT	6630	57	41	46	32	7730	7280	3940	12520	25600	19030	8430
CAL YR 1979	TOTAL	37044.93	MEAN	101	MAX	797	MIN	.47	AC-FT	73480		
WTR YR 1980	TOTAL	46047.64	MEAN	126	MAX	508	MIN	.40	AC-FT	91340		

## RED RIVER BASIN

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to current year.

WATER TEMPERATURES: October 1968 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

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

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

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,110 micromhos May 13, 14; minimum daily, 1,740 micromhos Sept. 28.

WATER TEMPERATURES: Maximum daily, 29.0°C July 23, 26-29; minimum daily, 0.0°C Feb. 9, 17,

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIU., DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 02...	0800	146	6360	7.7	22.0	1100	1000	300	79	1000
NOV 27...	0910	.74	5800	--	9.0	1200	1000	330	84	840
JAN 07...	0915	.49	5850	--	4.5	1100	910	290	88	810
FEB 19...	0900	.61	5400	--	9.0	980	820	250	86	760
MAR 31...	1240	.82	6290	--	16.0	1100	980	310	85	890
APR 22...	0800	138	6930	--	15.0	1200	1100	330	82	1100
MAY 12...	0750	134	7070	7.8	20.5	1100	1100	300	82	1200
AUG 05...	0940	359	6530	--	26.0	1100	1000	310	77	1000

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 02...	13	10	88	0	870	1700	.3	7.9	4010
NOV 27...	11	10	200	0	780	1400	.4	9.1	3550
JAN 07...	11	7.5	210	0	710	1400	--	11	3420
FEB 19...	11	8.4	190	0	700	1300	.4	7.4	3210
MAR 31...	12	9.4	170	0	760	1500	.6	7.1	3650
APR 22...	14	11	110	0	930	1800	.3	5.1	4310
MAY 12...	16	12	110	0	950	1900	.5	6.8	4510
AUG 05...	13	11	110	0	730	1800	.4	7.1	4260

## RED RIVER BASIN

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07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	3341.35	6380	3720	33500	1600	14600	880	7960	1100
NOV.	1979	28.73	4820	2810	218	1200	92	660	51	870
DEC.	1979	20.78	5110	2980	167	1300	71	700	39	920
JAN.	1980	23.01	5800	3380	210	1400	90	800	50	1000
FEB.	1980	16.16	5720	3330	145	1400	62	790	34	1000
MAR.	1980	3897.13	6650	3870	40800	1700	17900	920	9690	1200
APR.	1980	3669.38	6890	4010	39800	1800	17600	960	9470	1200
MAY	1980	1984.6	7040	4100	22000	1800	9780	980	5240	1200
JUNE	1980	6314.2	6130	3570	60900	1500	26300	850	14400	1100
JULY	1980	12906	6370	3710	129000	1600	56400	880	30700	1100
AUG.	1980	9595	6700	3910	101000	1700	44500	930	24100	1200
SEPT	1980	4251.3	6900	4020	46200	1800	20500	960	11000	1200
TOTAL		46047.64	**	**	475000	**	208000	**	113000	**
WTD. AVG.		126	6550	3820	**	1700	**	910	**	1100

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6350	6080	5930	5680	6020	5440	6280	6970	6180	6200	6580	6850
2	6350	6060	5960	5730	6060	5750	6350	7020	6070	6220	6580	6870
3	6350	5940	5910	5750	6040	5780	6090	7040	6150	6220	6590	6890
4	6350	6090	5860	5710	6020	5860	6170	7070	6190	6230	6590	6890
5	6360	6110	5920	5800	5980	5800	6140	7070	6180	6260	6590	6910
6	6370	6120	5920	5890	5960	5800	6280	7070	6210	6270	6590	6920
7	6370	6080	5870	5880	6040	5820	6200	7070	6130	6290	6620	6960
8	6380	6210	5910	5880	5850	5830	6390	7030	6150	6300	6630	6960
9	6390	6040	5920	5880	5850	5800	6190	7070	6100	6300	6650	6980
10	6390	6130	5910	5880	5890	5810	6250	7020	6090	6320	6670	6980
11	6400	6240	5860	5930	5790	5790	6330	7070	6080	6320	6670	6980
12	6400	6000	5710	5910	5970	6620	6840	7080	6090	6350	6690	7000
13	6420	5950	5710	5900	5920	6660	6880	7110	6110	6360	6700	7000
14	6420	6060	5780	5930	5910	6660	6890	7110	6120	6360	6690	7020
15	6420	6080	5770	5990	5920	6660	6890	7060	6120	6370	6700	7000
16	6070	6080	5810	5930	5760	6670	6890	4680	6130	6380	6720	7030
17	6030	6070	5890	5920	5760	6670	6920	5100	6130	6390	6710	7030
18	6040	6030	5910	5980	5620	6680	6920	5500	6140	6430	6720	7030
19	6140	6070	5890	6090	5310	6690	6920	5420	6140	6410	6720	7020
20	6130	3500	5900	5980	5710	6700	6920	5510	6120	6410	6730	7070
21	6070	1780	5970	3780	5830	6700	6940	5530	6040	6430	6730	7080
22	6200	4590	5800	5730	5880	6680	6950	5660	6060	6440	6730	7090
23	6130	4530	5800	5760	5860	6700	6960	5810	6110	6460	6760	7070
24	6240	5570	5950	5870	5430	6710	6990	5980	6130	6480	6780	7050
25	6170	5610	5960	5920	4120	6710	6960	6050	6140	6470	6770	7050
26	6170	5700	5930	5960	5810	6710	6980	6120	6150	6510	6790	7040
27	6170	5770	5930	6010	5860	6720	6990	6110	6160	6500	6810	7150
28	6170	5850	5920	6050	4340	6190	7010	5970	6160	6510	6820	7140
29	6170	5920	4220	6030	4660	5840	6980	6130	6180	6540	6850	7280
30	6180	6080	4870	5980	---	6350	7020	6050	6180	6550	6830	7490
31	6320	---	5490	6010	---	6320	---	6050	---	6570	6850	---
MEAN	6260	5680	5670	5830	5700	6290	6680	6370	6130	6380	6710	6370



## RED RIVER BASIN

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	10.0	5.0	8.0	3.0	2.0	11.0	18.0	23.0	28.0	27.0	26.0
2	22.0	11.0	6.0	9.0	7.0	3.0	14.0	18.0	23.0	28.0	27.0	26.0
3	23.0	10.0	---	8.0	8.0	5.0	13.0	18.0	24.0	28.0	27.0	26.0
4	21.0	10.0	9.0	6.0	8.0	7.0	12.0	19.0	24.0	28.0	27.0	26.0
5	21.0	13.0	8.0	7.0	9.0	6.0	13.0	19.0	24.0	27.0	27.0	26.0
6	21.0	12.0	8.0	7.0	8.0	7.0	14.0	20.0	24.0	28.0	27.0	26.0
7	21.0	11.0	7.0	4.0	9.0	13.0	15.0	20.0	26.0	27.0	26.0	26.0
8	21.0	11.0	7.0	5.0	5.0	12.0	13.0	18.0	24.0	28.0	27.0	26.0
9	20.0	14.0	9.0	5.0	.0	11.0	13.0	18.0	25.0	28.0	27.0	26.0
10	20.0	10.0	10.0	10.0	2.0	12.0	14.0	20.0	25.0	28.0	27.0	26.0
11	19.0	10.0	15.0	9.0	5.0	13.0	16.0	20.0	25.0	28.0	26.0	26.0
12	20.0	10.0	6.0	8.0	5.0	9.0	13.0	21.0	25.0	28.0	26.0	26.0
13	19.0	10.0	6.0	---	7.0	9.0	13.0	21.0	25.0	28.0	27.0	26.0
14	19.0	10.0	7.0	9.0	11.0	9.0	13.0	21.0	25.0	28.0	27.0	26.0
15	19.0	10.0	9.0	12.0	12.0	10.0	14.0	20.0	25.0	28.0	28.0	27.0
16	19.0	10.0	7.0	10.0	1.0	11.0	15.0	16.0	25.0	28.0	26.0	26.0
17	20.0	10.0	2.0	10.0	.0	---	14.0	18.0	26.0	27.0	26.0	24.0
18	21.0	15.0	3.0	10.0	6.0	10.0	13.0	19.0	26.0	28.0	27.0	25.0
19	20.0	15.0	7.0	10.0	10.0	10.0	15.0	19.0	26.0	28.0	27.0	26.0
20	20.0	18.0	8.0	4.0	12.0	11.0	15.0	20.0	25.0	28.0	27.0	25.0
21	20.0	12.0	10.0	7.0	10.0	11.0	16.0	19.0	24.0	27.0	28.0	26.0
22	16.0	8.0	12.0	8.0	11.0	11.0	15.0	19.0	24.0	28.0	27.0	26.0
23	14.0	6.0	12.0	6.0	10.0	11.0	16.0	21.0	25.0	29.0	27.0	23.0
24	14.0	9.0	9.0	6.0	9.0	11.0	17.0	23.0	26.0	26.0	27.0	21.0
25	14.0	9.0	8.0	9.0	5.0	10.0	15.0	24.0	27.0	27.0	27.0	23.0
26	14.0	9.0	9.0	8.0	7.0	11.0	15.0	22.0	28.0	29.0	27.0	19.0
27	16.0	10.0	11.0	7.0	9.0	12.0	16.0	24.0	28.0	29.0	27.0	17.0
28	15.0	7.0	10.0	4.0	11.0	11.0	16.0	20.0	28.0	29.0	26.0	17.0
29	15.0	6.0	8.0	2.0	11.0	11.0	17.0	23.0	28.0	29.0	26.0	17.0
30	18.0	5.0	6.0	5.0	---	10.0	17.0	23.0	28.0	27.0	26.0	19.0
31	10.0	---	6.0	2.0	---	10.0	---	23.0	---	27.0	26.0	---
MEAN	18.5	10.5	8.0	7.0	7.5	9.5	14.5	20.0	25.5	28.0	27.0	24.0

## RED RIVER BASIN

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07312110 SOUTH SIDE CANAL NEAR DUNDEE, TX

LOCATION.--Lat 33°48'50", long 98°55'57", Archer County, Hydrologic Unit 11130206, on left bank 125 ft (38 m) downstream from Lake Diversion headgates and 5.3 mi (8.5 km) northwest of Dundee.

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

GAGE.--Water-stage recorder. Datum of gage is 1,039.70 ft (316.901 m) National Geodetic Vertical Datum of 1929 (Wichita County Water Improvement District bench mark).

REMARKS.--Records good. Water diverted from Lake Diversion is used for mining, industrial use, recreation, and irrigation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--9 years, 86.2 ft<sup>3</sup>/s (2.441 m<sup>3</sup>/s), 62,450 acre-ft/yr (77.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 374 ft<sup>3</sup>/s (10.6 m<sup>3</sup>/s) July 22, 1974; maximum gage height, 8.66 ft (2.640 m) July 23, 1978; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	2.5	.59	.50	.73	87	45	114	55	252	289	254
2	146	2.3	.64	.51	.81	5.1	45	113	55	253	291	257
3	147	2.2	.64	.53	.71	31	44	113	55	256	291	259
4	146	2.1	.54	.51	.60	50	45	113	54	259	294	262
5	146	2.0	.55	.49	.63	51	45	112	55	261	296	250
6	146	1.7	.58	.48	.74	56	44	112	72	262	299	236
7	147	1.7	.58	14	.65	58	43	111	85	266	300	236
8	147	1.6	.60	26	.64	52	43	93	87	266	300	236
9	146	1.6	.64	1.0	.60	65	43	75	104	271	300	236
10	146	1.4	.68	.98	.58	79	44	74	118	275	299	217
11	147	1.5	.68	.75	.81	102	63	74	124	276	297	203
12	152	1.4	.69	.72	1.0	101	82	80	140	278	298	181
13	154	1.3	.64	.71	1.0	101	81	109	140	277	297	155
14	154	1.2	.66	.72	1.0	104	80	124	143	277	296	154
15	140	1.2	.64	.74	1.0	102	82	82	146	278	295	154
16	109	1.1	.64	.79	1.0	86	82	8.1	154	278	298	151
17	109	1.0	.77	.77	1.1	86	81	8.1	169	278	300	150
18	108	1.1	.63	.73	1.1	90	83	8.1	183	277	301	149
19	108	1.1	.53	.72	1.2	90	84	8.1	199	278	283	148
20	106	1.1	.53	.70	1.1	88	85	8.1	194	279	253	147
21	106	.95	.53	.76	.70	92	97	8.1	166	279	253	147
22	103	.82	.53	.72	.54	93	111	8.1	166	298	254	158
23	104	.67	.49	.77	.52	91	110	8.1	166	312	253	170
24	89	.57	.48	.77	.49	91	111	8.1	173	297	253	163
25	76	.58	.46	.76	.42	95	111	8.1	194	282	254	153
26	75	.58	.48	.81	.43	95	109	11	210	282	254	134
27	74	.64	.49	.73	.48	103	111	48	209	286	253	106
28	72	.64	.53	.66	.50	67	112	73	209	286	283	7.6
29	70	.62	.53	.66	44	42	112	96	210	288	294	5.1
30	68	.59	.50	.61	---	42	113	76	226	289	254	5.1
31	27	---	.53	.60	---	47	---	55	---	290	254	---
TOTAL	3606	37.76	18.00	60.20	65.08	2342.1	2341	1939.0	4261	8586	8736	5083.8
MEAN	116	1.26	.58	1.94	2.24	75.6	78.0	62.5	142	277	282	169
MAX	154	2.5	.77	.26	.44	104	113	124	226	312	301	262
MIN	27	.57	.46	.48	.42	5.1	43	8.1	54	252	253	5.1
AC-FT	7150	75	36	119	129	4650	4640	3850	8450	17030	17330	10080
CAL YR 1979	TOTAL	23963.21	MEAN	65.7	MAX	229	MIN	.39	AC-FT	47530		
WTR YR 1980	TOTAL	37075.94	MEAN	101	MAX	312	MIN	.42	AC-FT	73540		

## 07312200 BEAVER CREEK NEAR ELECTRA, TX

LOCATION.--Lat 33°54'21", long 98°54'17", Wichita County, Hydrologic Unit 11130207, near right bank on downstream side of bridge on Farm Road 2326, 6.5 mi (10.5 km) northwest of Kamay, 8 mi (13 km) upstream from Wichita River, and 9 mi (14 km) south of Electra.

DRAINAGE AREA.--652 mi<sup>2</sup> (1,689 km<sup>2</sup>).

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

Water-quality records: Chemical analyses: October 1968 to June 1970. Water temperatures: October 1968 to June 1970. Sediment records: April 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 991.3 ft (302.15 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation reference point).

REMARKS.--Records fair. Some regulation by Santa Rosa Lake, capacity 11,570 acre-ft (14.3 hm<sup>3</sup>), about 30 mi (48 km) upstream. Several small diversions above station.

AVERAGE DISCHARGE.--20 years, 56.0 ft<sup>3</sup>/s (1.586 m<sup>3</sup>/s), 1.17 in/yr (30 mm/yr), 40,570 acre-ft/yr (50.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft<sup>3</sup>/s (331 m<sup>3</sup>/s) Mar. 17, 1961, gage height, 33.57 ft (10.232 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1925, 36.0 ft (10.97 m) probably occurred Oct. 2, 1941 (partly caused by deliberate demolition of Santa Rosa Dam to avoid its failure), from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Oct. 22	2000	1,090	30.9	17.54	5.346
May 29	0715	*2,700	76.5	25.06	7.638

Minimum daily discharge, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	7.0	8.6	7.6	.71	.65	.93	2.6	76	5.2	5.8	3.3
2	5.0	6.7	8.7	6.7	.64	.65	3.0	2.5	58	3.3	5.5	23
3	4.9	6.7	8.4	4.2	.64	.71	26	2.5	49	2.0	5.2	45
4	4.8	6.7	8.6	2.5	.64	.71	2.8	2.5	42	2.0	4.9	7.1
5	5.2	6.4	8.8	1.7	.64	.71	2.0	2.1	37	1.8	4.7	4.5
6	5.7	6.4	8.3	1.3	.64	.91	1.2	2.0	33	1.8	4.2	4.6
7	5.9	6.1	7.9	1.3	.64	.85	.65	2.0	29	1.8	3.7	4.5
8	5.9	6.2	7.8	1.3	2.9	.71	.49	1.8	52	1.8	2.0	5.9
9	5.9	7.4	5.1	1.2	16	1.5	.35	1.7	220	2.0	1.3	6.5
10	5.5	8.8	3.5	.98	5.8	2.4	.31	1.7	119	1.8	.96	5.9
11	5.5	9.0	3.5	.87	4.0	2.0	1.7	2.0	48	1.4	1.1	7.2
12	6.7	7.9	4.8	1.1	25	2.1	2.9	4.7	31	.85	3.2	6.1
13	6.8	7.9	4.4	1.2	31	2.1	3.0	4.4	23	.41	6.3	5.5
14	6.2	7.0	4.9	.90	26	1.8	3.4	3.9	19	.14	5.9	4.1
15	416	7.0	3.8	.96	18	1.5	5.9	225	17	.16	5.3	3.0
16	329	6.7	3.3	1.1	7.9	1.8	4.7	373	12	.28	5.9	2.6
17	49	6.7	2.9	1.2	2.6	1.7	3.2	93	7.9	.36	7.2	2.6
18	16	7.0	2.4	1.3	7.0	1.7	3.2	26	5.3	.78	8.1	2.4
19	9.9	6.5	2.5	1.2	74	1.4	4.0	10	36	2.2	4.5	1.9
20	8.1	34	2.5	20	39	1.4	2.9	251	28	2.5	3.8	1.7
21	7.0	415	2.4	63	10	1.4	2.4	507	18	2.8	1.7	1.7
22	6.0	212	2.4	44	3.1	1.3	2.2	358	4.9	3.3	.59	1.8
23	6.7	40	7.3	18	1.6	1.4	2.1	173	3.6	3.5	.14	2.3
24	7.0	19	4.9	6.1	1.1	1.5	25	89	3.5	4.4	.01	2.4
25	7.1	11	3.0	3.0	.83	1.6	68	52	4.7	5.2	4.6	2.5
26	7.0	8.5	2.6	2.3	.68	1.7	13	35	3.2	5.2	.85	3.1
27	6.7	7.9	2.4	1.5	.64	1.4	7.0	91	1.4	6.1	.17	202
28	6.5	8.5	80	1.3	.62	6.0	6.1	1850	5.5	6.7	.44	260
29	6.2	8.5	85	1.0	.55	2.0	5.2	2050	1.8	6.7	15	81
30	7.3	8.5	37	.93	---	2.0	3.7	247	2.4	6.4	6.9	22
31	8.2	---	14	.93	---	1.1	---	114	---	6.1	4.0	---
TOTAL	983.3	907.0	351.7	200.67	282.87	48.70	207.33	6580.4	991.2	88.98	123.96	726.2
MEAN	31.7	30.2	11.3	6.47	9.75	1.57	6.91	212	33.0	2.87	4.00	24.2
MAX	416	415	85	63	74	6.0	68	2050	220	6.7	15	260
MIN	4.8	6.1	2.4	.87	.55	.65	.31	1.7	1.4	.14	.01	1.7
CFSM	.05	.05	.02	.01	.02	.002	.01	.33	.05	.004	.006	.04
IN.	.06	.05	.02	.01	.02	.00	.01	.38	.06	.01	.01	.04
AC-FT	1950	1800	698	398	561	97	411	13050	1970	176	246	1440

CAL YR 1979	TOTAL	14333.54	MEAN 39.3	MAX 2350	MIN .95	AC-FT 28430
WTR YR 1980	TOTAL	11492.31	MEAN 31.4	MAX 2050	MIN .01	AC-FT 22790

## RED RIVER BASIN

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## 07312500 WICHITA RIVER AT WICHITA FALLS, TX

LOCATION.--Lat 33°54'34", long 98°32'00", Wichita County, Hydrologic Unit 11130206, near center of stream on downstream side of bridge on Beverly Drive in Wichita Falls, 4 mi (6 km) upstream from Fort Worth and Denver Railway Co. bridge, 8.4 mi (13.5 km) upstream from Holliday Creek and 55.3 mi (89.0 km) upstream from mouth.

DRAINAGE AREA.--3,140 mi<sup>2</sup> (8,130 km<sup>2</sup>), of which 2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>) is above Lake Kemp Dam.

PERIOD OF RECORD.--February 1900 to January 1902 (monthly discharge only, published in WSP 1311), October 1910 to December 1911 (gage heights only), March 1938 to current year.  
Water-quality records: Sediment records: January 1966 to September 1975.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 924.26 ft (281.714 m) National Geodetic Vertical Datum of 1929. February 1900 to February 1902 and Oct. 1, 1910, to Dec. 31, 1911, nonrecording gages at site 4 mi (6 km) downstream at different datum. Mar. 30, 1938, to Dec. 1, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow from 2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>) is regulated by Lake Kemp, capacity 603,000 acre-ft (743 hm<sup>3</sup>), 71 mi (114 km) upstream. Since completion of dam in 1923, no flow has been permitted to pass over spillway. Water is diverted from Lake Diversion, capacity 40,000 acre-ft (49.3 hm<sup>3</sup>), 41 mi (82 km) upstream, for the irrigation of 42,000 acres (170 km<sup>2</sup>) under permit in the vicinity of Wichita Falls. During the water year, Wichita County Water Improvement District No. 2 diverted 73,530 acre-ft (90.7 hm<sup>3</sup>) from Lake Diversion for mining, industrial use, recreation, and irrigation of 26,635 acres (108 km<sup>2</sup>). Several observations of water temperatures were made during the year.

AVERAGE DISCHARGE.--43 years (water years 1901, 1939-80), 270 ft<sup>3</sup>/s (7.646 m<sup>3</sup>/s), 195,600 acre-ft/yr (241 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 ft<sup>3</sup>/s (504 m<sup>3</sup>/s) Oct. 3, 1941, gage height, 24.0 ft (7.32 m); no flow Oct. 11, 1960 (construction of cofferdam upstream).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 50,000 ft<sup>3</sup>/s (1,420 m<sup>3</sup>/s) June 8, 1915, computed by Vernon L. Sullivan, engineer for Big Wichita River Irrigation Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,320 ft<sup>3</sup>/s (122 m<sup>3</sup>/s) Sept. 28 at 1500 hours, gage height, 15.51 ft (4.727 m); minimum, 18 ft<sup>3</sup>/s (0.51 m<sup>3</sup>/s) Jan. 31, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	51	36	52	27	22	27	50	221	60	88	109
2	79	47	34	41	26	23	40	54	143	68	90	114
3	93	44	34	35	26	64	62	54	114	62	90	141
4	90	40	34	32	25	38	74	53	98	60	89	169
5	86	38	34	29	25	47	53	57	84	64	93	147
6	85	36	33	28	24	24	41	62	72	65	87	130
7	78	35	33	28	24	27	43	65	65	69	89	123
8	81	35	32	27	29	25	43	87	65	77	92	126
9	89	37	31	26	32	26	34	88	71	87	97	135
10	87	37	31	24	36	25	35	82	197	75	98	150
11	89	36	31	24	39	23	45	73	155	71	107	148
12	88	37	31	23	37	29	37	63	96	63	105	140
13	83	36	31	23	37	35	41	45	76	62	100	134
14	87	34	31	23	46	31	56	58	68	62	98	114
15	109	33	30	23	35	31	51	105	63	61	94	109
16	674	32	30	23	33	32	48	342	66	64	93	106
17	416	33	31	22	31	36	46	379	65	64	102	90
18	126	33	30	23	30	43	42	144	61	66	116	93
19	89	33	29	23	30	67	39	78	107	62	129	94
20	80	40	28	36	52	65	42	60	151	70	130	84
21	74	391	28	199	62	64	52	384	143	72	101	78
22	73	533	28	272	43	56	50	493	101	71	95	79
23	76	212	32	105	35	59	49	323	79	73	89	109
24	76	83	33	62	30	57	59	196	73	103	91	116
25	76	60	37	45	25	56	60	136	70	135	88	132
26	70	49	32	38	24	67	120	106	69	115	90	112
27	66	43	28	32	22	73	94	88	67	106	89	1740
28	63	40	45	31	23	80	73	188	65	106	93	4170
29	60	38	240	30	22	81	69	1380	59	94	102	3490
30	56	37	185	28	---	64	54	2220	60	83	114	1420
31	55	---	80	27	---	36	---	1060	---	94	110	---
TOTAL	3433	2233	1402	1434	930	1406	1579	8573	2824	2384	3049	13902
MEAN	111	74.4	45.2	46.3	32.1	45.4	52.6	277	94.1	76.9	98.4	463
MAX	674	533	240	272	62	81	120	2220	221	135	130	4170
MIN	55	32	28	22	22	22	27	45	59	60	87	78
AC-FT	6810	4430	2780	2840	1840	2790	3130	17000	5600	4730	6050	27570
CAL YR 1979	TOTAL	54039	MEAN 148	MAX 6070	MIN 15	AC-FT 107200						
WTR YR 1980	TOTAL	43149	MEAN 118	MAX 4170	MIN 22	AC-FT 85590						

## RED RIVER BASIN

## 07312700 WICHITA RIVER NEAR CHARLIE, TX

LOCATION.--Lat 34°03'11", long 98°17'47", Clay County, Hydrologic Unit 11130206, on right bank at upstream side of bridge on Farm Road 810, 3.0 mi (4.8 km) southeast of Charlie, and 5.7 mi (9.2 km) northwest of Petrolia.

DRAINAGE AREA.--3,439 mi<sup>2</sup> (8,907 km<sup>2</sup>), of which 2,086 mi<sup>2</sup> (5,403 km<sup>2</sup>) is above Lake Kemp Dam and 143 mi<sup>2</sup> (370 km<sup>2</sup>) is above Lake Wichita Dam.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 872.71 ft (266.002 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. For statement regarding regulations and diversions, see station 07312500. Records furnished by the city of Wichita Falls show that 12,200 acre-ft (15.0 hm<sup>3</sup>) was returned to river above station as sewage effluent and filter plant washwater.

AVERAGE DISCHARGE.--13 years, 266 ft<sup>3</sup>/s (7.533 m<sup>3</sup>/s), 192,700 acre-ft/yr (238 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,090 ft<sup>3</sup>/s (172 m<sup>3</sup>/s) Nov. 4, 1972, gage height, 21.21 ft (6.465 m); minimum, 24 ft<sup>3</sup>/s (0.68 m<sup>3</sup>/s) Feb. 18, 1978, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,700 ft<sup>3</sup>/s (133 m<sup>3</sup>/s) Sept. 29 at 1500 hours, gage height, 18.45 ft (5.624 m), from floodmark; minimum, 31 ft<sup>3</sup>/s (0.88 m<sup>3</sup>/s) Jan. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	104	65	137	45	37	80	92	952	92	116	154
2	110	94	63	88	45	35	90	89	327	92	104	148
3	107	89	60	66	42	34	285	102	235	107	103	202
4	135	82	58	57	39	72	170	98	195	99	106	244
5	136	71	57	50	40	67	124	92	170	88	105	256
6	142	69	54	47	39	66	101	92	147	89	124	222
7	138	67	52	44	39	84	79	118	127	107	130	195
8	131	64	52	41	43	67	64	119	113	109	127	178
9	118	68	50	41	96	67	60	142	113	121	130	233
10	114	73	48	40	73	64	57	134	121	123	139	222
11	125	62	49	39	67	70	61	127	281	115	133	260
12	130	62	50	37	83	86	64	115	228	104	136	212
13	129	74	62	36	70	95	59	113	149	88	136	192
14	113	69	58	35	64	109	54	87	124	88	136	178
15	122	64	50	36	70	113	69	301	111	85	130	150
16	238	62	50	36	65	111	78	670	98	88	130	144
17	778	58	46	36	55	114	70	634	97	88	130	136
18	433	56	46	36	52	110	81	524	101	87	144	127
19	214	55	50	35	48	100	70	248	95	95	163	124
20	166	64	46	42	45	106	72	134	182	89	182	119
21	152	335	43	310	53	107	68	131	237	95	188	103
22	151	706	43	502	90	107	79	653	229	105	150	93
23	144	563	48	357	68	102	73	670	180	110	133	238
24	138	283	105	189	52	95	68	505	150	114	127	185
25	137	160	65	116	43	103	76	337	135	150	122	175
26	134	117	52	83	39	104	84	225	115	165	116	208
27	121	96	50	66	38	111	149	171	113	138	108	463
28	107	80	61	57	38	139	140	141	116	138	116	2950
29	102	72	242	52	38	152	116	392	110	135	124	4480
30	107	67	366	49	---	141	101	1580	96	126	133	4200
31	115	---	249	46	---	108	---	2130	---	112	160	---
TOTAL	5107	3886	2390	2806	1579	2876	2742	10966	5447	3342	4081	16791
MEAN	165	130	77.1	90.5	54.4	92.8	91.4	354	182	108	132	560
MAX	778	706	366	502	96	152	285	2130	952	165	188	4480
MIN	102	55	43	35	38	34	54	87	95	85	103	93
CFSM	.05	.04	.02	.03	.02	.03	.03	.10	.05	.03	.04	.16
IN.	.06	.04	.03	.03	.02	.03	.03	.12	.06	.04	.04	.18
AC-FT	10130	7710	4740	5570	3130	5700	5440	21750	10800	6630	8090	33300
CAL YR 1979	TOTAL	81073	MEAN 222	MAX 5520	MIN 42	AC-FT 160800						
WTR YR 1980	TOTAL	62013	MEAN 169	MAX 4480	MIN 34	AC-FT 123000						

## RED RIVER BASIN

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07312700 WICHITA RIVER NEAR CHARLIE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical 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 equation developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

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

WATER TEMPERATURES: Maximum daily, 33.5 °C July 6, 12, 14, 1978; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 8,430 microhos Apr. 28; minimum daily, 648 micromhos Sept. 29.

WATER TEMPERATURES: Maximum daily, 33.0°C June 29, 30; minimum daily, 0.0°C Feb. 9, 11.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM 5 DAY (MG/L)	HARD- NESS, (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT										
16...	1425	263	6100	8.1	20.0	9.5	110	3.2	1200	1100
DEC										
04...	1450	57	4200	7.9	7.0	9.8	84	.9	930	720
31...	1445	218	3290	--	7.0	--	--	--	570	440
FEB										
13...	1535	72	3790	--	6.5	--	--	--	740	590
20...	1300	43	5100	8.1	12.0	10.6	102	7.3	990	800
MAR										
25...	1415	10	6180	--	13.5	--	--	--	1100	950
APR										
22...	1130	76	6900	8.3	21.5	9.0	106	4.7	1300	1100
MAY										
30...	1300	1590	882	--	23.5	--	--	--	220	69
JUN										
10...	1230	114	3700	25.5	25.5	7.5	94	3.1	680	530
AUG										
19...	1145	170	7010	8.1	28.0	6.8	91	2.9	1200	1100
SEP										
30...	1510	4140	894	--	18.0	--	--	--	150	91

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT										
16...	290	110	910	12	12	140	0	760	1600	.5
DEC										
04...	220	92	560	8.0	9.5	250	0	410	1100	.5
31...	140	53	450	8.2	6.9	160	0	97	960	.3
FEB										
13...	170	76	480	7.7	9.2	180	0	340	950	.6
20...	230	100	740	10	9.7	230	0	330	1400	.6
MAR										
25...	280	93	900	12	12	160	0	660	1600	.8
APR										
22...	310	120	980	12	11	180	0	690	1800	.7
MAY										
30...	62	15	100	3.0	5.2	180	0	34	190	.5
JUN										
10...	170	62	490	8.2	9.8	180	0	330	900	.5
AUG										
19...	310	110	1100	14	13	130	0	850	1800	.6
SEP										
30...	43	11	110	3.9	4.5	75	0	73	190	.2



## RED RIVER BASIN

07312700 WICHITA RIVER NEAR CHARLIE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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 16...	5.5	3760	1.2	.10	1.3	.23	1.5	1.7	.900
DEC 04...	9.9	2530	.83	.27	1.1	1.9	.60	2.5	.040
31...	8.9	1800	--	--	--	--	--	--	--
FEB 13...	4.2	2120	--	--	--	--	--	--	--
20...	3.8	2930	.82	.12	.94	1.3	1.3	2.6	1.600
MAR 25...	1.7	3630	--	--	--	--	--	--	--
APR 22...	1.0	4000	.67	.29	.96	.37	1.4	1.8	1.600
MAY 30...	9.6	505	--	--	--	--	--	--	--
JUN 10...	9.6	2060	.88	.05	.93	.03	2.6	2.6	1.400
AUG 19...	3.9	4250	.48	.15	.63	.11	1.4	1.5	.860
SEP 30...	5.6	475	--	--	--	--	--	--	--

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	5107	5490	3290	45400	1400	19800	610	8360	1000
NOV.	1979	3886	3120	1810	19000	800	8420	280	2970	600
DEC.	1979	2390	3870	2240	14500	990	6420	350	2270	740
JAN.	1980	2806	2440	1380	10500	620	4710	190	1440	480
FEB.	1980	1579	4780	2830	12100	1200	5290	490	2090	900
MAR.	1980	2876	6150	3720	28900	1600	12500	710	5500	1100
APR.	1980	2742	5820	3520	26100	1500	11300	670	4980	1100
MAY	1980	10966	2250	1290	38100	580	17000	190	5590	440
JUNE	1980	5447	3910	2290	33700	1000	14900	380	5550	750
JULY	1980	3342	6950	4270	38600	1800	16600	860	7800	1300
AUG.	1980	4081	7170	4430	48800	1900	20900	910	10000	1300
SEPT	1980	16791	2410	1430	64600	620	28300	250	11200	460
TOTAL		62013	**	**	380000	**	166000	**	67800	**
WTD. AVG.		169	3810	2270	**	990	**	400	**	720

## RED RIVER BASIN

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07312700 WICHITA RIVER NEAR CHARLIE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6050	5210	3250	2500	4070	4530	6250	5970	1630	6680	7170	7140
2	6220	5430	3590	3180	3700	4950	6060	5810	2090	6620	7400	7220
3	6080	5820	3930	3250	4210	5340	4250	5830	2550	6640	7530	6830
4	6140	5740	4130	2570	3740	5320	1840	5740	2670	6890	7490	5530
5	6520	5690	4440	2000	3670	5260	3580	5950	2970	6810	7360	6300
6	6600	5610	4500	3480	4380	6470	4870	6060	3090	7060	7280	6930
7	6480	5550	4680	3630	4800	6260	5060	6250	3160	7080	7560	6710
8	6750	5640	4750	3880	4580	6070	5820	6000	3300	7010	7290	6930
9	6320	5200	4820	4320	4400	5920	5620	6230	3630	6950	7220	6000
10	6790	5280	4570	3800	3500	5750	6250	5880	3610	6920	7150	5140
11	6610	5200	4550	4400	2890	6100	6850	6330	5100	6760	7410	5300
12	6580	4520	4630	3860	3350	6080	6140	6470	4400	7030	7420	5500
13	6590	5370	4620	4580	4060	6050	5910	6290	3210	7070	7110	6840
14	6530	5430	4930	4730	4180	6300	6420	6310	3440	7010	7070	6940
15	6700	4450	4090	4010	4900	6440	6060	3040	3660	7100	7020	6900
16	6230	5250	4270	4630	4960	6470	6320	1410	3990	7130	7050	6920
17	5310	5340	4390	3510	4580	6350	6760	2100	4320	6980	7020	6580
18	2520	5150	4650	4600	6220	6360	6430	2890	4700	6910	7120	7080
19	2860	4940	4730	3310	5770	6280	6310	2460	5140	7090	7090	6970
20	4050	5150	5170	4620	5170	6090	6340	2420	5330	7110	7030	7100
21	4490	3360	4970	3610	5160	6740	6850	2590	5680	7100	7230	7040
22	4830	1300	4940	943	5660	6400	6750	2900	5730	7040	7100	7180
23	5490	1530	4810	1750	7240	6380	6810	2420	6310	6990	6850	6870
24	5290	1790	4350	1630	7850	6360	6740	1400	5510	6980	6920	5230
25	5700	1620	4230	1220	8030	6180	6630	1380	5820	6900	7180	4830
26	6110	1710	2760	2170	4890	6300	6510	1550	6130	6860	7150	6240
27	6500	2160	4550	1940	5370	6400	7500	1710	5850	6900	7160	4100
28	6290	2270	5470	1180	4470	6280	8430	2030	6360	6920	7140	810
29	6100	2540	3500	2080	3470	6150	6760	1850	6580	7000	7090	648
30	5830	2930	1950	2030	---	5840	5820	917	6670	7010	7020	797
31	6050	---	3600	3430	---	6100	---	775	---	7050	6960	---
MEAN	5830	4240	4320	3120	4800	6050	6060	3840	4420	6950	7180	5820

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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

## 07314000 LAKE KICKAPOO NEAR ARCHER CITY, TX

LOCATION.--Lat 33°39'47", long 98°46'43", Archer County, Hydrologic Unit 11130209, on intake tower near left end of dam on North Fork Little Wichita River, 8.2 mi (13.2 km) south of Mankins, and 9.2 mi (14.8 km) northwest of Archer City.

DRAINAGE AREA.--275 mi<sup>2</sup> (712 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1946 to current year. Prior to October 1965, monthend contents only.

REVISED RECORDS.--WSP 1211: Drainage area.

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

REMARKS.--The lake is formed by a rolled earthfill dam 8,200 ft (2,500 m) long, including a 483-foot-wide (147 m) reinforced concrete ogee-type uncontrolled spillway near right end of dam. The dam was completed Dec. 15, 1945, and storage began Feb. 1, 1946. The service outlet consists of two gate-controlled 4- by 5-foot (1.2 by 1.5 m) conduits. The dam and lake are owned by the city of Wichita Falls, which uses the water for their municipal supply. The capacity table is based on Geological Survey topographic maps, dated 1929. The capacity curve, dated November 1946, was entitled "Lake Kickapoo Area & Capacity Curve". Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

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

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

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents, 134,300 acre-ft (166 hm<sup>3</sup>) Aug. 2, 1950, elevation, 1,049.2 ft (319.80 m); minimum observed since first filling in July 1950, 35,660 acre-ft (44.0 hm<sup>3</sup>) June 30, 1953, elevation, 1,029.8 ft (313.88 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 71,300 acre-ft (87.9 hm<sup>3</sup>) Oct. 1, elevation, 1,039.0 ft (316.69 m); minimum observed, 48,960 acre-ft (60.4 hm<sup>3</sup>) Sept. 26, 27, elevation, 1,033.8 ft (315.10 m).

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

1,033.0	46,000	1,037.0	62,000
1,034.0	49,700	1,038.0	66,500
1,035.0	53,600	1,039.0	71,300
1,036.0	57,700		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71300	65600	62900	62000	62000	62000	60710	58130	61140	61140	53600	51260
2	67460	65600	62450	62000	62000	62000	60710	58130	61140	61140	53600	51260
3	67460	65600	62450	62000	62000	62000	58990	58130	61140	61140	52820	51260
4	67460	65600	62450	62000	62000	62000	58990	57700	61140	61140	52820	51260
5	67460	65600	62450	62000	62000	60710	58990	57700	61140	61140	52820	51260
6	67460	64700	62000	62000	62000	60710	58990	57290	61140	61140	52820	51260
7	67460	64700	62000	62000	62000	60710	58990	57290	61140	61140	52820	51260
8	67460	64700	62000	62000	62000	60710	58990	57290	61140	61140	52820	50870
9	67460	64700	62000	62000	62000	60710	58990	57290	61140	61140	52820	50870
10	67460	64700	62000	62000	62000	60710	58990	57290	61140	61140	52040	50870
11	66500	64700	62000	62000	62000	60710	58990	57290	61140	61140	52040	50870
12	66500	63800	62000	62000	62000	60710	58990	57290	61140	61140	52040	50480
13	66500	63800	62000	62000	62000	60710	58990	56470	61140	58560	52040	50480
14	66500	63800	62000	62000	62000	60710	58990	56470	61140	58560	52040	50480
15	66500	63800	62000	62000	62000	60710	58990	56470	61140	58130	52040	50480
16	66500	63800	62000	62000	62000	60710	58990	57290	61140	58130	52040	50090
17	66500	63800	62000	62000	62000	60710	58990	57700	61140	58130	52040	50090
18	66050	63800	62000	62000	62000	60710	58990	57700	61140	58130	52040	50090
19	66050	63350	62000	62000	62000	60710	58990	57700	61140	58130	52040	50090
20	66050	63350	62000	62000	62000	60710	58990	57700	61140	53600	52040	49700
21	66050	63350	62000	62000	62000	60710	58990	57700	61140	53600	52040	49700
22	66050	63350	62000	62000	62000	60710	58130	57700	61140	53600	52040	49700
23	66050	63350	62450	62000	62000	60710	58130	57700	61140	53600	52040	49330
24	66050	63350	62450	62000	62000	60710	58130	57700	61140	53600	52040	49330
25	66050	63350	62450	62000	62000	60710	58130	57700	61140	53600	51650	49330
26	66050	63350	62450	62000	62000	60710	58130	57700	61140	53600	51650	48960
27	65600	62900	62450	62000	62000	60710	58130	57700	61140	53600	51650	48960
28	65600	62900	62450	62000	62000	60710	58130	61140	61140	53600	51650	66500
29	65600	62900	62450	62000	62000	60710	58130	61140	61140	53600	51650	66500
30	65600	62900	62450	62000	---	60710	58130	61140	61140	53600	51650	66500
31	65600	---	62450	62000	---	60710	---	61140	---	53600	51650	---
MAX	71300	65600	62900	62000	62000	62000	60710	61140	61140	61140	53600	66500
MIN	65600	62900	62000	62000	62000	60710	58130	56470	61140	53600	51650	48960
(†)	1037.8	1037.2	1037.1	1037.0	1037.0	1036.7	1036.1	1036.8	1036.8	1035.0	1034.5	1038.0
(±)	-5700	-2700	-450	-450	0	-1290	-2580	+3010	0	-7540	-1950	+14850
(††)	114	75.1	50.4	60.5	36.4	72.6	83.7	50.7	124	112	141	84.8

CAL YR 1979 MAX 74420 MIN 62000 ± 812 †† -7410  
WTR YR 1980 MAX 71300 MIN 48960 ± 1005 †† -4800

† Gage height, in feet, at end of month.

± Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Wichita Falls.

## RED RIVER BASIN

07314000 LAKE KICKAPOO NEAR ARCHER CITY, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
AUG 06...	1320	572	28.0	130	0	32	13	65	2.4

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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)
AUG 06...	7.6	210	0	25	66	.6	8.8	321

## 07314500 LITTLE WICHITA RIVER NEAR ARCHER CITY, TX

LOCATION.--Lat 33°39'45", long 98°36'46", Archer County, Hydrologic Unit 11130209, on left bank at downstream side of bridge on State Highway 79, 1.5 mi (2.4 km) downstream from confluence of North and Middle Forks, and 4.8 mi (7.7 km) north of Archer City.

DRAINAGE AREA.--481 mi<sup>2</sup> (1,246 km<sup>2</sup>), of which 275 mi<sup>2</sup> (712 km<sup>2</sup>) is above Lake Kickapoo.

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

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

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

GAGE.--Water-stage recorder. Datum of gage is 934.72 ft (284.903 m) National Geodetic Vertical Datum of 1929. Aug. 17, 1954, to Jan. 6, 1956, nonrecording gage at present site and datum.

REMARKS.--Records fair. Some regulation by Lake Kickapoo (station 07314000) on North Fork Little Wichita River. Records furnished by the city of Wichita Falls show that 1,000 acre-ft (1.23 hm<sup>3</sup>) was diverted from Lake Kickapoo for municipal use during the current water year. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years (water years 1933-45) prior to completion of Lake Kickapoo, 110 ft<sup>3</sup>/s (3.115 m<sup>3</sup>/s), 79,700 acre-ft/yr (98.3 hm<sup>3</sup>/yr); 24 years (water years 1946-55, 1967-80) regulated, 36.3 ft<sup>3</sup>/s (1.028 m<sup>3</sup>/s), 26,300 acre-ft/yr (32.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,900 ft<sup>3</sup>/s (507 m<sup>3</sup>/s) Oct. 31, 1941, gage height, 26.18 ft (7.980 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1930 reached a stage of about 28 ft (8.5 m), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,100 ft<sup>3</sup>/s (87.8 m<sup>3</sup>/s) Sept. 29 at 1715 hours, gage height, 24.77 ft (7.550 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.15	.02	4.2	.06	.05	.11	.00	6.8	.00	.00	.00
2	.00	.15	.02	2.0	.10	.03	.05	.00	2.9	.00	.00	.00
3	.00	.15	.02	1.0	.13	.03	.03	.00	1.6	.00	.00	.68
4	.00	.15	.02	.83	.15	.03	.03	.00	1.0	.00	.00	.82
5	.00	.15	.03	.51	.15	.03	.02	.00	.52	.00	.00	.94
6	.00	.15	.03	.21	.15	.03	.02	.00	.22	.00	.00	.18
7	.00	.15	.03	.06	.15	.02	.01	.00	.16	.00	.00	.04
8	.00	.15	.03	.03	5.9	.01	.01	1.5	.13	.00	.00	.02
9	.00	.15	.03	.03	71	.01	.00	14	.84	.00	.00	.02
10	.00	.15	.10	.03	19	.01	.00	10	1.5	.00	.00	.02
11	.00	.15	.15	.02	7.6	.01	.00	3.7	1.1	.00	.00	.02
12	.00	.15	.21	.03	16	.05	.00	.99	.55	.00	.00	.02
13	.00	.15	1.2	.03	25	.16	.00	.32	.11	.00	.00	.02
14	.00	.15	2.0	.03	11	.13	.00	.24	.06	.00	.00	.02
15	.00	.15	2.0	.03	5.6	.07	.00	19	.02	.00	.00	.01
16	95	.15	1.2	.03	4.8	.05	.00	342	.01	.00	.00	.00
17	27	.21	.66	.03	3.2	.05	.00	80	.00	.00	.00	.00
18	4.5	.21	.51	.04	2.6	.03	.00	6.5	.00	.00	.00	.00
19	.83	.21	.51	.03	4.7	.02	.00	2.9	.01	.00	.00	.00
20	.29	.21	.39	.05	8.4	.01	.00	3.0	13	.00	.00	.00
21	.10	6.3	.29	2.4	5.1	.01	.00	168	11	.00	.00	.00
22	.10	4.5	.29	7.4	2.5	.01	.00	65	5.9	.00	.00	.00
23	.10	1.0	1.0	3.9	1.3	.01	.00	8.8	2.1	.00	.00	.03
24	.10	.66	2.3	2.3	.82	.01	.00	4.3	.41	.00	.00	5.6
25	.10	.51	5.6	.73	.40	.00	.00	.97	.06	.00	.00	1.5
26	.10	.39	8.4	.35	.20	.00	.00	.19	.02	.00	.00	.07
27	.10	.21	3.5	.18	.14	.00	.00	.04	.00	.00	.00	157
28	.10	.15	8.4	.15	.09	.00	.00	179	.00	.00	.00	1410
29	.10	.06	7.9	.11	.06	.01	.00	844	.00	.00	12	2830
30	.10	.03	6.2	.15	---	.02	.00	585	.00	.00	.37	2340
31	.15	---	4.8	.10	---	.23	---	19	---	.00	.21	---
TOTAL	128.77	17.05	57.84	26.99	196.30	1.13	.28	2358.45	50.02	.00	12.58	6747.01
MEAN	4.15	.57	1.87	.87	6.77	.036	.009	76.1	1.67	.000	.41	225
MAX	95	6.3	8.4	7.4	71	.23	.11	844	13	.00	12	2830
MIN	.00	.03	.02	.02	.06	.00	.00	.00	.00	.00	.00	.00
AC-FT	255	34	115	54	389	2.2	.6	4680	99	.00	25	13380
CAL YR 1979	TOTAL	5604.79	MEAN	15.4	MAX	769	MIN	.00	AC-FT	11120		
WTR YR 1980	TOTAL	9596.42	MEAN	26.2	MAX	2830	MIN	.00	AC-FT	19030		

## 07314800 LAKE ARROWHEAD NEAR HENRIETTA, TX

LOCATION.--Lat 33°45'51", long 98°22'17", Clay County, Hydrologic Unit 11130209, at intake tower near center of dam on Little Wichita River, 2.3 mi (3.7 km) upstream from Lake Creek, 11 mi (18 km) southwest of Henrietta, and 12.3 mi (19.8 km) southeast of Wichita Falls.

DRAINAGE AREA.--822 mi<sup>2</sup> (2,129 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 0.40 ft (0.122 m) below National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam 15,900 ft (4,846 m) long, including an uncontrolled reinforced concrete ogee spillway 1,581 ft (482 m) wide located near the left end of dam. The dam was completed in December 1966 and storage began in June 1967. The service outlet works, located in a cylindrical service tower at upstream side of dam, consist of two gated 5-foot-diameter (2 m) inlets that can be used for controlled releases. The dam was built by the city of Wichita Falls to impound water for municipal, industrial, and recreational uses. The area-capacity curves are based on Geological Survey topographic maps. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	944.4	-
Design flood.....	939.95	551,400
Crest of spillway (top of conservation pool).....	926.4	262,100
Lowest gated outlet (invert).....	874.1	-

COOPERATION.--Capacity table furnished by Homer Hunter and Associates and Biggs and Mathews Consulting Engineers for the city of Wichita Falls. Area-capacity curves furnished by Homer Hunter and Associates. Record of diversions furnished by the city of Wichita Falls.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 246,300 acre-ft (304 hm<sup>3</sup>) July 28, 30, 1975, gage height, 925.40 ft (282.062 m); minimum since first appreciable storage, 4,640 acre-ft (5.72 hm<sup>3</sup>) Aug. 31 to Sept. 4, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 126,400 acre-ft (156 hm<sup>3</sup>) Oct. 1 at 0015 hours, gage height, 917.93 ft (279.175 m); minimum, 81,080 acre-ft (156 hm<sup>3</sup>) Sept. 26, 27, gage height, 910.56 ft (277.539 m).

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

910.0	77,130	914.0	108,500
911.0	84,270	915.0	117,500
912.0	91,840	916.0	127,100
913.0	99,900		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	126100	120700	119500	117000	115700	116100	112100	107800	113100	105300	91840	84050
2	125800	120800	119400	116200	115600	115900	111900	107500	112900	104800	91450	85750
3	125600	120800	119400	116700	115500	115800	111900	107400	112700	104100	91300	86340
4	125300	120600	119400	116400	115500	115500	111800	107400	112300	103500	91450	85890
5	125100	120100	119400	116400	115600	115200	111800	107100	112100	103100	91690	85750
6	124900	120000	118400	116300	115300	115100	111600	107700	111800	102600	92230	85300
7	124700	120000	118400	116200	114800	114800	110700	107000	111600	102000	92080	85520
8	124400	120400	118400	116200	115600	114700	110900	107100	111000	101500	91840	85230
9	124000	120000	118400	116700	117500	114500	110900	107300	111100	101000	91530	85670
10	123800	119800	118400	116700	117500	114500	111000	107100	110800	100500	91370	85000
11	123600	119900	118400	116200	117500	114300	109500	107000	110700	100300	90980	85300
12	123300	119900	118400	116500	117000	114000	110000	106800	110300	99810	91060	84780
13	123000	120000	118400	116200	117400	113600	109700	105800	109900	99230	90900	84560
14	122800	119900	118400	116400	117600	113600	109800	105700	109700	98660	90590	84410
15	122900	119900	118400	116000	117500	113400	109800	108000	109200	98250	90360	84560
16	123000	119700	118400	116000	117500	113300	109300	108500	109100	97830	90520	83830
17	123200	119900	117500	116100	117500	113200	109000	109200	108700	97260	90360	83110
18	123200	119900	117500	116100	117400	113100	109100	108900	108600	96780	90360	82820
19	123300	119800	117500	115500	117000	113000	109200	109100	108700	96370	89530	82530
20	123100	119800	117500	116300	117100	112800	109200	108900	108400	96050	89530	82160
21	122600	119300	117500	116500	116900	112700	109000	109100	108400	95400	89070	81950
22	122200	119300	117500	116500	116700	112700	108700	109400	108000	95080	88690	81440
23	122200	119500	117500	116700	116500	112600	108700	109800	107900	94760	88380	81660
24	122100	119200	117500	116700	116200	112500	108400	109600	107500	94440	87020	81660
25	122000	118900	117500	116600	115900	112300	107900	109800	107100	94050	86640	81370
26	121800	119100	117500	116600	116200	112200	107900	111000	106800	93570	86340	81080
27	121100	119400	117500	116100	116300	112000	107800	110900	106400	93650	86190	84340
28	121200	119400	117500	115600	116200	111800	107900	110900	106100	93260	85970	91370
29	121100	119400	117000	116100	116100	112000	107700	110900	105700	92860	85970	99980
30	121100	119400	117000	115600	---	112500	107300	112500	105400	92470	85820	108300
31	121000	---	117000	115800	---	112300	---	113500	---	92150	85000	---
MAX	126100	120800	119500	117000	117600	116100	112100	113500	113100	105300	92230	108300
MIN	121000	118900	117000	115500	114800	111800	107300	105700	105400	92150	85000	81080
(†)	915.37	915.20	914.95	914.82	914.85	914.43	913.87	914.56	913.65	912.04	911.01	913.98
(†)	-5550	-1600	-2400	-1200	+300	-3800	-5000	+6200	-8100	-13250	-7150	+23300
(††)	1773	1374	1382	1366	1356	1464	1644	1781	2720	3962	3473	2050

CAL YR 1979 MAX 142200 MIN 117000 † -15300 †† 20504  
WTR YR 1980 MAX 126100 MIN 81080 † -18200 †† 24345

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

† Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by the city of Wichita Falls.



## RED RIVER BASIN

07314800 LAKE ARROWHEAD NEAR HENRIETTA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1970 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
SEP 18...	1120	1400	28.0	230	86	51	24	190	5.5

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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)
SEP 18...	14	170	0	18	370	.6	.3	752

## RED RIVER BASIN

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## 07314900 LITTLE WICHITA RIVER ABOVE HENRIETTA, TX

LOCATION.--Lat 33°49'36", long 98°14'23", Clay County, Hydrologic Unit 11130209, on right bank at downstream side of bridge on U.S. Highways 822 and 287, 1.0 mi (1.6 km) downstream from Duck Creek, 2.8 mi (4.5 km) west of Henrietta, 6.6 mi (10.6 km) upstream from Turkey Creek, and 7.6 mi (12.2 km) upstream from Dry Fork Little Wichita River.

DRAINAGE AREA.--1,037 mi<sup>2</sup> (2,686 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 831.57 ft (253.463 m) National Geodetic Vertical Datum of 1929. Prior to June 26, 1953, nonrecording gage. Prior to July 11, 1975, at site 2.6 mi (4.2 km) downstream at same datum.

REMARKS.--Water-discharge records fair. Flow largely regulated by Lake Arrowhead 39 mi (63 km) upstream, capacity 262,100 acre-ft (323 hm<sup>3</sup>). The city of Wichita Falls diverted 1,000 acre-ft (1.23 hm<sup>3</sup>) from Lake Kickapoo and 24,340 acre-ft (30.0 hm<sup>3</sup>) from Lake Arrowhead for municipal uses, and returned 12,200 acre-ft (15.0 hm<sup>3</sup>) as sewage effluent and filter plant washwater to the Wichita River below station 07312500 at Wichita Falls and above station 07312700 near Charlie. The city of Henrietta diverted 761 acre-ft (0.938 hm<sup>3</sup>) from pool at gage for municipal use. Diversion records were furnished by the cities of Wichita Falls and Henrietta, respectively.

AVERAGE DISCHARGE.--13 years (water years 1954-66) prior to completion of Lake Arrowhead, 124 ft<sup>3</sup>/s (3.512 m<sup>3</sup>/s), 89,840 acre-ft/yr (111 hm<sup>3</sup>/yr); 14 years (water years 1967-80) regulated, 19.6 ft<sup>3</sup>/s (0.555 m<sup>3</sup>/s), 14,200 acre-ft/yr (17.5 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,630 ft<sup>3</sup>/s (216 m<sup>3</sup>/s) May 1, 1966, gage height, 18.28 ft (5.572 m), at former site; maximum gage height, 18.36 ft (5.596 m) May 2, 1957, at former site, and 21.33 ft (6.501 m) Sept. 29, 1980, at present site; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 21 ft (6.4 m) at former site, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,580 ft<sup>3</sup>/s (44.7 m<sup>3</sup>/s) Sept. 29 at 0900 hours, gage height, 21.33 ft (6.501 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	2.4	.00	.00	.00	.00	.00	.00	.00	.33	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	13	.00
3	.00	.00	.00	.00	.00	.00	18	.00	.00	.00	13	.00
4	.00	.00	.00	.00	.00	.00	18	.00	.00	.00	13	.00
5	.00	.00	.00	.00	.00	.00	4.1	.00	.00	.00	14	.02
6	.00	.00	.00	.00	.00	.00	.75	.00	.00	.00	6.2	.00
7	.00	.00	.00	.00	.00	.00	.13	.00	.00	.00	.03	.00
8	.00	.00	.00	.00	2.2	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	7.8	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	6.8	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	5.0	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	8.1	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	11	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	5.6	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.52	.00	.00	52	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	161	.00	7.8	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	46	.00	15	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	15	.00	15	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	7.8	.00	6.1	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	4.0	.00	.00	.00	.00
21	.00	.00	.00	.74	.00	.00	.00	2.2	.00	.00	.00	12
22	6.5	.00	.00	1.0	.00	.00	.00	1.5	.00	.00	.00	17
23	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	19
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	19
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	13
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.59
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	250
28	.00	35	.61	.00	.00	.00	.00	.00	.00	.00	.00	1110
29	.00	49	4.1	.00	.00	.00	.00	.00	.00	.00	.00	1560
30	.00	26	.28	.00	---	.00	.00	.00	.00	.00	.00	1310
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	6.50	110.00	7.39	1.74	47.02	.00	40.98	289.53	.00	43.90	59.56	4310.61
MEAN	.21	3.67	.24	.056	1.62	.000	1.37	9.34	.000	1.42	1.92	144
MAX	6.5	49	4.1	1.0	11	.000	18	161	.00	15	14	1560
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	13	218	15	3.5	93	.00	81	574	.00	87	118	8550

CAL YR 1979 TOTAL 1256.37 MEAN 3.44 MAX 94 MIN .00 AC-FT 2490  
WTR YR 1980 TOTAL 4917.23 MEAN 13.4 MAX 1560 MIN .00 AC-FT 9750

## RED RIVER BASIN

07314900 LITTLE WICHITA RIVER ABOVE HENRIETTA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1952 to January 1956, March 1959 to September 1966, January 1968 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
FEB 13...	0840	12	971	3.5	170	68	42	17	120
SEP 29...	1505	1570	71	15.0	21	0	5.3	1.9	4.5

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 13...	4.0	9.6	130	0	15	230	.3	2.0	500
SEP 29...	.4	4.4	27	0	3.3	6.1	.1	9.9	49

## RED RIVER BASIN

153

07315200 EAST FORK LITTLE WICHITA RIVER NEAR HENRIETTA, TX

LOCATION.--Lat 33°48'46", long 98°05'05", Clay County, Hydrologic Unit 11130209, on downstream side of bridge on U.S. Highway 82, 5.8 mi (9.3 km) upstream from Little Wichita River, 6.4 mi (10.3 km) east of Henrietta, and 8.9 mi (14.3 km) west of Ringgold.

DRAINAGE AREA.--178 mi<sup>2</sup> (461 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-72-1: 1966(M).

GAGE.--Water-stage recorder. Datum of gage is 825.32 ft (251.558 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No known diversions above station.

AVERAGE DISCHARGE.--16 years (water years 1965-80), 20.1 ft<sup>3</sup>/s (0.569 m<sup>3</sup>/s), 1.53 in/yr (39 mm/yr), 14,560 acre-ft/yr (18.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft<sup>3</sup>/s (439 m<sup>3</sup>/s) May 12, 1972, gage height, 28.85 ft (8.793 m), from rating curve extended above 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s) on basis of contracted-opening measurement of 15,500 ft<sup>3</sup>/s (439 m<sup>3</sup>/s); no flow for many days most years.  
Maximum stage since at least 1920, that of May 12, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1941 reached a stage of 28.8 ft (8.78 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft<sup>3</sup>/s (39.9 m<sup>3</sup>/s) Sept. 29 at 2100 hours, gage height, 20.76 ft (6.328 m), no other peak above base of 300 ft<sup>3</sup>/s (8.50 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.13	.00	.01	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.07	.00	.01	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.02	.01	.01	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.02	.01	.01	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.03	.01	.01	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.13	.01	.01	30	.00	.00	.00	.00
16	.00	.00	.00	.00	.12	.01	.01	182	.00	.00	.00	.00
17	.00	.00	.00	.00	.08	.01	.01	58	.00	.00	.00	.00
18	.00	.00	.00	.00	.05	.00	.01	6.3	.00	.00	.00	.00
19	.00	.00	.00	.00	.04	.00	.01	2.0	.00	.00	.00	.00
20	.00	.00	.00	.00	.03	.00	.01	.89	.00	.00	.00	.00
21	.00	.00	.00	.02	.02	.00	.01	.73	.00	.00	.00	.00
22	.00	.00	.00	.00	.01	.00	.01	.63	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.01	.01	.71	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.01	.01	.42	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.01	.01	.20	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.01	.00	.06	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.02	.00	.03	.00	.00	.00	9.4
28	.00	.00	.01	.00	.00	.01	.00	.01	.00	.00	.00	687
29	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	1330
30	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	1040
31	.00	---	.00	.00	---	.01	---	.00	---	.00	.00	---
TOTAL	.00	.00	.01	.02	.96	.17	.23	281.98	.00	.00	.00	3066.40
MEAN	.000	.000	.000	.001	.033	.005	.008	9.10	.000	.000	.000	102
MAX	.00	.00	.01	.02	.14	.02	.02	182	.00	.00	.00	1330
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.000	.000	.000	.000	.000	.000	.05	.000	.000	.000	.57
IN.	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.64
AC-FT	.00	.00	.02	.04	1.9	.3	.5	559	.00	.00	.00	6080

CAL YR 1979 TOTAL 2706.02 MEAN 7.41 MAX 615 MIN .00 AC-FT 5370  
WTR YR 1980 TOTAL 3349.77 MEAN 9.15 MAX 1330 MIN .00 AC-FT 6640

## RED RIVER BASIN

07315200 EAST FORK LITTLE WICHITA RIVER NEAR HENRIETTA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1968, October 1969 to current year.  
Sediment records: October 1965 to September 1975.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
FEB 13...	1415	.02	351	9.0	79	0	20	7.1	37
MAR 26...	0915	.01	1480	9.5	330	0	82	31	210
SEP 28...	1300	1370	75	15.0	21	3	5.5	1.8	5.1

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 13...	1.8	4.5	120	0	28	39	.2	8.9	204
MAR 26...	5.0	3.2	530	0	52	160	.6	19	819
SEP 28...	.5	4.3	22	0	4.0	11	.1	5.9	49

## RED RIVER BASIN

155

## 07315500 RED RIVER NEAR TERRAL, OK

LOCATION.--Lat 33°52'43", long 97°56'03", Jefferson County, Hydrologic Unit 11130201, near left bank on downstream side of pier of bridge on U.S. Highway 81, 0.5 mi (0.8 km) downstream from Chicago, Rock Island, and Pacific Railroad Co. bridge, 1.2 mi (1.9 km) south of Terral, 3.6 mi (5.8 km) downstream from Little Wichita River, and at mile 872 (1,403 km).

DRAINAGE AREA.--28,723 mi<sup>2</sup> (74,393 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 770.31 ft (234.790 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 12, 1939, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Many small diversions for irrigation, oilfield, and municipal uses upstream from station.

AVERAGE DISCHARGE.--42 years (water years 1939-80), 2,144 ft<sup>3</sup>/s (60.72 m<sup>3</sup>/s), 1,553,000 acre-ft/yr (1.91 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 197,000 ft<sup>3</sup>/s (5,580 m<sup>3</sup>/s) June 8, 1941, gage height, 28.12 ft (8.571 m); minimum, 43 ft<sup>3</sup>/s (1.22 m<sup>3</sup>/s) Mar. 15, 1939.  
Maximum stage since at least 1891, that of June 8, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 19, 1935, reached a stage of 27.2 ft (8.29 m); floods in 1891 and May 1, 1908, are reported to have reached about the same stage.

EXTREMES FOR CURRENT YEAR.--Peak discharges above above of 21,000 ft<sup>3</sup>/s (595 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
May 19	1400	35,500	1,010	18.34	5.590
June 2	2300	*40,100	1,140	19.06	5.809

Minimum discharge, 143 ft<sup>3</sup>/s (4.05 m<sup>3</sup>/s) Sept. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	245	184	375	899	461	303	328	779	31500	482	255	196		
2	233	177	379	666	447	283	323	675	38000	447	237	206		
3	221	223	371	540	414	289	336	577	20600	426	226	223		
4	205	379	349	455	404	294	415	544	7030	410	211	261		
5	205	373	333	429	397	275	630	575	5320	402	204	308		
6	212	340	314	415	397	290	478	572	4580	385	197	312		
7	214	294	308	383	389	293	386	539	4100	373	196	301		
8	216	278	302	364	440	291	321	588	3920	377	207	278		
9	216	269	294	359	434	291	280	501	4800	382	216	273		
10	199	249	298	353	440	276	264	483	4630	387	207	277		
11	195	236	294	349	494	275	247	474	4800	387	211	298		
12	193	236	301	340	494	276	235	429	3610	378	224	286		
13	191	226	303	338	472	281	228	387	2960	367	225	283		
14	187	218	304	338	465	281	223	362	2230	346	227	249		
15	192	212	324	331	467	289	220	1340	2640	333	228	229		
16	194	204	327	325	466	309	218	6660	3670	312	224	206		
17	204	197	333	319	470	322	216	20000	1860	304	214	196		
18	380	197	317	319	465	294	212	27500	1480	296	213	179		
19	535	194	340	320	444	293	207	32000	1230	285	219	176		
20	377	190	348	324	417	279	208	8230	1090	281	209	160		
21	311	637	333	385	392	270	199	5010	1040	281	219	153		
22	296	3220	335	847	378	269	193	5010	1110	277	251	149		
23	249	1750	348	1810	380	264	186	5630	1030	267	253	177		
24	229	1820	363	1630	384	269	193	4750	868	276	222	160		
25	216	1100	368	1130	371	260	188	4900	772	273	211	172		
26	208	738	396	824	355	262	181	3640	711	279	208	219		
27	201	570	378	705	348	275	196	3000	653	309	226	381		
28	196	484	404	623	339	302	829	2460	596	303	215	3530		
29	188	416	442	570	324	325	1350	9920	558	290	206	6390		
30	182	393	546	533	---	363	950	20700	519	292	203	7940		
31	175	---	837	489	---	345	---	25400	---	279	195	---		
TOTAL	7265	16004	11264	17712	12148	8988	10440	193635	157907	10486	6759	24168		
MEAN	234	533	363	571	419	290	348	6246	5264	338	218	806		
MAX	535	3220	837	1810	494	363	1350	32000	38000	482	255	7940		
MIN	175	177	294	319	324	260	181	362	519	267	195	149		
CFSM	.01	.02	.02	.03	.02	.01	.02	.27	.23	.02	.01	.04		
IN.	.01	.03	.02	.03	.02	.01	.02	.32	.26	.02	.01	.04		
AC-FT	14410	31740	22340	35130	24100	17830	20710	384100	313200	20800	13410	47940		
CAL YR 1979	TOTAL	581575	MEAN	1593	MAX	29800	MIN	121	CFSM	.07	IN	.95	AC-FT	1154000
WTR YR 1980	TOTAL	476776	MEAN	1303	MAX	38000	MIN	149	CFSM	.06	IN	.78	AC-FT	945700



## RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK--Continued

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURES: October 1967 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 10,700 micromhos Apr. 23, 1970; minimum daily, 450 micromhos May 25, 1975.

WATER TEMPERATURES: Maximum daily, 32.0°C July 19, 1974, July 10, 1976; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 9,430 micromhos Feb. 29; minimum daily, 665 micromhos Sept. 30.

WATER TEMPERATURES: Maximum daily, 29.0°C June 22, 25, 27, Aug. 25; minimum daily, .0°<sup>2</sup> Dec. 17, Jan. 31, Feb. 1.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 11...	0835	195	6610	7.5	14.0	1200	1100	310	100	1100
DEC 31...	1020	790	5610	--	5.0	990	840	250	89	830
JAN 31...	1130	489	7490	--	.0	1100	970	300	90	1200
MAR 26...	1005	259	7500	--	12.0	1300	1200	350	110	1200
APR 30...	0900	950	6760	--	19.0	1200	1100	340	86	1100
MAY 31...	1015	25400	1000	--	24.0	220	120	67	13	120
JUN 02...	1155	38000	1150	--	24.5	270	170	83	16	130
JUL 31...	1015	279	6220	--	26.0	1200	1100	310	110	920
AUG 31...	0930	195	6020	--	25.0	1200	1100	300	110	880
SEP 30...	1030	7940	669	--	17.0	130	61	36	9.0	81

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 11...	14	12	160	0	840	1800	.4	8.1	4250
DEC 31...	11	10	190	0	620	1500	.4	5.5	3400
JAN 31...	16	10	180	0	800	2000	.4	7.8	4500
MAR 26...	14	11	190	0	970	1900	.7	2.0	4640
APR 30...	14	12	150	0	850	1800	.4	8.0	4270
MAY 31...	3.5	6.5	120	0	130	180	.5	8.9	585
JUN 02...	3.4	7.2	130	0	200	260	.4	7.3	768
JUL 31...	11	10	140	0	890	1600	.6	6.4	3920
AUG 31...	11	13	130	0	880	1600	.6	7.7	3860
SEP 30...	3.1	4.4	80	0	63	130	.2	5.6	369

## RED RIVER BASIN

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07315500 RED RIVER NEAR TERRAL, OK--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	7265	6200	3830	75200	1600	30800	800	15600	1100
NOV.	1979	16004	3590	2190	94800	870	37400	470	20400	670
DEC.	1979	11264	6100	3770	115000	1500	46600	780	23900	1100
JAN.	1980	17712	5070	3110	149000	1300	59900	660	31400	910
FEB.	1980	12148	7830	4910	161000	2100	68100	980	32100	1300
MAR.	1980	8988	7660	4790	116000	2000	49000	960	23400	1300
APR.	1980	10440	6610	4100	116000	1700	47600	840	23800	1200
MAY	1980	193635	2210	1320	691000	490	258600	300	156300	440
JUNE	1980	157907	2230	1340	573000	520	219800	300	126800	430
JULY	1980	10486	6740	4180	118000	1700	48800	860	24400	1200
AUG.	1980	6759	6630	4110	75000	1700	30900	850	15500	1200
SEPT	1980	24168	2080	1260	82400	490	32200	270	17900	390
TOTAL		476776	**	**	2367000	**	930000	**	511000	**
WTD. AVG.		1303	3020	1840	**	720	**	400	**	560

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6780	6650	3540	4020	7740	9000	7060	5700	1020	6940	6250	6120
2	6930	6800	4180	4050	7800	8780	6650	5000	1150	6950	6290	6340
3	6970	6490	4750	4450	7430	8650	6440	5790	1210	7160	6390	6110
4	7000	5000	5380	5080	6000	8600	6200	6620	1420	7350	6540	6310
5	7130	4200	5420	5900	6930	8180	5250	6990	1760	7460	6600	6330
6	7200	4110	5830	6110	7870	7880	4940	6220	2370	7360	6870	6120
7	7240	5290	5230	6190	7080	7450	5190	7150	2750	7320	7110	5820
8	7160	6660	5710	6690	6850	7520	5960	6000	3280	7250	7230	5800
9	7270	9220	5980	6900	7070	7620	6740	5750	2630	7180	7340	5680
10	6790	7840	6140	6840	7160	7720	7200	5530	2360	7070	7300	5500
11	6630	7140	6550	6830	7220	7600	6740	6010	2680	6790	7170	5350
12	6760	6960	6700	7290	7110	7520	6930	6800	2480	6570	6900	5750
13	7180	7360	6880	7630	6400	7480	7670	8030	3230	6480	6740	5680
14	7250	7510	6480	7200	6660	7390	7680	7740	3660	6450	6690	6060
15	7330	7220	6340	7270	6900	7310	8110	5300	5000	6430	6730	5730
16	7130	6930	6230	7020	7600	7420	8260	2100	7210	6410	6630	6160
17	6940	6970	6380	7550	7640	7880	7550	1340	8590	6380	6570	6300
18	6750	7140	6490	6940	8540	7390	6980	1650	7980	6390	6560	6270
19	6320	7290	6530	6910	8690	7480	7070	1940	7380	6450	6470	6530
20	3540	6950	6760	6870	9210	7430	7110	2090	6710	6410	6390	6670
21	4050	5000	6320	6890	8760	7500	7480	2390	6390	6390	6850	6710
22	4560	1500	6530	5540	9270	7780	7720	3010	5880	6310	6890	6670
23	4400	1770	6520	2350	8950	7400	7590	3180	5340	6440	6810	5780
24	5290	2300	7380	2670	8540	7500	7970	3350	5600	6480	6700	5870
25	5140	2610	7070	3420	8800	8050	7740	3540	6210	6380	6600	5980
26	5290	2950	7200	3750	8900	7450	7930	3860	6630	6510	6450	6700
27	5900	2790	7000	4000	9140	7300	7790	4300	7070	6630	6390	1870
28	6220	3080	6890	5250	9330	7360	7250	4570	7150	6510	6270	970
29	6250	2890	6520	6600	9430	7140	5370	3500	6890	6340	5910	775
30	6300	3090	6180	7300	---	6900	6770	1510	6930	6340	5940	665
31	6470	---	5210	7500	---	7120	---	993	---	6220	6040	---
MEAN	6330	5390	6140	5900	7900	7670	6980	4450	4630	6690	6630	5420

## RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	11.0	4.0	5.0	.0	---	17.0	19.0	24.0	28.0	26.0	24.0
2	19.0	11.0	7.0	8.0	4.0	3.0	18.0	20.0	24.0	27.0	27.0	26.0
3	19.0	11.0	---	6.0	6.0	3.0	15.0	19.0	24.0	25.0	27.0	27.0
4	16.0	11.0	7.0	4.0	6.0	9.0	15.0	20.0	26.0	16.0	27.0	27.0
5	17.0	12.0	7.0	4.0	8.0	6.0	14.0	22.0	25.0	26.0	25.0	27.0
6	17.0	12.0	---	4.0	8.0	12.0	14.0	22.0	26.0	26.0	27.0	27.0
7	18.0	10.0	7.0	3.0	---	14.0	19.0	22.0	26.0	27.0	27.0	27.0
8	19.0	11.0	7.0	3.0	---	12.0	14.0	19.0	25.0	26.0	27.0	26.0
9	16.0	12.0	8.0	4.0	---	12.0	15.0	17.0	23.0	27.0	27.0	27.0
10	13.0	8.0	10.0	8.0	---	14.0	14.0	23.0	26.0	27.0	---	25.0
11	15.0	7.0	15.0	8.0	---	---	20.0	23.0	24.0	28.0	26.0	26.0
12	18.0	8.0	---	7.0	---	14.0	11.0	24.0	25.0	28.0	---	26.0
13	15.0	7.0	4.0	7.0	5.0	14.0	8.0	21.0	27.0	27.0	---	25.0
14	---	8.0	5.0	9.0	9.0	---	14.0	22.0	24.0	27.0	---	25.0
15	16.0	---	7.0	10.0	10.0	12.0	13.0	19.0	---	28.0	---	20.0
16	18.0	11.0	4.0	11.0	2.0	15.0	19.0	17.0	26.0	26.0	---	25.0
17	21.0	12.0	.0	11.0	4.0	14.0	16.0	19.0	27.0	26.0	---	20.0
18	21.0	---	1.0	11.0	4.0	11.0	19.0	21.0	27.0	27.0	---	25.0
19	21.0	16.0	5.0	12.0	8.0	15.0	19.0	20.0	27.0	27.0	---	26.0
20	21.0	19.0	7.0	7.0	12.0	14.0	18.0	22.0	26.0	27.0	---	26.0
21	21.0	14.0	9.0	7.0	14.0	16.0	21.0	20.0	27.0	27.0	27.0	---
22	16.0	12.0	10.0	7.0	16.0	12.0	18.0	21.0	29.0	27.0	26.0	25.0
23	13.0	9.0	10.0	---	10.0	14.0	20.0	22.0	28.0	26.0	28.0	21.0
24	15.0	8.0	10.0	6.0	10.0	11.0	20.0	23.0	28.0	25.0	28.0	22.0
25	17.0	9.0	8.0	8.0	8.0	10.0	20.0	25.0	29.0	26.0	29.0	24.0
26	15.0	9.0	8.0	6.0	7.0	16.0	13.0	26.0	28.0	27.0	28.0	21.0
27	16.0	9.0	11.0	2.0	10.0	14.0	12.0	26.0	29.0	26.0	28.0	18.0
28	16.0	7.0	11.0	---	12.0	13.0	16.0	24.0	28.0	26.0	25.0	15.0
29	17.0	6.0	9.0	---	11.0	13.0	17.0	25.0	27.0	27.0	28.0	16.0
30	18.0	4.0	7.0	7.0	---	10.0	19.0	24.0	27.0	26.0	26.0	17.0
31	11.0	---	7.0	.0	---	12.0	---	24.0	---	26.0	25.0	---
MEAN	17.0	10.0	7.5	6.5	8.0	12.0	16.5	21.5	26.5	26.5	27.0	23.5

## 07315950 MOSS LAKE NEAR GAINESVILLE, TX

LOCATION.--Lat 33°46'26", long 97°12'50", Cooke County, Hydrologic Unit 11130201, on top of upstream side of dam adjacent to guardrail of roadway about 250 ft (76 m) from right end of Fish Creek dam on Fish Creek, 1.6 mi (2.6 km) upstream from Bearhead Creek, 3.7 mi (6.0 km) upstream from mouth, and 10 mi (16 km) northwest of Gainesville.

DRAINAGE AREA.--65 mi<sup>2</sup> (168 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 20, 1979, recording gage at site about 150 ft (46 m) upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 1,460 ft (445 m) long. The dam was completed and storage began Dec. 2, 1966. An uncontrolled morning-glory-type spillway with a 7- by 7-foot (2 by 2 m) opening is designed to discharge 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s) at a 10-foot (3 m) head. The emergency spillway is a 400-foot-wide (120 m) cut through natural ground located about 100 ft (30 m) to the left of the left end of dam. The dam was built by the city of Gainesville to impound water for municipal use. Area and capacity tables are based on a 1961 survey. There was no diversion from the lake during the current water year. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	740.0	-
Top of design flood pool.....	736.0	55,230
Crest of spillway.....	725.0	36,440
Crest of spillway (top of conservation pool).....	715.0	23,210
Lowest gated outlet (invert).....	666.0	78

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 32,960 acre-ft (40.6 hm<sup>3</sup>) Oct. 31, 1974, elevation, 722.63 ft (220.258 m); minimum since lake first filled in May 1968, 17,740 acre-ft (21.9 hm<sup>3</sup>) Sept. 26, 1980, elevation, 709.67 ft (216.307 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 21,280 acre-ft (26.2 hm<sup>3</sup>) Oct. 1 at 0100 hours, elevation, 713.22 ft (217.389 m); minimum, 17,740 acre-ft (21.9 hm<sup>3</sup>) Sept. 26, elevation, 709.67 ft (216.307 m).

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

709.0	17,110	712.0	20,010
711.0	19,010	714.0	22,110

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21250	20800	20550	20560	20480	20500	20370	20190	20240	19810	18930	18150
2	21220	20780	20540	20540	20470	20500	20370	20160	20220	19780	18900	18130
3	21190	20770	20530	20530	20480	20490	20350	20160	20210	19740	18850	18110
4	21150	20750	20530	20530	20470	20470	20350	20160	20170	19710	18800	18110
5	21140	20710	20510	20510	20470	20490	20350	20160	20150	19690	18780	18080
6	21110	20710	20500	20500	20460	20490	20340	20150	20130	19660	18760	18050
7	21070	20700	20500	20500	20440	20490	20300	20130	20120	19620	18730	18040
8	21060	20760	20490	20500	20550	20470	20290	20140	20120	19600	18710	18030
9	21010	20740	20490	20500	20590	20480	20300	20130	20120	19580	18690	18020
10	21000	20720	20470	20500	20590	20480	20260	20090	20110	19530	18660	18000
11	20990	20710	20460	20500	20590	20480	20240	20100	20070	19510	18650	17980
12	20970	20710	20500	20490	20600	20460	20280	20120	20060	19470	18650	17960
13	20930	20710	20510	20490	20610	20480	20260	20080	20020	19430	18620	17940
14	20900	20700	20500	20490	20600	20470	20260	20080	20000	19390	18590	17920
15	20920	20700	20500	20490	20580	20460	20250	20310	19960	19370	18540	17900
16	20920	20690	20460	20500	20570	20460	20250	20320	19940	19330	18500	17880
17	20920	20660	20470	20490	20590	20450	20230	20300	19930	19310	18510	17860
18	20900	20680	20460	20490	20580	20450	20230	20320	19900	19290	18470	17840
19	20890	20680	20460	20480	20600	20450	20220	20300	19920	19250	18460	17810
20	20890	20690	20460	20490	20610	20410	20210	20300	20050	19210	18430	17800
21	20910	20700	20460	20540	20610	20430	20210	20360	20050	19200	18420	17770
22	20900	20690	20480	20530	20610	20420	20200	20360	20040	19170	18400	17750
23	20890	20670	20530	20540	20600	20390	20200	20350	20020	19160	18390	17780
24	20860	20660	20530	20510	20590	20380	20210	20350	20010	19120	18360	17780
25	20840	20650	20500	20510	20580	20380	20190	20350	19990	19100	18320	17760
26	20820	20630	20530	20490	20570	20380	20170	20340	19960	19080	18310	17740
27	20820	20600	20510	20480	20580	20380	20170	20310	19930	19090	18280	18090
28	20790	20590	20560	20480	20580	20410	20160	20320	19900	19040	18260	18950
29	20780	20570	20560	20480	20500	20390	20160	20280	19890	19030	18220	19050
30	20840	20560	20570	20470	---	20370	20150	20280	19840	19000	18200	19060
31	20820	---	20570	20480	---	20360	---	20240	---	18960	18160	---
MAX	21250	20800	20570	20560	20610	20500	20370	20360	20240	19810	18930	19060
MIN	20780	20560	20460	20470	20440	20360	20150	20080	19840	18960	18160	17740
(†)	712.79	712.53	712.54	712.46	712.48	712.34	712.14	712.22	711.83	710.95	710.12	711.05
(‡)	-460	-260	+10	-90	+20	-140	-210	+90	-400	-880	-800	+900

CAL YR 1979 MAX 26860 MIN 19630 † +890  
WTR YR 1980 MAX 21250 MIN 17740 ‡ -2220

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

## RED RIVER BASIN

07315950 MOSS LAKE NEAR GAINESVILLE, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
MAR 31...	1220	325	13.5	140	12	51	3.8	9.9	.4

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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)
MAR 31...	3.3	160	0	18	11	.2	4.8	181

## 07316000 RED RIVER NEAR GAINESVILLE, TX

LOCATION.--Lat 33°43'40", long 97°09'35", in SW1/4 sec.36, T.9 S., R.1 E., Love County, Okla., Hydrologic Unit 11130201, near center of span on downstream side of bridge on U.S. Highway 77, 0.2 mi (0.3 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 5.0 mi (8.0 km) downstream from Fish Creek, 7.0 mi (11.0 km) north of Gainesville, and at mile 791.5 (1,273.5 km).

DRAINAGE AREA.--30,782 mi<sup>2</sup> (79,725 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 627.91 ft (191.387 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 17, 1939, and Feb. 13, 1965, to Nov. 14, 1966, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records fair. Flow slightly regulated by Lake Kemp (station 07331500), since 1943 by Lake Altus in Oklahoma, since 1946 by Lake Kickapoo (station 07314000), and since 1967 by Lake Arrowhead and Moss Lake (stations 07314800 and 07315950).

COOPERATION.--Gage-height record and 19 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--44 years, 2,677 ft<sup>3</sup>/s (75.81 m<sup>3</sup>/s), 1,939,000 acre-ft/yr (2.39 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 168,000 ft<sup>3</sup>/s (4,760 m<sup>3</sup>/s) June 9, 1941, gage height, 24.15 ft (7.361 m); maximum gage height, 26.53 ft (8.086 m) May 21, 1951; minimum discharge, 48 ft<sup>3</sup>/s (1.36 m<sup>3</sup>/s) Jan. 27, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 24,000 ft<sup>3</sup>/s (680 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
May 20	0715	34,400 974	17.37 5.294
June 3	1730	*41,500 1,180	18.20 5.547

Minimum daily discharge, 182 ft<sup>3</sup>/s (5.15 m<sup>3</sup>/s) Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	294	220	519	362	524	330	316	979	31800	597	260	199
2	285	210	469	548	485	323	352	1050	35800	559	252	196
3	281	205	429	727	454	311	418	778	39900	519	246	193
4	263	200	398	636	433	320	544	668	19000	490	232	185
5	260	200	388	521	414	298	460	588	8830	466	223	185
6	249	262	367	435	395	291	367	533	6860	445	220	190
7	238	386	347	390	376	289	473	522	5680	430	214	208
8	229	405	329	367	407	289	512	532	4810	414	202	260
9	229	420	313	346	481	291	422	527	4760	390	193	274
10	217	389	297	330	508	289	364	529	5410	384	185	281
11	217	343	296	318	477	295	340	500	5430	371	188	278
12	223	328	293	300	451	300	325	458	5280	369	193	274
13	217	314	304	292	442	300	319	484	3910	365	196	263
14	205	300	304	289	469	292	308	436	3040	356	196	263
15	204	292	302	280	476	288	293	558	2490	351	196	263
16	212	275	295	289	452	287	279	6170	1890	341	193	259
17	218	260	281	288	441	299	263	14800	2140	330	193	248
18	220	249	282	279	444	292	253	26800	1990	320	196	233
19	213	245	289	270	460	296	242	31800	1600	309	196	221
20	210	245	292	272	456	318	235	26900	1640	298	196	208
21	422	254	290	308	440	301	229	9360	1540	290	200	193
22	527	246	294	334	423	292	222	7210	1230	292	200	187
23	438	971	316	339	398	284	217	6000	1090	285	205	182
24	362	2300	323	474	385	274	208	5500	1070	285	205	190
25	335	1950	312	1390	361	274	215	5010	1040	278	210	190
26	299	1840	309	1480	362	274	219	4500	921	266	210	200
27	271	1250	308	1140	367	284	221	3950	829	274	211	300
28	247	898	324	882	358	300	210	3240	756	263	208	500
29	226	701	365	737	348	300	195	2820	690	260	208	1700
30	246	593	369	653	---	298	258	11600	634	263	208	9500
31	244	---	360	578	---	304	---	28600	---	266	208	---
TOTAL	8301	16751	10364	15854	12487	9183	9279	203402	202060	11126	6443	17823
MEAN	268	558	334	511	431	296	309	6361	6735	359	208	594
MAX	527	2300	519	1480	524	330	544	31800	39900	597	260	9500
MIN	204	200	281	270	348	274	195	436	634	260	185	182
AC-FT	16470	33230	20560	31450	24770	18210	18400	403400	400800	22070	12780	35350
CAL YR 1979	TOTAL	662910	MEAN	1816	MAX	33600	MIN	200	AC-FT	1315000		
WTR YR 1980	TOTAL	523073	MEAN	1429	MAX	39900	MIN	182	AC-FT	1038000		



## RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1944 to April 1946, October 1952 to September 1964, October 1966 to current year. Pesticide analyses: April 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1944 to April 1946, October 1952 to September 1964, October 1966 to current year.

WATER TEMPERATURES: October 1952 to September 1963, October 1966 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 11,100 micromhos July 16, 1972; minimum daily, 176 micromhos Nov. 4, 1958.

WATER TEMPERATURES: Maximum daily, 35.0°C July 13, 1954; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 8,750 micromhos Mar. 6; minimum daily, 1,010 micromhos Sept. 30.

WATER TEMPERATURES: Maximum daily, 32.0°C June 26, July 13, 19, 28; minimum daily, 0.0°C Jan. 31.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 17...	1015	214	6300	8.2	20.5	16	7.8	89	6.1	150	130
NOV 06...	1045	208	5700	8.3	12.0	6.0	10.0	94	5.3	62	30
DEC 05...	0930	390	3020	8.0	6.0	170	9.2	76	1.0	3400	1500
JAN 15...	1400	277	6200	8.8	14.0	3.9	14.2	143	6.6	K16	40
FEB 20...	1615	456	6900	8.9	14.0	3.2	>19.5	>197	9.3	K7	K13
MAR 18...	1400	292	7200	8.2	13.5	7.9	10.2	100	6.5	76	60
APR 22...	1515	226	7900	8.3	24.0	10	9.5	116	7.2	K23	K16
MAY 20...	1610	23900	1910	8.1	22.0	670	6.3	73	3.4	870	2700
JUN 10...	1540	5570	2970	8.2	27.0	220	7.2	92	--	440	400
JUL 22...	1630	281	6450	8.3	33.0	24	9.4	134	4.8	K20	K27
AUG 19...	1400	196	7070	8.3	29.0	16	7.5	101	7.3	K27	K95
SEP 16...	1500	259	5750	8.5	28.0	11	9.9	130	11	K30	84

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 17...	1200	1000	300	99	940	12	12	190	0	810	1600
NOV 06...	1100	940	280	93	850	11	13	180	0	700	1400
DEC 05...	610	470	170	44	410	7.3	7.8	160	0	410	690
JAN 15...	1100	920	270	95	940	13	10	140	17	740	1600
FEB 20...	1200	1000	310	100	1000	13	9.2	140	21	830	1800
MAR 18...	1300	1100	320	110	1100	14	10	170	0	930	1800
APR 22...	1300	1200	320	120	1300	16	11	140	1	940	2100
MAY 20...	340	240	100	21	260	6.2	7.4	110	0	240	420
JUN 10...	590	450	170	39	360	6.5	9.1	180	0	390	590
JUL 22...	1200	1100	290	110	910	12	13	140	0	900	1600
AUG 19...	1400	1300	330	130	1100	13	14	78	0	1100	1900
SEP 16...	1000	980	250	96	860	12	7.8	52	3	780	1500

## RED RIVER BASIN

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07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUORIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)
OCT 17...	.5	6.5	3980	3860	.05	.02	.060	.060	.94	.47
NOV 06...	.5	4.0	3540	3430	--	--	--	.080	1.1	.76
DEC 05...	.3	8.6	1900	1820	.54	.48	.230	.180	1.7	.78
JAN 15...	.4	1.8	3870	3740	.02	.00	.020	.030	.66	.40
FEB 20...	.5	1.8	4360	4140	.03	.03	.100	.000	1.4	.63
MAR 18...	.4	.8	4620	4360	.00	.00	.120	.000	1.3	.96
APR 22...	.6	.3	4970	4860	.01	.02	.100	.080	1.9	.91
MAY 20...	.2	7.0	1160	1110	.27	.25	.200	.130	2.7	.87
JUN 10...	.4	11	1840	1660	.67	.52	--	--	--	--
JUL 22...	.6	7.2	4290	3900	.02	.02	.060	.000	1.5	.48
AUG 19...	.6	7.0	4670	4620	.99	.08	.050	--	--	--
SEP 16...	.6	3.9	3640	3520	.00	.00	.030	.000	2.6	.69

DATE	NITRO- GEN AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN AM- MONIA + ORGANIC DIS- (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 17...	1.0	--	.290	.070	14	--	--	32	18	96
NOV 06...	--	--	.260	.020	12	--	--	32	18	92
DEC 05...	1.9	.96	.060	.000	10	--	--	203	214	97
JAN 15...	.68	.43	.210	.080	--	8.2	1.2	33	25	100
FEB 20...	1.5	.63	.270	.080	12	--	--	86	106	89
MAR 18...	1.4	.96	.250	.080	--	6.7	2.9	11	8.7	99
APR 22...	2.0	.99	.360	.030	15	--	--	34	21	97
MAY 20...	2.9	1.0	1.500	.040	39	--	--	4420	285000	69
JUN 10...	--	--	.590	.090	--	--	--	1000	15000	81
JUL 22...	1.6	.48	.120	.020	--	5.2	3.7	46	35	95
AUG 19...	--	--	.020	.020	--	--	--	64	34	99
SEP 16...	2.6	.69	.100	.030	--	5.8	<4.0	49	34	98

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
DEC 05...	0930	--	--	--	--	--	--	--	--	--	--
JAN 15...	1400	3	0	3	300	100	200	0	0	0	10
FEB 20...	1615	--	--	--	--	--	--	--	--	--	--
MAR 18...	1400	3	0	3	300	200	100	0	0	0	10
JUN 10...	1540	--	--	--	--	--	--	--	--	--	--
JUL 22...	1630	4	1	3	300	100	200	0	0	0	10
AUG 19...	1400	--	--	--	--	--	--	--	--	--	--
SEP 16...	1500	4	2	2	200	0	200	0	0	0	10

## RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHRO- MIUM, SUS- PENDED RECOV. (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDED RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 15...	0	10	2	2	0	8	8	0	180	180	0
FEB 20...	--	--	--	--	--	--	--	--	--	--	--
MAR 18...	0	10	2	2	0	2	2	0	210	180	30
JUN 10...	--	--	--	--	--	--	--	--	--	--	--
JUL 22...	0	10	0	0	0	67	67	0	650	590	60
AUG 19...	--	--	--	--	--	--	--	--	--	--	--
SEP 16...	0	20	2	2	0	5	5	0	700	670	30

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDED RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDED RECOV- (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDED RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDED RECOV- ERABLE (UG/L AS NI)
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 15...	2	2	0	50	20	30	.0	0	.0	10	0
FEB 20...	--	--	--	--	--	--	--	--	--	--	--
MAR 18...	0	0	0	80	30	50	.0	.0	.0	6	6
JUN 10...	--	--	--	--	--	--	--	--	--	--	--
JUL 22...	19	19	0	170	140	30	.3	.1	.2	6	3
AUG 19...	--	--	--	--	--	--	--	--	--	--	--
SEP 16...	6	3	3	170	170	0	.2	.2	.0	10	8

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDED TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDED RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 05...	--	--	--	--	0	--	--	--	--	--
JAN 15...	10	2	0	2	0	0	0	0	0	10
FEB 20...	--	--	--	--	0	--	--	--	--	--
MAR 18...	0	2	0	2	0	0	0	10	0	20
JUN 10...	--	--	--	--	0	--	--	--	--	--
JUL 22...	3	1	0	1	3	3	0	50	20	30
AUG 19...	--	--	--	--	0	--	--	--	--	--
SEP 16...	2	1	1	0	0	0	0	40	20	20

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JAN 15...	1400	.00	0	.00	.00	.0	.0	0	.00	.0
JUL 22...	1630	.00	0	.00	.00	.0	.0	0	.00	.0

## RED RIVER BASIN

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07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JAN 15...	.00	.0	.00	.0	.02	.00	.0	.00	.00	.0
JUL 22...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
JAN 15...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0
JUL 22...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 15...	.02	.00	.00	.00	0	0	.00	.01	.00	.00
JUL 22...	.00	.00	.00	.00	0	0	.00	.00	.00	.00

DATE	LENGTH OF EXPO- SURE (DAYS)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)	BIOMASS CHLORO- PHYLL RATIO PERI- PHYTON (UNITS)
FEB 20...	36	.390	.470	.350	.000	229

## 07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JAN 15,80 1400	MAR 18,80 1400	MAY 20,80 1610	JUN 10,80 1540
TOTAL CELLS/ML	91000	4400	210	5400
DIVERSITY: DIVISION	0.9	1.0	0.0	1.5
..CLASS	1.0	1.0	0.0	1.5
..ORDER	1.2	1.5	0.0	2.0
...FAMILY	1.2	1.8	0.9	2.8
....GENUS	1.3	2.4	0.9	3.1

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...CHARACIACEAE								
...SCHROEDERIA	--	-	* 0		--	-	--	-
...COELASTRACEAE								
...COELASTRUM	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
...MICRACTINIUM	--	-	--	-	--	-	69	1
...OOCYSTACEAE								
...ANKISTRODESMUS	1900	2	470	11	--	-	82	2
...CHLORELLA	--	-	27	1	--	-	--	-
...DICTYOSPHAERIUM	1900	2	220	5	--	-	270	5
...KIRCHNERIELLA	1500	2	96	2	--	-	--	-
...OOCYSTIS	--	-	290	7	--	-	69	1
...SELENASTRUM	--	-	--	-	--	-	--	-
...TETRAEDRON	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
...CRUCIGENIA	--	-	--	-	--	-	220	4
...SCENEDESMUS	--	-	340	8	--	-	550	10
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
...CARTERIA	--	-	--	-	--	-	*	0
...CHLAMYDOMONAS	13000	14	* 0		--	-	96	2
...POLYBLEPHARIDACEAE								
...PYRAMIMONAS	970	1	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE	--	-	--	-	--	-	--	-
...COSMARIUM								
CHRYSOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINODISCACEAE								
...CYCLOTELLA	68000#	75	* 0		--	-	670	12
...MELOSIRA	--	-	--	-	--	-	*	0
..PENNALES								
...NAVICULACEAE								
...CALONEIS	--	-	--	-	--	-	*	0
...MASTOGLOIA	--	-	* 0		--	-	--	-
...NAVICULA	--	-	* 0		72#	33	82	2
...NITZSCHACEAE								
...NITZSCHIA	--	-	--	-	140#	67	69	1
...SURIPELLACEAE								
...SURIPELLA	--	-	--	-	--	-	27	1
..CHRYSOPHYCEAE								
...CHRYSONOMADALES								
...OCHROMONADACEAE								
...OCHROMONAS	1500	2	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
...CHROOCOCCACEAE								
...AGMENELLUM	--	-	110	3	--	-	--	-
...ANACYSTIS	--	-	2200#	50	--	-	270	5
...HORMOGONALES								
...NOSTOCACEAE								
...ANABAENA	--	-	550	13	--	-	--	-
...ANABAENOPSIS	--	-	--	-	--	-	--	-
...APHANIZOMENON	--	-	--	-	--	-	--	-
...OSCILLATORIA								
...LYNGBYA	--	-	--	-	--	-	--	-
...OSCILLATORIA	--	-	--	-	--	-	2000#	37
...RIVULARIACEAE								
...RAPHIIDIOPSIS	--	-	--	-	--	-	770	14
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
...EUGLENACEAE								
...EUGLENA	1900	2	--	-	--	-	55	1
...PHACUS	--	-	--	-	--	-	*	0
...TRACHELOMONAS	--	-	--	-	--	-	41	1
PYRRHOPHYTA (FIRE ALGAE)								
..DINOPHYCEAE								
...PERIDINIALES								
...CERATIACEAE								
...CERATIUM	--	-	--	-	--	-	*	0
...GLENODINIACEAE								
...GLENODINIUM	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 22,80 1630	AUG 19,80 1400	SEP 16,80 1500
TOTAL CELLS/ML	260000	380000	400000
DIVERSITY: DIVISION	0.3	0.1	0.1
..CLASS	0.3	0.1	0.1
..ORDER	0.7	0.5	0.6
...FAMILY	0.8	0.8	1.6
....GENUS	0.8	1.0	2.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE						
...SCHROEDERIA	--	-	--	-	--	-
...COELASTRACEAE						
...COELASTRUM	2300	1	--	-	--	-
...MICRACTINIACEAE						
...MICRACTINIUM	*	0	--	-	--	-
...OOCYSTACEAE						
...ANKISTRODESMUS	--	-	*	0	*	0
...CHLORELLA	--	-	--	-	--	-
...DICTYOSPHAERIUM	--	-	--	-	--	-
...KIRCHNERIELLA	--	-	--	-	--	-
...OOCYSTIS	1400	1	*	0	*	0
...SELENASTRUM	*	0	--	-	*	0
...TETRAEDRON	*	0	--	-	--	-
...SCENEDESMACEAE						
...CRUCIGENIA	--	-	--	-	--	-
...SCENEDESMUS	1800	1	3100	1	*	0
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CARTERIA	--	-	--	-	--	-
...CHLAMYDOMONAS	*	0	*	0	--	-
...POLYBLEPHARIDACEAE						
...PYRAMIMONAS	--	-	--	-	--	-
...ZYGNEMATALES						
...DESMIDIACEAE						
...COSMARIUM	*	0	--	-	--	-
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCACEAE	*	0	*	0	--	-
...CYCLOTELLA	--	-	--	-	--	-
...MELOSIRA						
...PENNALES						
...NAVICULACEAE						
...CALONEIS	--	-	--	-	--	-
...MASTOGLIOIA	--	-	--	-	--	-
...NAVICULA	--	-	*	0	*	0
...NITZSCHACEAE						
...NITZSCHIA	*	0	*	0	*	0
...SURIARELLACEAE						
...SURIARELLA	--	-	--	-	--	-
..CHRYSOPHYCEAE						
...CHRYSOMONADALES						
...OCHROMONADACEAE						
...OCHROMONAS	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCACEAE						
...AGMENELLUM	4600	2	16000	4	*	0
...ANACYSTIS	15000	6	18000	5	44000	11
...HORMOGONALES						
...NOSTOCACEAE						
...ANABAENA	1600	1	--	-	110000#	27
...ANABAENOPSIS	--	-	5500	1	38000	10
...APHANIZOMENON	--	-	6900	2	--	-
...OSCILLATORIA						
...LYNGBYA	--	-	3800	1	82000#	21
...OSCILLATORIA	230000#	88	330000#	85	110000#	28
...RIVULARIACEAE						
...RAPHIIDIOPSIS	--	-	--	-	5900	1
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...EUGLENA	--	-	--	-	--	-
...PHACUS	--	-	--	-	--	-
...TRACHELOMONAS	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...PERIDINIALES						
...CERATIACEAE						
...CERATIUM	--	-	--	-	--	-
...GLENODINIACEAE						
...GLENODINIUM	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%



RED RIVER BASIN  
07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	8301	5730	3480	78100	1400	32000	710	16000	1000
NOV.	1979	16751	3630	2190	98900	890	40200	450	20200	690
DEC.	1979	10364	4970	3010	84200	1200	34400	620	17200	910
JAN.	1980	15854	4450	2680	115000	1100	46800	550	23500	840
FEB.	1980	12487	6590	4040	136000	1700	56100	830	28000	1100
MAR.	1980	9183	7580	4680	116000	1900	48000	970	23900	1200
APR.	1980	9279	6300	3850	96500	1600	39600	790	19800	1100
MAY	1980	203402	2040	1200	660000	480	265400	240	133900	420
JUNE	1980	202060	1850	1090	595000	440	239500	220	120800	380
JULY	1980	11126	6650	4080	122000	1700	50400	840	25200	1100
AUG.	1980	6443	6830	4190	72900	1700	30000	860	15000	1200
SEPT	1980	17823	2800	1690	81400	690	33200	350	16600	520
TOTAL		523073	**	**	2257000	**	916000	**	460000	**
WTD. AVG.		1429	2670	1600	**	650	**	330	**	520

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6440	4960	3060	6560	5050	7980	6850	4500	1090	6770	6580	6870
2	6390	5100	3100	5550	6030	8010	6910	3750	1150	6800	6700	6820
3	6320	5200	3140	4620	6320	8190	6200	4890	1210	6690	6690	6670
4	6440	5220	3160	4600	6640	8380	4820	5250	1270	6610	6700	6620
5	6540	5560	3020	4580	6920	8550	5500	5560	1400	6570	6560	6480
6	6520	5840	3560	4550	6930	8750	5940	5840	1540	6560	6580	6400
7	6450	6130	4250	4520	7040	8340	6220	6110	1680	6630	6440	6360
8	6400	6420	4500	4850	6060	8160	5850	6370	1810	6740	6410	6520
9	6430	5000	4920	5140	5750	8020	5700	6620	2790	6850	6440	6570
10	6460	4080	4860	5340	5320	7850	5660	6960	2970	7020	6460	6550
11	6540	3940	5320	5700	5530	7700	5580	7290	2750	7030	6490	6280
12	6620	3780	5200	6060	5760	7340	5920	6200	2620	7040	6660	6210
13	6710	5250	5000	6120	5880	7060	6330	6340	2660	7030	6690	5830
14	6800	7340	5160	6360	6630	7180	6500	6410	2840	7000	6960	5600
15	6700	8120	5320	6200	5910	7290	6650	5430	3110	6960	7190	6150
16	6540	7250	5340	6260	6000	7300	6530	3500	3300	6940	7300	5670
17	6320	6500	5640	6280	6060	7260	6400	1550	3460	6850	7390	6090
18	6080	6460	5850	6800	6120	7200	6780	1390	4500	6690	7340	6230
19	6250	6600	6040	6520	6190	7240	6940	1640	5520	6520	7070	6200
20	6440	6700	6060	6500	6900	7290	7170	1910	5760	6430	7050	6120
21	5500	6500	6070	5980	7150	7320	7660	2150	5810	6360	7000	6060
22	4780	6200	5900	4840	7300	7300	7900	2370	5930	6280	7010	6140
23	4700	5150	5630	4800	7550	7260	7260	2590	5940	6450	6980	5890
24	4640	1640	5550	4450	7870	7200	6830	2830	5950	6240	6940	6070
25	3920	1560	5740	3020	8070	7270	6770	3060	5950	6350	6900	6210
26	4900	2060	5800	2760	8200	7300	6700	3250	5900	6260	6870	5600
27	4780	2400	6000	3020	8340	7320	6650	3410	5880	6120	6820	5170
28	4740	2650	6120	3300	8250	7250	6400	3600	5890	6200	6890	1380
29	4700	2820	6210	3570	8130	7200	6890	3790	5870	6290	7070	1080
30	4770	3000	6290	3840	---	7120	6250	1120	6150	6370	6950	1010
31	4860	---	6340	4220	---	7040	---	1070	---	6420	6860	---
MEAN	5860	4980	5100	5060	6690	7570	6460	4090	3760	6620	6840	5700

## RED RIVER BASIN

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07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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

## 07331500 LAKE TEXOMA NEAR DENISON, TX

LOCATION.--Lat 33°49'05", long 96°34'20", in NE1/4 sec.33, T.8 S., R.7 E., Bryan County, Okla., Hydrologic Unit 11130210, in control tower of Denison Dam on Red River, 1.2 mi (1.9 km) upstream from Shawnee Creek, 1.8 mi (2.9 km) upstream from Sand Creek, 4.0 mi (6.4 km) northwest of Denison, and at mile 725.9 (1,168.0 km).

DRAINAGE AREA.--39,719 mi<sup>2</sup> (102,872 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) probably is noncontributing.

PERIOD OF RECORD.--July 1942 to current year. Monthend contents only for some periods, published in WSP 1311.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 30, 1944, nonrecording gage at same site and datum. Prior to Oct. 1, 1948, supplementary nonrecording gage in Cumberland pool at the same datum.

REMARKS.--The lake is formed by a rolled earthfill dam. The controlled outlet consists of eight 20-foot-diameter (508 mm) conduits, and the uncontrolled outlet is a concrete oggee-type weir spillway. Flow was diverted through conduits July 27, 1942; regulated storage began Oct. 31, 1943; power pool was first filled Mar. 15, 1945. Dead storage, 11,000 acre-ft (13.6 km<sup>3</sup>) at elevation 610.0 ft (185.93 m) in Cumberland pool. When contents are below 2,105,000 acre-ft (2.60 km<sup>3</sup>), the lake is divided into two pools by protective levees around the Cumberland oilfield on the Washita River arm, with bottom of outlet channel for the upper pool (known as Cumberland pool) at elevation 610.0 ft (185.93 m). At higher elevations the two pools are considered as being at a common level, contents being computed from gage in Denison pool. The lake is used principally for flood control and power development. Revised capacity table, based on survey in 1969, used since Oct. 1, 1977. Figures given herein represent total contents of both pools. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	670.0	-
Crest of spillway.....	640.0	5,312,000
Top of maximum power pool.....	617.0	2,643,000
Bottom of minimum power pool (in Denison pool).....	590.0	1,031,000

COOPERATION.--Records furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,991,300 acre-ft (7.39 km<sup>3</sup>) June 5, 1957, elevation, 643.18 ft (196.04 m); minimum since power pool was first filled, 1,565,100 acre-ft (1.93 km<sup>3</sup>) Sept. 16, 1964; minimum elevation, 599.96 ft (182.868 m) Mar. 1, 2, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,843,000 acre-ft (3.51 km<sup>3</sup>) June 6, elevation, 619.29 ft (188.760 m); minimum, 2,183,000 acre-ft (2.69 km<sup>3</sup>) Sept. 26, elevation, 611.10 ft (186.263 m).

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

609.0	2,037,000	614.0	2,399,000
610.0	2,105,000	617.0	2,643,000
612.0	2,248,000	621.0	3,018,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2550000	2438000	2422000	2412000	2373000	2309000	2274000	2240000	2738000	2678000	2488000	2293000
2	2542000	2435000	2419000	2417000	2374000	2298000	2276000	2236000	2805000	2671000	2485000	2293000
3	2534000	2432000	2418000	2414000	2375000	2290000	2276000	2239000	2843000	2666000	2482000	2290000
4	2526000	2428000	2419000	2414000	2375000	2296000	2275000	2241000	2847000	2664000	2477000	2292000
5	2521000	2431000	2419000	2413000	2375000	2293000	2276000	2245000	2823000	2661000	2467000	2276000
6	2517000	2426000	2415000	2416000	2374000	2291000	2277000	2244000	2809000	2660000	2462000	2271000
7	2511000	2419000	2416000	2417000	2377000	2290000	2275000	2242000	2803000	2656000	2456000	2267000
8	2504000	2420000	2414000	2410000	2391000	2292000	2274000	2243000	2793000	2648000	2446000	2260000
9	2500000	2420000	2415000	2407000	2391000	2293000	2274000	2242000	2781000	2634000	2438000	2258000
10	2493000	2418000	2415000	2407000	2389000	2294000	2270000	2245000	2765000	2624000	2435000	2248000
11	2485000	2417000	2420000	2409000	2390000	2290000	2278000	2247000	2748000	2611000	2427000	2241000
12	2480000	2412000	2426000	2403000	2388000	2296000	2277000	2247000	2732000	2603000	2418000	2231000
13	2475000	2411000	2421000	2406000	2390000	2296000	2272000	2248000	2725000	2595000	2408000	2226000
14	2471000	2406000	2420000	2406000	2393000	2291000	2267000	2246000	2722000	2588000	2398000	2226000
15	2474000	2404000	2419000	2409000	2398000	2290000	2265000	2259000	2721000	2580000	2390000	2218000
16	2473000	2397000	2422000	2410000	2388000	2294000	2264000	2262000	2716000	2571000	2385000	2214000
17	2472000	2396000	2412000	2410000	2376000	2291000	2260000	2250000	2709000	2566000	2383000	2209000
18	2464000	2395000	2410000	2406000	2369000	2287000	2257000	2235000	2705000	2558000	2377000	2205000
19	2452000	2395000	2410000	2410000	2368000	2286000	2255000	22386000	2698000	2557000	2366000	2200000
20	2447000	2393000	2409000	2414000	2361000	2289000	2254000	2245000	2703000	2556000	2357000	2198000
21	2448000	2403000	2409000	2414000	2360000	2286000	2253000	22476000	2699000	2554000	2349000	2194000
22	2450000	2407000	2410000	2412000	2354000	2285000	2252000	22493000	2696000	2549000	2343000	2192000
23	2447000	2408000	2417000	2404000	2351000	2290000	2251000	22505000	2692000	2545000	2340000	2187000
24	2445000	2411000	2414000	2397000	2349000	2286000	2250000	22515000	2691000	2543000	2337000	2187000
25	2442000	2419000	2413000	2400000	2338000	2282000	2249000	22523000	2688000	2537000	2332000	2186000
26	2438000	2416000	2412000	2403000	2329000	2280000	2247000	22531000	2683000	2537000	2327000	2183000
27	2441000	2424000	2409000	2398000	2324000	2276000	2247000	22546000	2681000	2534000	2317000	2215000
28	2441000	2427000	2409000	2393000	2322000	2278000	2245000	22550000	2685000	2525000	2309000	2264000
29	2430000	2425000	2411000	2379000	2320000	2280000	2242000	22556000	2688000	2516000	2300000	2295000
30	2443000	2420000	2412000	2386000	---	2276000	2241000	22596000	2680000	2505000	2298000	2312000
31	2442000	---	2412000	2380000	---	2271000	---	22662000	---	2494000	2296000	---
MAX	2550000	2438000	2426000	2417000	2398000	2309000	2278000	2262000	2847000	2678000	2488000	2312000
MIN	2430000	2393000	2409000	2379000	2320000	2271000	2241000	2236000	2680000	2494000	2296000	2183000
(†)	614.56	614.28	614.17	613.76	612.97	612.31	611.90	617.21	617.42	615.22	612.64	612.86
(‡)	-116000	-22000	-8000	-32000	-60000	-49000	-30000	+421000	+18000	-186000	-198000	+16000
CAL YR 1979	MAX	2952000	MIN	2104000	±	+258000						
WTR YR 1980	MAX	2847000	MIN	2183000	±	-246000						

† Elevation in feet, at end of month.

‡ Change in contents, in acre feet.

## 07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX

LOCATION.--Lat 33°49'08", long 96°33'47", Grayson County, Hydrologic Unit 11140101, on right bank 1,800 ft (549 m) downstream from Denison Dam powerhouse, 0.4 mi (0.6 km) upstream from Shawnee Creek (spillway flow return), 4.5 mi (7.2 km) north of Denison, and at mile 725.5 (1,167.3 km).

DRAINAGE AREA.--39,720 mi<sup>2</sup> (102,875 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) probably is noncontributing. At site used prior to October 1961, drainage area 39,777 mi<sup>2</sup> (103,022 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) probably was noncontributing.

## WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder. Datum of gage is 500.00 ft (152.400 m) National Geodetic Vertical Datum of 1929. Oct. 9, 1923, to Sept. 24, 1934, nonrecording gage, and July 29, 1942, to Sept. 30, 1961, water-stage recorder at county road bridge 2.5 mi (4.0 km) downstream. Prior to Oct. 1, 1931, at datum 6.85 ft (2.088 m) higher; Oct. 1, 1931, to Sept. 24, 1934, at datum 7.07 ft (2.155 m) higher; and July 29, 1942, to Sept. 30, 1961, at datum 2.64 ft (0.805 m) lower. Sept. 25, 1934, to July 28, 1942, water-stage recorder at railway bridge 1.9 mi (3.1 km) downstream at datum 7.36 ft (2.243 m) higher.

REMARKS.--Water-discharge records fair. Flow regulated since October 1943 by Lake Texoma (station 07331500).

COOPERATION.--Gage-height record and 10 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--20 years (water years 1924-43) prior to completion of Denison Dam, 5,684 ft<sup>3</sup>/s (161.0 m<sup>3</sup>/s), 4,118,000 acre-ft/yr (5.08 km<sup>3</sup>/yr); 36 years (water years 1945-80) regulated, 4,245 ft<sup>3</sup>/s (120.2 m<sup>3</sup>/s), 3,076,000 acre-ft/yr (3.79 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 201,000 ft<sup>3</sup>/s (5,690 m<sup>3</sup>/s) May 21, 1935, gage height, 31.8 ft (9.69 m), at site and datum then in use; maximum gage height, 32.0 ft (9.75 m) Apr. 25, 1942, at site and datum used in 1943; minimum daily discharge, 12 ft<sup>3</sup>/s (0.34 m<sup>3</sup>/s) Jan. 10, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 26, 1908, reached a stage of 45.5 ft (13.87 m) at site and datum used July 29, 1942, to Sept. 30, 1961, from records of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,100 ft<sup>3</sup>/s (937 m<sup>3</sup>/s) June 4, 16, gage height, 14.99 ft (4.569 m); minimum daily, 78 ft<sup>3</sup>/s (2.21 m<sup>3</sup>/s) Mar. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4650	1170	156	87	3130	3560	133	1350	1050	2970	2020	259
2	2690	795	670	475	195	2720	492	3360	7320	4420	1180	213
3	3810	906	1510	1150	115	3570	1570	110	22800	2580	902	1390
4	2640	847	474	536	1040	125	89	96	32900	1780	1750	3480
5	2570	627	1490	126	804	348	83	473	31400	2020	2460	2600
6	1520	812	730	96	126	108	84	1350	22400	893	3200	2410
7	1530	2600	149	258	412	1630	2840	1680	15100	2380	2240	1730
8	3770	1830	94	2550	1350	112	211	271	15100	3450	4320	3050
9	1810	901	93	1260	1170	105	83	93	15200	6050	3500	2380
10	2130	235	94	856	1380	101	81	93	15200	5550	1420	3530
11	3830	424	92	601	914	107	83	258	15200	5110	4130	3570
12	2560	2610	109	1190	1190	82	955	807	12600	3810	3810	4170
13	823	452	2150	117	118	94	2640	242	10500	2660	3880	2150
14	416	2330	112	115	113	2190	1580	107	5590	3200	4780	330
15	80	1590	512	113	614	107	1000	116	5400	4040	2240	3290
16	1370	3420	921	443	4780	470	748	116	6590	3480	2350	2380
17	1210	483	2030	131	4010	1060	1820	1220	6480	2220	428	1330
18	3510	127	1210	2070	3040	1700	1900	205	6380	3770	2190	2250
19	4870	1100	1050	1210	2730	156	1330	122	5480	253	4240	804
20	2130	745	842	136	3700	78	555	904	5600	129	3600	803
21	1280	136	1000	2620	1110	1060	1020	1450	5650	2360	3830	855
22	1030	96	169	2760	4280	89	183	1480	4480	1400	2100	1140
23	736	96	97	3380	1370	96	655	2250	6100	1300	849	1710
24	1410	96	917	2560	1870	1380	408	2970	3570	608	616	193
25	1190	483	747	169	4570	1630	2500	3690	4340	2170	1820	120
26	607	2190	1030	1790	4800	561	1430	2840	4340	226	1960	124
27	132	195	1560	2290	2570	3550	132	286	3320	2560	2600	168
28	93	97	1310	4900	1620	824	651	2800	545	3770	3000	368
29	1510	879	94	5380	3250	839	2210	3350	197	3760	3630	184
30	2580	2270	87	222	---	423	1110	3350	4870	4340	382	1620
31	133	---	86	2090	---	1680	---	714	---	3790	251	---
TOTAL	58620	30542	21585	41681	56371	30555	28575	38153	295702	87049	75678	48601
MEAN	1891	1018	696	1345	1944	986	953	1231	9857	2808	2441	1620
MAX	4870	3420	2150	5380	4800	3570	2840	3690	32900	6050	4780	4170
MIN	80	96	86	87	113	78	81	93	197	129	251	120
AC-FT	116300	60580	42810	82670	111800	60610	56680	75680	586500	172700	150100	96400
CAL YR 1979	TOTAL	1084459	MEAN	2971	MAX	30700	MIN	50	AC-FT	2151000		
WTR YR 1980	TOTAL	813113	MEAN	2222	MAX	32900	MIN	78	AC-FT	1613000		

## RED RIVER BASIN

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

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1944 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1944 to current year.

WATER TEMPERATURES: October 1945 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1944-69, 1972-80): Maximum daily, 3,520 micromhos Aug. 14, 1944; minimum daily, 656 micromhos Oct. 16, 1945.

WATER TEMPERATURES (1945-69): Maximum daily, 31.0°C July 17, 1969; minimum daily, 3.0°C Feb. 2-4, 7, 1966.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,510 micromhos May 8; minimum daily, 1,870 micromhos Oct. 4-7.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 17...	1300	209	1920	8.0	21.0	4.8	7.1	81	1.3	300	430
NOV 06...	1630	293	1930	8.4	18.0	1.6	11.4	121	1.1	32	160
DEC 05...	1345	723	1920	8.4	13.0	2.2	11.5	112	.7	K2	20
JAN 16...	0945	107	1910	7.9	10.0	1.9	10.5	95	2.0	21	83
FEB 11...	1410	132	1950	8.4	6.5	3.2	16.1	133	1.2	K2	K18
MAR 19...	0815	107	2000	8.0	8.0	1.6	11.5	98	1.1	<1	K3
APR 23...	1115	96	2050	7.9	15.0	2.2	11.9	120	1.3	K5	21
MAY 12...	1320	107	2250	8.1	20.0	1.7	8.5	96	1.1	36	100
JUN 02...	1330	9890	2200	7.8	17.5	2.6	4.6	49	.9	21	22
JUL 14...	1220	5000	2180	7.6	28.0	1.4	3.8	49	1.0	K4	K2
AUG 26...	1100	170	2060	7.5	25.5	1.8	3.1	38	1.2	32	84
SEP 17...	0800	173	2100	7.4	24.0	13	1.8	22	2.3	45	20

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 17...	370	270	100	29	240	5.4	7.6	120	0	270	390
NOV 06...	360	250	95	29	240	5.5	8.4	120	3	270	390
DEC 05...	380	270	100	31	260	5.8	6.3	120	3	270	380
JAN 16...	370	270	100	30	250	5.6	6.7	130	0	260	400
FEB 11...	400	310	110	31	250	5.4	6.8	110	2	280	410
MAR 19...	370	260	100	29	250	5.7	6.9	130	0	280	430
APR 23...	410	300	110	32	250	5.4	6.9	130	0	250	440
MAY 12...	440	330	120	35	290	6.0	9.6	140	0	290	490
JUN 02...	440	330	120	34	280	5.8	7.6	140	0	300	460
JUL 14...	440	310	120	34	280	5.8	7.9	140	0	280	450
AUG 26...	410	300	110	33	280	6.0	8.6	130	0	290	460
SEP 17...	410	300	110	33	270	5.8	7.0	130	0	280	450



## RED RIVER BASIN

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUORIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)
OCT 17...	.3	6.1	1110	1100	.09	.05	.170	.130	.55	.49
NOV 06...	.3	4.6	1110	1100	.08	.06	.040	.070	.65	.80
DEC 05...	.3	3.4	1130	1110	.05	.04	.010	.010	1.1	.53
JAN 16...	.3	3.3	1130	1110	.03	.01	.030	.030	.48	.37
FEB 11...	.3	3.6	1150	1150	.03	.03	.040	.000	.66	.63
MAR 19...	.3	3.5	1210	1160	.00	.00	.080	.020	.72	.78
APR 23...	.4	3.0	1250	1160	.01	.02	.280	.180	1.2	.60
MAY 12...	.3	3.0	1320	1300	.11	.05	.100	.100	.76	.52
JUN 02...	.3	3.9	1300	1270	.24	.19	.060	.040	.64	.65
JUL 14...	.6	3.5	1290	1250	.09	.05	.070	.090	.75	.72
AUG 26...	.3	3.7	1110	1250	.00	.00	.220	.210	.98	.89
SEP 17...	.4	4.5	1220	1220	.00	.00	.170	.250	2.2	1.9

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 17...	.72	.62	.050	.010	4.3	--	--	38	21	11
NOV 06...	.69	.87	.030	.010	7.2	--	--	7	5.5	81
DEC 05...	1.1	.54	.050	.010	4.7	--	--	7	14	38
JAN 16...	.51	.40	.040	.020	--	4.3	.5	3	.87	95
FEB 11...	.70	.63	.050	.010	6.5	--	--	3	1.1	94
MAR 19...	.80	.80	.030	.020	--	4.6	.5	4	1.2	96
APR 23...	1.5	.78	.030	.010	6.5	--	--	5	1.3	94
MAY 12...	.86	.62	.030	.010	6.6	--	--	4	1.2	93
JUN 02...	.70	.69	.050	.030	5.4	--	--	37	988	50
JUL 14...	.82	.81	.090	.040	--	9.0	--	8	108	37
AUG 26...	1.2	1.1	.120	.080	6.8	--	--	8	3.7	100
SEP 17...	2.4	2.1	.130	.100	--	4.2	.8	4	1.9	91

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
DEC 05...	1345	--	--	--	--	--	--	--	--	--	--
JAN 16...	0945	1	0	1	300	100	200	1	0	<1	0
FEB 11...	1410	--	--	--	--	--	--	--	--	--	--
MAR 19...	0815	0	0	0	200	0	200	0	0	<1	0
JUN 02...	1330	--	--	--	--	--	--	--	--	--	--
JUL 14...	1220	3	0	3	200	200	0	0	0	0	0
AUG 26...	1100	--	--	--	--	--	--	--	--	--	--
SEP 17...	0800	3	0	3	200	0	200	0	0	0	10



## RED RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, SUS- PENDE RECOV. (UG/L AS CR)	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 16...	0	0	2	0	<3	8	8	0	110	100	<10
FEB 11...	--	--	--	--	--	--	--	--	--	--	--
MAR 19...	0	0	2	0	<3	2	2	0	70	60	<10
JUN 02...	--	--	--	--	--	--	--	--	--	--	--
JUL 14...	0	10	0	0	0	2	0	7	80	40	40
AUG 26...	--	--	--	--	--	--	--	--	--	--	--
SEP 17...	10	0	1	1	0	2	2	0	140	130	10

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGANESE, SUS- PENDE RECOV- ERABLE (UG/L AS MN)	MANGANESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDE RECOV- ERABLE (UG/L AS NI)
DEC 05...	--	--	--	--	--	--	--	--	--	--	--
JAN 16...	4	3	1	50	30	20	.0	.0	.0	2	0
FEB 11...	--	--	--	--	--	--	--	--	--	--	--
MAR 19...	2	2	0	30	30	3	.1	.1	.0	5	5
JUN 02...	--	--	--	--	--	--	--	--	--	--	--
JUL 14...	7	4	3	440	10	430	.2	.1	.1	8	4
AUG 26...	--	--	--	--	--	--	--	--	--	--	--
SEP 17...	4	4	0	730	470	260	.1	.1	.0	4	2

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELENIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 05...	--	--	--	--	0	--	--	--	--	--
JAN 16...	6	1	1	0	0	0	0	0	0	4
FEB 11...	--	--	--	--	0	--	--	--	--	--
MAR 19...	0	0	0	0	1	1	0	10	7	<3
JUN 02...	--	--	--	--	0	--	--	--	--	--
JUL 14...	4	0	0	0	0	0	0	20	0	20
AUG 26...	--	--	--	--	0	--	--	--	--	--
SEP 17...	2	0	0	0	0	0	0	20	0	20

DATE	LENGTH OF EXPO- SURE (DAYS)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2)
FEB 11...	26	.000	.000	.000	.000

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

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JAN 16,80 0945	MAR 19,80 0815	MAY 12,80 1320	JUN 2,80 1330	JUL 14,80 1220	SEP 17,80 0800
TOTAL CELLS/ML	61000	22000	570	1400	35000	190000
DIVERSITY: DIVISION	0.6	0.5	1.9	0.2	0.3	0.0
..CLASS	0.6	0.5	1.9	0.2	0.3	0.0
..ORDER	0.6	0.6	2.4	0.9	0.5	0.4
...FAMILY	0.7	0.6	3.0	1.1	0.6	1.2
....GENUS	0.8	0.7	3.3	1.2	0.6	1.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
..CHLOROPHYCEAE												
...CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM	--	-	--	-	--	-	--	-	*	0	--	-
....OOCYSTACEAE												
....ANKISTRODESMUS	330	1	*	0	51	9	--	-	*	0	*	0
....CHLORELLA	4000	6	590	3	13	2	--	-	--	-	--	-
....KIRCHNERIELLA	*	0	*	0	--	-	13	1	--	-	--	-
....OOCYSTIS	1600	3	400	2	51	9	1100#	80	380	1	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	*	0	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	51	4	--	-	--	-
....SCENEDESMUS	*	0	--	-	51	9	--	-	250	1	--	-
....TETRASTRUM	*	0	--	-	--	-	--	-	--	-	--	-
...ULOTRICHALES												
...ULOTRICHACEAE												
....ULOTRICH	--	-	--	-	--	-	140	10	--	-	--	-
...VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	--	-	--	-	--	-	*	0	--	-
....CHLAMYDOMONAS	--	-	--	-	--	-	26	2	*	0	--	-
...ZYGNEMATALES												
...DESMIDIACEAE												
....COSMARIUM	--	-	--	-	--	-	13	1	--	-	--	-
CHRYSPHYTA												
..BACILLARIOPHYCEAE												
...CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	*	0	440	2	100#	18	26	2	*	0	*	0
....MELOSIRA	--	-	*	0	--	-	--	-	--	-	--	-
....THALASSIOSIRA	*	0	--	-	--	-	--	-	--	-	--	-
...PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	--	-	13	2	--	-	--	-	--	-
....RHOICOSPHEA	--	-	--	-	--	-	--	-	*	0	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	26	5	13	1	--	-	--	-
...FRAGILARIACEAE												
....ASTERIONELLA	--	-	*	0	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	290	1	13	2	--	-	*	0	--	-
...GOMPHONEMACEAE												
....GOMPHONEMA	*	0	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	*	0	--	-	13	2	--	-	*	0	--	-
...NITZSCHACEAE												
...NITZSCHIA	*	0	--	-	26	5	--	-	*	0	*	0
CRYPTOPHYTA (CRYPTOMONADS)												
..CRYPTOPHYCEAE												
...CRYPTOMONADALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	64	11	--	-	--	-	--	-
...CRYPTOMONADACEAE												
....CRYPTOMONAS	*	0	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
..CYANOPHYCEAE												
...CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	200	1	--	-
....ANACYSTIS	--	-	--	-	13	2	--	-	1400	4	15000	8
...HORMOGONALES												
...NOSTOCACEAE												
....ANABAENOPSIS	--	-	--	-	--	-	--	-	--	-	37000#	19
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	--	-	--	-	--	-	9000	5
....OSCILLATORIA	54000#	88	20000#	91	130#	23	--	-	33000#	92	120000#	66
...RIVULARIACEAE												
....RAPHIIDIOPSIS	--	-	--	-	--	-	--	-	--	-	2100	1
PYRRHOPHYTA (FIRE ALGAE)												
..DINOPHYCEAE												
...PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	--	-	*	0	--	-

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

## RED RIVER BASIN

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

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	58620	1880	1090	173000	370	58700	250	40200	400
NOV.	1979	30542	1900	1100	91000	370	30900	260	21100	400
DEC.	1979	21585	1930	1120	65400	380	22200	260	15200	400
JAN.	1980	41681	1970	1150	130000	390	43900	270	30300	410
FEB.	1980	56371	2030	1190	180000	400	61100	280	42500	410
MAR.	1980	30555	2020	1180	97700	400	33100	280	23000	410
APR.	1980	28576	2060	1210	93300	410	31600	290	22000	420
MAY	1980	38153	2290	1360	140000	460	47400	330	33900	440
JUNE	1980	295702	2170	1280	1021E3	430	345300	310	243500	430
JULY	1980	87049	2170	1280	300000	430	101500	300	71600	430
AUG.	1980	75678	2140	1260	257000	430	86900	300	61100	430
SEPT	1980	48601	2090	1230	161000	420	54500	290	38100	420
TOTAL		813113	**	**	2710000	**	917000	**	643000	**
WTD. AVG.		2222	2100	1230	**	420	**	290	**	420

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1880	1890	1910	1940	2010	2030	2060	2070	2280	2170	2160	2110
2	1880	1880	1910	1950	2010	2030	2070	2150	2270	2170	2170	2110
3	1880	1880	1920	1950	2010	2030	2060	2270	2160	2180	2170	2100
4	1870	1890	1910	1940	2010	2020	2050	2380	2160	2180	2180	2110
5	1870	1890	1920	1940	2020	2020	2050	2400	2170	2170	2160	2090
6	1870	1900	1920	1940	2030	2040	2050	2480	2170	2170	2160	2090
7	1870	1900	1920	1940	2010	2010	2050	2500	2160	2160	2130	2090
8	1880	1900	1940	1960	2010	2010	2060	2510	2150	2160	2150	2100
9	1880	1910	1960	1980	2010	2010	2070	2410	2140	2170	2150	2100
10	1880	1910	1970	1950	2010	2010	2060	2450	2160	2150	2150	2100
11	1880	1910	1930	1950	2010	2010	2060	2390	2160	2170	2150	2090
12	1890	1910	1930	1960	2010	2010	2060	2370	2170	2170	2140	2100
13	1890	1910	1920	1960	2020	2010	2060	2330	2160	2170	2140	2100
14	1890	1900	1920	1960	2020	2010	2060	2370	2180	2160	2100	2100
15	1890	1900	1920	1990	2020	2010	2060	2350	2190	2180	2140	2090
16	1900	1890	1920	1970	2030	2010	2060	2310	2200	2160	2140	2090
17	1900	1890	1930	1980	2030	2010	2060	2320	2190	2170	2140	2100
18	1900	1890	1930	1970	2030	2020	2060	2320	2180	2170	2130	2080
19	1890	1900	1930	1970	2030	2040	2060	2330	2180	2170	2150	2090
20	1890	1900	1940	1970	2040	2020	2060	2320	2170	2170	2140	2090
21	1890	1910	1930	1970	2030	2040	2060	2320	2170	2170	2130	2080
22	1890	1910	1930	1970	2030	2030	2060	2310	2170	2170	2070	2070
23	1890	1910	1930	1970	2030	2030	2060	2250	2160	2170	2090	2070
24	1890	1910	1940	1990	2030	2020	2060	2270	2150	2170	2100	2060
25	1900	1900	1940	1970	2030	2020	2070	2290	2170	2170	2120	2060
26	1890	1900	1940	1980	2030	2040	2070	2300	2170	2170	2120	2060
27	1890	1900	1930	1980	2030	2030	2070	2310	2180	2170	2120	2050
28	1890	1900	1940	1980	2030	2030	2060	2310	2180	2170	2120	2020
29	1890	1900	1940	1980	2030	2030	2070	2290	2180	2160	2120	2000
30	1890	1910	1940	2000	---	2030	2080	2290	2170	2160	2110	2010
31	1890	---	1940	2000	---	2030	---	2280	---	2140	2110	---
MEAN	1890	1900	1930	1970	2020	2020	2060	2330	2180	2170	2130	2080

## RED RIVER BASIN

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

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.5	20.0	---	---	7.0	---	11.0	13.5	---	---	20.0	---
2	23.5	20.0	---	9.5	---	---	---	14.5	15.5	---	---	---
3	23.5	---	12.0	9.5	---	---	---	---	18.0	---	---	22.0
4	---	---	12.0	9.0	6.5	9.5	---	---	18.5	---	---	22.0
5	25.0	---	---	---	6.5	7.0	---	14.0	17.0	---	20.0	---
6	---	18.0	12.0	---	6.5	9.5	---	14.0	18.0	---	20.0	---
7	---	19.0	12.0	9.0	6.5	---	11.5	---	---	---	20.0	---
8	---	18.0	---	9.0	6.5	---	11.5	14.5	---	19.0	20.5	22.0
9	23.0	18.0	---	9.0	---	---	---	14.0	23.0	19.0	---	22.0
10	23.0	---	---	8.5	---	---	12.0	---	23.0	20.5	---	---
11	---	---	12.0	8.5	6.0	---	12.0	---	21.0	20.5	20.5	23.0
12	22.0	---	12.0	---	---	---	---	14.5	21.5	---	21.0	---
13	---	18.0	11.0	---	6.0	---	---	14.5	21.0	---	21.0	---
14	---	16.0	12.0	8.5	6.0	8.5	12.0	14.5	---	20.5	22.0	---
15	22.0	16.0	---	8.5	6.0	---	12.0	14.5	---	---	---	---
16	21.5	15.5	---	8.5	---	---	12.0	14.5	18.5	19.0	---	22.0
17	21.5	---	10.0	8.5	---	9.0	12.5	---	19.0	19.5	---	22.0
18	21.5	---	10.0	6.5	---	9.0	12.0	---	19.0	20.0	21.0	24.0
19	21.0	15.5	10.0	---	6.0	9.0	---	14.5	---	---	21.0	---
20	---	---	10.0	---	6.0	9.0	---	14.5	19.0	---	21.0	---
21	---	15.5	9.5	8.5	6.0	9.0	13.5	15.0	---	19.5	21.0	---
22	21.0	---	---	8.5	6.0	---	13.5	14.5	---	19.5	---	23.5
23	20.5	---	---	8.5	---	---	13.5	15.5	19.5	---	---	24.5
24	20.5	---	---	8.5	---	9.5	13.5	---	---	20.0	---	---
25	20.5	---	---	8.5	7.0	10.0	---	---	19.5	20.0	21.0	---
26	20.5	---	10.0	---	6.5	10.0	---	---	---	---	21.0	24.0
27	---	14.5	10.0	---	7.0	10.0	---	15.0	19.0	---	---	---
28	---	14.0	---	8.0	6.5	10.0	14.5	15.0	---	20.0	21.0	---
29	20.5	13.5	---	8.0	6.5	---	14.5	15.0	---	---	---	24.5
30	20.5	---	---	8.0	---	---	14.5	15.0	21.0	20.0	---	24.5
31	---	---	9.5	7.0	---	11.0	---	---	---	---	---	---
MEAN	22.0	17.0	11.0	8.5	6.5	9.5	12.5	14.5	19.5	20.0	21.0	23.0

## RED RIVER BASIN

07332600 BOIS D'ARC CREEK NEAR RANDOLPH, TX

LOCATION.--Lat 33°28'32", long 96°12'52", Fannin County, Hydrologic Unit 11140101, on right bank at downstream side of bridge on State Highway 11, 2.3 mi (3.7 km) upstream from Henson Creek, and 2.4 mi (3.9 km) east of Randolph.

DRAINAGE AREA.--72 mi<sup>2</sup> (186 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 564.38 ft (172.023 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

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

AVERAGE DISCHARGE.--17 years (water years 1964-80), 53.6 ft<sup>3</sup>/s (1.518 m<sup>3</sup>/s), 10.11 in/yr (257 mm/yr), 38,830 acre-ft/yr (47.9 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,100 ft<sup>3</sup>/s (399 m<sup>3</sup>/s) July 1, 1976, gage height, 23.15 ft (7.056 m); no flow each year except 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1922, 24.6 ft (7.50 m) about 1935, from information by State Department of Highways and Public Transportation and local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,830 ft<sup>3</sup>/s (137 m<sup>3</sup>/s) Sept. 29 at 0500 hours, gage height, 13.55 ft (4.130 m), no other peak above base of 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.09	.00	.13	1.5	1.4	1.9	2.2	2.5	.00	.00	.00
2	.00	.05	.00	.12	1.3	1.2	1.9	2.3	2.2	.00	.00	.00
3	.00	.05	.00	.13	1.4	1.2	1.7	2.2	2.1	.00	.00	.00
4	.00	.03	.00	.14	1.4	1.5	1.3	2.2	2.1	.00	.00	.00
5	.00	.02	.00	.12	1.3	1.8	1.4	2.2	2.0	.00	.00	.00
6	.00	.02	.00	.12	1.2	1.6	1.9	2.3	1.6	.00	.00	.00
7	.00	.02	.00	.12	1.2	1.9	1.8	2.5	1.3	.00	.00	.00
8	.00	.02	.00	.10	21	1.9	1.7	2.6	1.0	.00	.00	.00
9	.00	.10	.00	.08	25	2.2	1.5	2.6	.87	.00	.00	.00
10	.00	.16	.00	.09	4.1	2.1	1.6	2.6	.67	.00	.00	.00
11	.00	.11	.01	.15	2.4	1.8	1.4	2.6	.50	.00	.00	.00
12	.00	.07	.15	.24	4.5	1.7	1.2	2.8	.37	.00	.00	.00
13	.00	.06	.41	.30	2.9	1.5	2.7	3.1	.23	.00	.00	.00
14	.00	.05	.13	.34	2.6	1.2	3.7	2.6	.15	.00	.00	.00
15	.00	.05	.05	.48	2.3	1.0	3.2	83	.08	.00	.00	.00
16	.00	.03	.02	.62	1.3	1.3	2.9	180	.04	.00	.00	.00
17	.00	.04	.00	.60	1.2	1.5	2.8	6.0	.01	.00	.00	.00
18	.00	.03	.00	.58	1.3	1.5	2.9	3.8	.00	.00	.00	.00
19	.00	.04	.00	.72	1.4	1.6	2.9	4.6	.00	.00	.00	.00
20	.00	.04	.00	1.2	1.7	1.8	2.9	3.7	.04	.00	.00	.00
21	.00	.09	.01	1.3	2.0	2.0	3.3	3.7	.05	.00	.00	.00
22	.00	.08	.02	3.7	2.3	2.6	2.9	3.8	.54	.00	.00	.00
23	.00	.06	21	3.9	2.0	2.9	2.5	3.3	2.1	.00	.00	.00
24	.01	.05	15	2.8	1.9	2.9	3.0	4.2	1.4	.00	.00	.00
25	.00	.03	2.1	2.0	1.6	2.8	3.0	3.6	.65	.00	.00	.00
26	.00	.03	.90	1.6	1.4	2.5	3.4	3.7	.40	.00	.00	.00
27	.00	.02	.37	1.4	1.4	2.3	3.1	3.2	.25	.00	.00	.00
28	.00	.01	.24	1.2	1.4	2.8	2.8	3.0	.11	.00	.00	609
29	.00	.00	.20	1.2	1.5	2.9	2.6	3.2	.04	.00	.00	2120
30	1.8	.00	.17	1.4	---	2.8	2.3	3.1	.01	.00	.00	14
31	.96	---	.16	1.4	---	2.2	---	2.8	---	.00	.00	---
TOTAL	2.77	1.45	40.94	28.28	96.5	60.4	72.2	353.5	23.31	.00	.00	2743.00
MEAN	.089	.048	1.32	.91	3.33	1.95	2.41	11.4	.78	.000	.000	91.4
MAX	1.8	.16	21	3.9	25	2.9	3.7	180	2.5	.00	.00	2120
MIN	.00	.00	.00	.08	1.2	1.0	1.2	2.2	.00	.00	.00	.00
CFSM	.001	.001	.02	.01	.05	.03	.03	.16	.01	.000	.000	1.27
IN.	.00	.00	.02	.01	.05	.03	.04	.18	.01	.00	.00	1.42
AC-FT	5.5	2.9	81	56	191	120	143	701	46	.00	.00	5440
CAL YR 1979	TOTAL	16124.80	MEAN	44.2	MAX	1780	MIN	.00	AC-FT	31980		
WTR YR 1980	TOTAL	3422.35	MEAN	9.35	MAX	2120	MIN	.00	AC-FT	6790		

## 07335390 PAT MAYSE LAKE NEAR CHICOTA, TX

LOCATION.--Lat 33°51'10", long 95°32'38", Lamar County, Hydrologic Unit 11140101, on upstream side of dam on Sanders Creek, 2,800 ft (850 m) to right of outlet channel, 2.0 mi (3.2 km) southeast of Chicota, and 4.6 mi (7.4 km) upstream from mouth.

DRAINAGE AREA.--175 mi<sup>2</sup> (453 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1967 to current year. Prior to October 1970, published as Pat Mayse Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 10, 1968, nonrecording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam about 7,080 ft (2,160 m) long, including an emergency spillway 100 ft (30 m) wide located near the right abutment of dam. The dam was completed and deliberate impoundment began Sept. 28, 1967. The flood-control outlet works consist of an uncontrolled morning-glory-type drop-inlet spillway that is connected to a 7.25-foot-diameter (2.21 m) concrete conduit through the dam. A 24- and 12-inch-diameter (610 and 305 mm) low-flow pipe are provided for additional outlets. The lake was built for flood control, municipal, and industrial water supply, recreation, fish and wildlife conservation, and for channel improvement on Sanders Creek. Records furnished by the Corps of Engineers indicate that during the current year, 12,460 acre-ft (15.4 hm<sup>3</sup>) was diverted from the lake for municipal and industrial uses by the city of Paris. Any resultant effluent is discharged into Pine Creek below Lake Crook, which is located in another drainage basin. The capacity table is based on Geological Survey topographic maps dated 1949. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	488.5	-
Crest of spillway.....	477.0	352,700
Top of flood-control pool.....	460.5	189,100
Crest of morning-glory drop-inlet spillway (top of conservation pool).....	451.0	124,500
Streambed.....	393.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 208,000 acre-ft (256 hm<sup>3</sup>) Dec. 11, 12, 1971, elevation, 462.87 ft (141.083 m); minimum since conservation pool was first reached on Apr. 20, 1968, 100,900 acre-ft (124 hm<sup>3</sup>) Nov. 10, 1978, elevation, 446.80 ft (136.185 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 129,700 acre-ft (160 hm<sup>3</sup>) Feb. 13, elevation, 451.86 ft (137.727 m); minimum, 110,900 acre-ft (137 hm<sup>3</sup>) Sept. 26, elevation, 448.66 ft (136.752 m).

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

448.0	107,300
450.0	118,600
452.0	130,600

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119500	117800	116400	122300	124000	126800	124900	123800	127000	125800	120100	115000
2	119300	117700	116100	122200	124000	126800	124900	123700	126900	125600	119800	114600
3	119100	117600	116100	122200	124000	126700	124700	123500	126500	125300	119700	114600
4	118900	117400	116100	122100	123800	126600	124500	123500	126500	125100	119500	114400
5	118800	117300	116000	122000	123900	126400	124500	123400	126400	124900	119300	114200
6	118600	117200	116000	121900	123900	126300	124600	123400	126100	124700	119000	114100
7	118600	117000	116000	121800	123900	126400	124600	123300	125900	124600	119000	114000
8	118400	117700	115800	121700	125800	126200	124400	123100	126100	124300	118800	113700
9	118100	117900	115700	121700	127700	126100	124200	123000	126100	124100	118700	113700
10	118000	117800	115700	121800	129100	126100	124100	129100	126100	123900	118500	113400
11	117900	117700	115700	121600	129400	125900	124000	122900	125900	123700	118400	113300
12	117800	117600	116800	121500	129600	125900	123800	123000	125800	123500	118300	113100
13	117600	117600	116800	121500	129700	125900	124400	122900	125700	123400	118100	113000
14	117400	117400	116700	121500	129700	125800	124500	122700	125500	123200	117900	112700
15	117400	117400	116700	121600	129500	125700	119700	124500	125300	122900	117600	112700
16	117400	117400	116500	121600	129400	125800	124500	125100	125200	122800	117600	112200
17	117800	117300	116500	121600	129200	125500	124300	125400	125000	122600	117400	112100
18	117800	117000	116500	121500	129000	125500	124300	125500	124900	122300	117200	112000
19	117800	117200	116400	121700	128900	125300	124300	125500	124500	122200	117100	111900
20	117700	117300	116400	122100	128800	125200	124200	125400	127000	122000	116800	111900
21	117500	117500	116500	122800	128600	125200	124200	125900	127100	121800	116700	111600
22	117700	117300	116900	123600	128500	125100	124100	126700	127300	121700	116500	111400
23	117500	117200	119900	124100	128300	125200	124100	127000	127300	121500	116300	111400
24	117400	117100	121200	124400	128000	125000	123900	127000	127300	121400	115900	111200
25	117400	117000	122200	124400	127700	125000	124200	126800	127000	121200	115900	111200
26	117200	116900	122400	124400	127700	124900	124100	126800	126900	121100	115800	110900
27	117200	116800	122400	124300	127600	125000	124000	126700	126700	120900	115500	112900
28	117100	116700	122300	124300	127500	125000	124000	126400	126500	120900	115400	116200
29	116800	116500	122300	124100	127200	125000	123900	126400	126200	120700	115400	119000
30	118000	116500	122300	124100	---	124900	123800	127300	126100	120500	115300	122600
31	117800	---	122300	124100	---	124700	---	127200	---	120300	115100	---
MAX	119500	117900	122400	124400	129700	126800	124900	129100	127300	125800	120100	122600
MIN	116800	116500	115700	121500	123800	124700	119700	122700	124500	120300	115100	110900
(†)	449.87	449.64	450.64	450.93	451.45	451.03	450.88	451.44	451.26	450.29	449.40	450.69
(‡)	-1700	-1300	+5800	+1800	+3100	-2500	-900	+3400	-1100	-5800	-5200	+7500
(††)	1190	996	899	1000	844	839	908	991	908	1350	1300	1230

CAL YR 1979 MAX 148600 MIN 112200 † +11700 †† 11560  
WTR YR 1980 MAX 129700 MIN 110900 † +3100 †† 12460

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial use by city of Paris.



## RED RIVER BASIN

07335390 PAT MAYSE LAKE NEAR CHICOTA, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
AUG 19...	1500	195	30.0	65	3	22	2.5	11	.6

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
AUG 19...	3.8	76	0	14	11	.2	1.4	103

## RED RIVER BASIN

181

07335400 SANDERS CREEK NEAR CHICOTA, TX  
(Outflow from Pat Mayse Lake)

LOCATION.--Lat 33°51'10", long 95°32'28", Lamar County, Hydrologic Unit 11140101, on upstream side of Pat Mayse Dam, 2,800 ft (853 m) to right of morning-glory drop inlet, 2.0 mi (3.2 km) southeast of Chicota, and 4.6 mi (7.4 km) upstream from mouth.

DRAINAGE AREA.--175 mi<sup>2</sup> (453 km<sup>2</sup>), at Pat Mayse Dam; 184 mi<sup>2</sup> (477 km<sup>2</sup>) at former site 2.6 mi (4.2 km) downstream.

PERIOD OF RECORD.--March 1964 to September 1967 (gage heights and discharge measurements only), October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 440.00 ft (134.112 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1967, at site 2.6 mi (4.2 km) downstream at datum 52.77 ft (16.084 m) lower. Oct. 1, 1967, to Sept. 30, 1970, at datum 10.00 ft (3.048 m) higher.

REMARKS.--Records fair. Flow represents uncontrolled outflow from Pat Mayse Lake (station 07335390). Flow downstream from dam is affected by local runoff and backwater from the Red River.

AVERAGE DISCHARGE.--13 years, 121 ft<sup>3</sup>/s (3.427 m<sup>3</sup>/s), 87,660 acre-ft/yr (108 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum outflow, 1,060 ft<sup>3</sup>/s (30.0 m<sup>3</sup>/s) May 19, 1969, gage height, 10.20 ft (3.109 m), datum then in use; maximum gage height, 22.87 ft (6.971 m) Dec. 11, 12, 1971; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum outflow, 112 ft<sup>3</sup>/s (3.17 m<sup>3</sup>/s) Feb. 13 at 1500 hours, gage height, 11.86 ft (3.615 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	6.6	43	8.5	.00	41	23	.00	.00
2	.00	.00	.00	.00	6.6	41	8.3	.00	39	20	.00	.00
3	.00	.00	.00	.00	6.6	40	8.5	.00	36	16	.00	.00
4	.00	.00	.00	.00	5.0	36	6.5	.00	32	13	.00	.00
5	.00	.00	.00	.00	4.9	32	5.3	.00	31	11	.00	.00
6	.00	.00	.00	.00	4.6	30	5.5	.00	27	8.8	.00	.00
7	.00	.00	.00	.00	2.7	32	5.8	.00	23	7.0	.00	.00
8	.00	.00	.00	.00	13	30	4.4	.00	24	5.1	.00	.00
9	.00	.00	.00	.00	45	25	2.7	.00	25	2.5	.00	.00
10	.00	.00	.00	.00	84	24	1.5	.00	25	1.2	.00	.00
11	.00	.00	.00	.00	99	20	.49	.00	24	.06	.00	.00
12	.00	.00	.00	.00	103	22	.00	.00	21	.00	.00	.00
13	.00	.00	.00	.00	109	22	1.6	.00	19	.00	.00	.00
14	.00	.00	.00	.00	112	20	4.4	.00	17	.00	.00	.00
15	.00	.00	.00	.00	110	20	4.6	.00	15	.00	.00	.00
16	.00	.00	.00	.00	101	20	4.3	8.4	13	.00	.00	.00
17	.00	.00	.00	.00	96	17	2.9	13	11	.00	.00	.00
18	.00	.00	.00	.00	92	16	2.8	15	10	.00	.00	.00
19	.00	.00	.00	.00	89	14	2.8	16	7.5	.00	.00	.00
20	.00	.00	.00	.00	84	14	2.2	15	31	.00	.00	.00
21	.00	.00	.00	.00	79	13	1.8	16	43	.00	.00	.00
22	.00	.00	.00	4.0	77	12	1.3	28	45	.00	.00	.00
23	.00	.00	.00	4.3	73	12	.85	37	46	.00	.00	.00
24	.00	.00	.00	9.0	66	11	.30	40	46	.00	.00	.00
25	.00	.00	.00	9.5	61	11	.31	38	44	.00	.00	.00
26	.00	.00	.00	8.9	58	9.6	1.1	36	41	.00	.00	.00
27	.00	.00	.00	7.7	56	9.0	.31	35	37	.00	.00	.00
28	.00	.00	.00	7.1	55	11	.01	31	35	.00	.00	.00
29	.00	.00	.00	7.1	48	10	.00	31	30	.00	.00	.00
30	.00	.00	.00	8.1	---	9.1	.00	41	27	.00	.00	.00
31	.00	---	.00	7.6	---	8.9	---	44	---	.00	.00	---
TOTAL	.00	.00	.00	73.30	1747.0	634.6	89.07	444.40	865.5	107.66	.00	.00
MEAN	.000	.000	.000	2.36	60.2	20.5	2.97	14.3	28.9	3.47	.000	.000
MAX	.00	.00	.00	9.5	112	43	8.5	44	46	23	.00	.00
MIN	.00	.00	.00	.00	2.7	8.9	.00	.00	7.5	.00	.00	.00
AC-FT	.00	.00	.00	145	3470	1260	177	881	1720	214	.00	.00
CAL YR 1979	TOTAL	40859.94	MEAN	112	MAX 857	MIN .00	AC-FT	81050				
WTR YR 1980	TOTAL	3961.53	MEAN	10.8	MAX 112	MIN .00	AC-FT	7860				

## 07335500 RED RIVER AT ARTHUR CITY, TX

LOCATION.--Lat 33°52'32", long 95°30'08", in NW1/4 sec.11, T.8 S., R.17 E., Choctaw County, Okla., Hydrologic Unit 11140101, near right bank on downstream side of pier of bridge on U.S. Highway 271 at Arthur City, 10.6 mi (17.1 km) downstream from Muddy Boggy River, 26.0 mi (41.8 km) upstream from Kiamichi River, and at mile 633.1 (1,018.7 km).

DRAINAGE AREA.--44,531 mi<sup>2</sup> (115,335 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) probably is noncontributing.

PERIOD OF RECORD.--January to September 1905 (gage heights and discharge measurements only), October 1905 to December 1911, July 1936 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1891 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1241: Drainage area. WSP 1311: 1906-11.

GAGE.--Water-stage recorder. Datum of gage is 380.07 ft (115.845 m) National Geodetic Vertical Datum of 1929. From 1905-11, nonrecording gage at St. Louis-San Francisco Railway Co. bridge 200 ft (61 m) upstream at same datum. July 1, 1936, to Mar. 24, 1940, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated since October 1943 by Lake Texoma (station 07331500), 92.8 mi (149.3 km) above station.

COOPERATION.--Gage-height records and 20 discharge measurements furnished by Corps of Engineers; records computed by the Geological Survey.

AVERAGE DISCHARGE.--13 years (water years 1906-11, 1937-43) prior to completion of Denison Dam, 9,266 ft<sup>3</sup>/s (262.4 m<sup>3</sup>/s), 6,713,000 acre-ft/yr (8.28 km<sup>3</sup>/yr); 36 years (water years 1944-80) regulated, 7,671 ft<sup>3</sup>/s (217.2 m<sup>3</sup>/s), 5,558,000 acre-ft/yr (6.85 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 400,000 ft<sup>3</sup>/s (11,300 m<sup>3</sup>/s) May 28, 1908, gage height, 43.2 ft (13.17 m), from rating curve extended above 41,000 ft<sup>3</sup>/s (1,160 m<sup>3</sup>/s) on basis of records for later years; minimum, 130 ft<sup>3</sup>/s (3.68 m<sup>3</sup>/s) Dec. 11, 12, 1956, gage height, 4.49 ft (1.369 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 39,200 ft<sup>3</sup>/s (1,110 m<sup>3</sup>/s) June 5, gage height, 16.85 ft (5.136 m); minimum daily, 364 ft<sup>3</sup>/s (10.3 m<sup>3</sup>/s) Nov. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3040	2600	501	733	2910	2600	1370	930	15000	1260	4320	2740
2	2730	2150	1040	512	1730	3110	1210	1970	12800	2590	4040	1020
3	4330	1100	1610	456	3000	4300	1640	2680	10800	3490	3170	708
4	3510	1230	774	424	2250	4210	1500	5830	26900	3940	2040	596
5	3300	1200	862	506	1100	4220	2370	5650	37500	3300	1560	528
6	3210	1180	1230	894	770	2190	1960	2780	31500	2340	1350	1270
7	2660	1190	851	843	1200	1030	961	1130	21600	1970	1850	2800
8	2200	1010	1250	648	1610	878	643	879	21500	1940	2680	2500
9	1730	2240	903	445	1550	941	774	1350	19700	1700	2670	2400
10	2710	3130	689	602	1600	1470	2100	1380	17600	3020	3200	2390
11	2780	1850	435	2060	1800	798	924	956	16300	5200	3720	2550
12	2140	1320	461	1620	1600	607	530	560	16200	5200	2910	2760
13	2950	789	566	1220	1800	527	497	453	12700	4770	2590	3390
14	3180	1070	478	1090	1750	484	546	410	10200	4160	3860	3970
15	2220	1990	750	1290	1600	460	1760	829	6610	3370	3760	3080
16	1290	1310	1700	720	1430	589	2700	2730	5780	3210	4570	1930
17	1040	1950	835	506	1100	747	2240	2960	5600	3550	3270	1360
18	829	2350	567	445	2000	664	1490	2980	6400	3540	2580	2650
19	1420	2310	1180	480	6500	584	1320	2280	6510	2960	2130	2070
20	2310	990	1690	679	4260	1390	2170	2290	9200	3130	1270	1590
21	4770	684	1360	1990	3360	1640	2200	2610	9460	2540	3120	1740
22	3280	939	1300	2580	3810	808	1570	1870	9100	1060	3780	1020
23	2050	936	1810	2610	3040	585	999	2420	8040	943	3860	880
24	1610	649	3040	3500	3880	780	1180	2690	5860	1940	3320	872
25	1270	445	2000	4000	3150	603	821	2450	5950	1570	1840	1160
26	1010	395	1400	4500	2440	554	798	2850	4460	1460	1280	1550
27	1320	364	1420	2560	4330	1720	1130	3590	4490	1260	1150	1010
28	1290	615	1210	1630	5420	1600	2690	3320	4610	2060	1860	3790
29	920	1510	1320	2910	4120	2160	1800	3000	3910	1220	2410	13600
30	712	810	1750	4500	---	2710	885	8620	2430	3020	3060	20700
31	1090	---	1440	6000	---	1510	---	13500	---	3750	3910	---
TOTAL	68901	40306	36422	52953	75110	46469	42778	87947	368710	85463	87130	88624
MEAN	2223	1344	1175	1708	2590	1499	1426	2837	12290	2757	2811	2954
MAX	4770	3130	3040	6000	6500	4300	2700	13500	37500	5200	4570	20700
MIN	712	364	435	424	770	460	497	410	2430	943	1150	528
AC-FT	136700	79950	72240	105000	149000	92170	84850	174400	731300	169500	172800	175800
CAL YR 1979	TOTAL	2230289	MEAN	6110	MAX	52900	MIN	364	AC-FT	4424000		
WTR YR 1980	TOTAL	1080813	MEAN	2953	MAX	37500	MIN	364	AC-FT	2144000		

## RED RIVER BASIN

183

07336750 LITTLE PINE CREEK NEAR KANAWHA, TX

LOCATION.--Lat 33°50'26", long 95°15'55", Red River County, Hydrologic Unit 11140106, on right bank at downstream side of bridge on Farm Road 410, 1.6 mi (2.6 km) south of Kanawha, 1.8 mi (2.9 km) upstream from Tanyard Creek, and about 4 mi (6 km) upstream from Big Pine Creek.

DRAINAGE AREA.---75.4 mi<sup>2</sup> (195.3 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1968 to September 1980 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 389.26 ft (118.646 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No known diversion or return water in vicinity of gage.

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

AVERAGE DISCHARGE.--11 years (water years 1970-80), 71.6 ft<sup>3</sup>/s (2.028 m<sup>3</sup>/s), 12.90 in/yr (328 mm/yr), 51,870 acre-ft/yr (64.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,200 ft<sup>3</sup>/s (855 m<sup>3</sup>/s) Dec. 10, 1971, gage height, 21.26 ft (6.480 m), from rating curve extended above 4,400 ft<sup>3</sup>/s (125 m<sup>3</sup>/s) on basis of contracted-opening and flow-over-road measurement of peak flow; no flow at times each year.

Maximum stage since 1948, that of Dec. 10, 1971.

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Dec. 24	1600	1,240 35.1	14.54 4.432
Feb. 9	2030	1,110 31.4	14.38 4.383
June 21	1315	*2,700 76.5	15.46 4.712

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.01	.01	1.0	29	2.9	20	2.1	37	.22	.00	.00
2	.00	.00	.00	.85	14	2.2	12	.90	7.4	.15	.00	.00
3	.00	.00	.00	.77	8.3	2.1	8.3	1.3	1.6	.15	.00	.00
4	.00	.00	.00	.66	6.9	2.1	6.0	.73	.36	.12	.00	.00
5	.00	.00	.00	.50	4.4	2.9	4.1	.34	.11	.10	.00	.00
6	.00	.00	.00	.42	2.9	2.9	3.5	.13	.05	.11	.00	.00
7	.00	.00	.00	.32	2.2	2.8	2.8	.08	.02	.11	.00	.00
8	.00	.00	.00	.26	97	2.7	2.0	.05	5.4	.11	.00	.00
9	.00	223	.00	.24	725	1.5	.92	.04	54	.10	.00	.00
10	.00	152	.00	.32	727	2.4	.46	.03	62	.08	.00	.00
11	.00	25	.00	.66	248	3.6	.45	.02	8.5	.05	.00	.00
12	.00	4.5	3.3	.50	178	10	.36	.02	1.1	.05	.00	.00
13	.00	1.3	48	.44	129	9.2	36	.02	.22	.03	.00	.00
14	.00	.48	43	.44	78	6.8	344	.02	.07	.03	.00	.00
15	.00	.29	9.5	.44	57	6.6	472	2.1	.03	.02	.00	.00
16	.00	.15	1.9	.53	44	6.3	94	236	.01	.02	.00	.00
17	.00	.11	1.3	.59	32	5.3	43	355	.00	.01	.00	.00
18	.00	.08	1.2	.59	24	3.7	35	56	.00	.01	.00	.00
19	.00	.06	1.2	.73	19	3.0	26	14	.00	.01	.00	.00
20	.00	.06	1.1	5.5	16	3.0	17	3.8	162	.01	.00	.00
21	.00	11	.75	168	12	2.6	11	3.2	1690	.01	.00	.00
22	.00	4.7	22	735	9.4	2.1	7.0	104	614	.00	.00	.00
23	.00	.35	308	686	6.8	1.9	4.4	167	60	.00	.00	.00
24	.00	.12	941	248	4.9	3.2	3.1	45	37	.00	.00	.00
25	.00	.08	575	61	4.0	2.6	3.3	13	17	.00	.00	.00
26	.00	.07	71	28	4.0	2.0	47	3.4	6.1	.00	.00	.00
27	.00	.07	20	12	4.0	2.2	55	.98	2.1	.00	.00	.00
28	.00	.04	8.0	6.6	4.0	7.3	25	.30	.84	.00	.00	27
29	.00	.03	3.4	9.0	3.4	13	9.2	.15	.46	.00	.00	197
30	.00	.01	2.8	21	---	66	4.3	67	.34	.00	.00	296
31	.00	---	1.8	36	---	40	---	166	---	.00	.00	---
TOTAL	.00	423.51	2064.26	2026.36	2494.2	224.9	1297.19	1242.71	2767.71	1.50	.00	520.00
MEAN	.000	14.1	66.6	65.4	86.0	7.25	43.2	40.1	92.3	.048	.000	17.3
MAX	.00	223	941	735	727	66	472	355	1690	.22	.00	296
MIN	.00	.00	.00	.24	2.2	1.5	.36	.02	.00	.00	.00	.00
CFSM	.000	.19	.88	.87	1.14	.10	.57	.53	1.22	.001	.000	.23
IN.	.00	.21	1.02	1.00	1.23	.11	.64	.61	1.37	.00	.00	.26
AC-FT	.00	840	4090	4020	4950	446	2570	2460	5490	3.0	.00	1030
CAL YR 1979	TOTAL	39288.16	MEAN	108	MAX	3400	MIN	.00	CFSM	1.43	IN	19.38
WTR YR 1980	TOTAL	13062.34	MEAN	35.7	MAX	1690	MIN	.00	CFSM	.47	IN	6.44
									AC-FT	77930	AC-FT	25910

## RED RIVER BASIN

07336750 LITTLE PINE CREEK NEAR KANAWHA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD---Chemical analyses: October 1968 to September 1977. Periodic sediment analyses: October 1979 to September 1980 (discontinued).

PERIOD OF DAILY RECORD---

WATER TEMPERATURES: November 1979 to September 1980 (discontinued).

INSTRUMENTATION---Water temperature is recorded continuously at this station.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 14...	1025	.52	7.0	26	.04	--
DEC 18...	1015	1.2	1.5	58	.19	--
JAN 29...	1035	8.3	5.5	16	.36	86
MAR 11...	1015	3.4	12.5	9	.08	98
APR 15...	1130	538	11.5	46	67	94
MAY 20...	1015	4.1	20.5	51	.57	79
JUL 08...	1015	.11	24.5	27	.01	98

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

07336750 LITTLE PINE CREEK NEAR KANAWHA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	23.0	23.0	23.0			25.5				---	---	---
2	23.5	23.0	23.5			25.0				---	---	---
3	23.5	23.5	23.5			25.0				---	---	---
4	24.5	23.0	24.0			25.0				---	---	---
5	25.5	23.0	24.0			25.0				---	---	---
6	25.0	23.0	24.0			24.5				---	---	---
7	25.5	23.5	24.5			24.5				---	---	---
8	24.5	23.5	24.0			24.5				---	---	---
9	23.5	22.0	22.0			24.5				---	---	---
10	22.0	21.5	22.0			24.5				---	---	---
11	23.0	22.0	22.0			24.5				---	---	---
12	23.5	22.0	23.0			24.5				---	---	---
13	25.0	21.5	23.5			24.5				---	---	---
14	25.5	21.5	23.5			24.5				---	---	---
15	26.0	21.5	24.0			24.5				---	---	---
16	25.5	23.0	24.5			26.0				---	---	---
17	---	---	---			25.5				---	---	---
18	---	---	---			25.0				---	---	---
19	---	---	---			25.0				---	---	---
20	25.5	23.0	23.5			24.5				---	---	---
21	25.0	23.0	23.5			24.5				---	---	---
22	---	---	23.5			---				---	---	---
23	---	---	23.5			---				---	---	---
24	---	---	24.0			---				---	---	---
25	---	---	25.0			---				---	---	---
26	---	---	26.0			---				---	---	---
27	---	---	27.0			---				---	---	---
28	---	---	28.5			---				18.5	15.5	16.5
29	---	---	27.0			---				17.0	16.5	16.5
30	---	---	26.5			---				19.0	17.0	18.0
31	---	---	---			---				---	---	---
MONTH	26.0	21.5	24.0			25.0				19.0	15.5	17.0



## RED RIVER BASIN

## 07336820 RED RIVER NEAR DE KALB, TX

LOCATION.--Lat 33°41'15", long 94°41'39", Bowie County, Tex.-McCurtain County, Okla. State line, Hydrologic Unit 11140106, near left bank at downstream side of bridge on U.S. Highway 259, 4.8 mi (7.7 km) upstream from North Mill Creek, 13 mi (21 km) north of De Kalb, and at mile 556.9 (896.1 km).

DRAINAGE AREA.--47,348 mi<sup>2</sup> (122,631 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,374 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 302.92 ft (92.330 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. At times, flood peaks may be affected by storage in Lake Texoma (station 07331500) located approximately 169 mi (272 km) upstream, and low flows may be affected by releases for generation of electric power. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--12 years (water years 1969-80), 11,080 ft<sup>3</sup>/s (313.8 m<sup>3</sup>/s), 8,027,000 acre-ft/yr (9.90 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft<sup>3</sup>/s (5,350 m<sup>3</sup>/s) Dec. 11, 1971, gage height, 31.55 ft (9.616 m), from graph based on gage readings; minimum, 213 ft<sup>3</sup>/s (6.03 m<sup>3</sup>/s) Nov. 30, 1979, from graph based on gage readings.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1957, 205,000 ft<sup>3</sup>/s (5,800 m<sup>3</sup>/s) June 1957, gage height, 32.2 ft (9.81 m), from rating curve extended above 186,500 ft<sup>3</sup>/s (5,280 m<sup>3</sup>/s). The greatest flood since 1936 occurred in February 1938, stage unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,300 ft<sup>3</sup>/s (1,080 m<sup>3</sup>/s) June 6 at 2130 hours, gage height, 19.54 ft (5.956 m); minimum, 213 ft<sup>3</sup>/s (6.03 m<sup>3</sup>/s) Nov. 30, gage height, 6.92 ft (2.109 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4420	1610	1630	5370	5360	5830	4190	6730	19900	4610	2960	3030
2	4600	1690	1300	5040	5890	4500	3410	6040	23800	3300	3790	3850
3	3260	2790	431	4440	4360	3680	3150	6330	22000	2500	4260	3100
4	2950	2670	796	2950	3750	4120	3010	7100	17500	3490	3960	1740
5	4040	1560	1900	2170	4290	4730	3280	8450	20900	3880	3320	1230
6	3610	1300	1280	1680	3660	4720	4260	12100	36000	4260	2160	890
7	3360	1280	796	1510	2840	4450	4980	12800	35900	3610	1600	726
8	3230	1370	1430	1750	3100	3190	4650	10100	27800	2920	1490	1390
9	2770	2640	1010	1850	7150	2250	3900	6510	23900	2610	1830	2290
10	2200	4170	1300	1620	9960	1770	3180	4230	23400	2360	2650	2320
11	1720	4330	1010	1380	12700	1710	1980	3320	21100	2290	2840	2140
12	2530	4520	757	1410	14400	2110	2670	3180	18500	3690	3350	2180
13	2750	3250	1980	2560	13400	1690	2370	2480	17400	5320	3800	2480
14	2210	2390	2200	2560	11500	1180	5000	1730	16900	5050	3050	2650
15	2920	1680	1590	2160	9900	856	5800	1360	14500	4830	2860	3320
16	3270	1920	1270	1990	8530	720	6580	2960	11700	4310	3850	3850
17	2500	2620	1230	2100	6070	633	8450	6180	8400	3690	3980	3280
18	1540	2320	1880	1600	5070	1080	8000	10900	6500	3560	4420	2190
19	1010	2760	1410	1180	4930	1860	5730	12500	6340	3800	3620	1770
20	919	3180	776	1200	6870	1250	3650	10400	10300	3730	2840	2420
21	1280	3200	1590	2500	7620	702	3220	8510	14000	3240	2410	2190
22	2360	2310	3200	4900	6740	1710	3530	8590	15400	3350	1900	1820
23	4280	1520	4680	7210	5940	2200	3450	8760	13700	2960	2900	1810
24	3770	1570	11000	8600	5310	1460	2940	8410	11900	1400	3830	1410
25	2590	1610	10800	8800	4610	941	2570	8200	9250	1270	3970	1200
26	1770	1230	8180	8730	5080	2160	2850	8000	7540	1960	3540	1030
27	1200	684	5990	8010	4500	2210	2380	7740	6470	2020	2320	1300
28	941	388	6010	7100	4340	2250	1980	7440	5450	1530	1790	2300
29	1150	348	6020	5620	5390	3390	3030	6530	5520	1360	1650	9510
30	1420	348	5390	4660	---	3660	6310	6330	5310	2140	2010	14900
31	1790	---	5200	4330	---	4240	---	9210	---	1770	2390	---
TOTAL	78360	63164	94036	116980	193260	77252	120500	223120	477280	96810	91340	84316
MEAN	2528	2105	3033	3774	6664	2492	4017	7197	15910	3123	2946	2811
MAX	4600	4520	11000	8800	14400	5830	8450	12800	36000	5320	4420	14900
MIN	919	254	431	1180	2840	633	1980	1360	5310	1270	1490	726
AC-FT	155400	125300	186500	232000	383300	153200	239000	442600	946700	192000	181200	167200
CAL YR 1979	TOTAL	3909930	MEAN	10710	MAX	76100	MIN	254	AC-FT	7755000		
WTR YR 1980	TOTAL	1716418	MEAN	4690	MAX	36000	MIN	254	AC-FT	3405000		

07336820 RED RIVER NEAR DE KALB, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: October 1970 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1968 to current year.  
WATER TEMPERATURES: January 1968 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,140 micromhos July 13, 1980; minimum daily, 132 micromhos Mar. 25, 1968.

WATER TEMPERATURES: Maximum daily, 34.0°C on several days during July and August 1969-70; minimum daily, 0.0°C Jan. 11, 1977.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,140 micromhos July 13; minimum daily, 202 micromhos May 21.

WATER TEMPERATURES: Maximum daily, 32.0°C July 31; minimum daily 2.0°C Feb. 2, 12.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)
NOV										
13...	1610	2940	1230	7.8	11.0	35	40	11.2	101	2.0
14...	1440	2340	--	--	11.5	--	--	--	--	--
DEC										
18...	1440	2000	--	--	5.5	--	--	--	--	--
31...	0830	5130	480	--	7.0	--	--	--	--	--
JAN										
08...	0920	1580	870	7.8	6.0	35	3.7	11.4	91	2.9
29...	1445	5420	--	--	6.0	--	--	--	--	--
FEB										
29...	0915	5100	1750	--	10.0	--	--	--	--	--
MAR										
11...	1415	1700	1340	7.9	13.0	30	6.9	10.8	103	4.0
APR										
15...	1620	5790	--	--	14.0	--	--	--	--	--
MAY										
20...	1450	10000	230	7.8	24.5	190	80	7.4	88	2.3
20...	1645	10000	--	--	24.5	--	--	--	--	--
JUL										
08...	1510	2940	1830	8.1	33.0	25	10	8.8	122	2.8
AUG										
20...	1245	2880	1920	8.4	29.0	5	6.5	8.2	108	2.4
SEP										
30...	0740	13300	300	--	17.0	--	--	--	--	--

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)
NOV									
13...	250	150	67	19	150	4.2	6.5	120	0
14...	--	--	--	--	--	--	--	--	--
DEC									
18...	--	--	--	--	--	--	--	--	--
31...	120	47	35	8.1	51	2.0	3.3	90	0
JAN									
08...	260	70	74	18	87	2.4	4.6	230	0
29...	--	--	--	--	--	--	--	--	--
FEB									
29...	330	220	91	25	220	5.3	6.9	140	0
MAR									
11...	310	130	88	23	150	3.7	5.3	220	0
APR									
15...	--	--	--	--	--	--	--	--	--
MAY									
20...	61	16	18	4.0	19	1.1	2.5	56	0
20...	--	--	--	--	--	--	--	--	--
JUL									
08...	350	240	94	28	220	5.1	6.3	140	0
AUG									
20...	370	260	100	30	240	5.4	6.8	140	1
SEP									
30...	97	13	30	5.4	21	.9	3.4	100	0

## RED RIVER BASIN

07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	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)
NOV 13...	150	230	.3	5.0	687	68	0	.22	.020
14...	--	--	--	--	--	--	--	--	--
DEC 18...	--	--	--	--	--	--	--	--	--
31...	57	67	.1	3.2	269	--	--	--	--
JAN 08...	90	120	.2	7.1	515	24	23	.15	.020
29...	--	--	--	--	--	--	--	--	--
FEB 29...	240	360	.3	3.6	1020	--	--	--	--
MAR 11...	170	230	.3	4.6	780	17	6	.00	.000
APR 15...	--	--	--	--	--	--	--	--	--
MAY 20...	24	27	.1	5.9	128	164	57	.26	.020
20...	--	--	--	--	--	--	--	--	--
JUL 08...	230	360	.5	3.7	1010	37	1	.00	.000
AUG 20...	250	380	.4	4.9	1080	73	5	.00	.010
SEP 30...	30	28	.2	5.2	167	--	--	--	--

DATE	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 13...	.24	.020	2.6	2.6	.100	7.3	--	--	--
14...	--	--	--	--	--	--	60	379	99
DEC 18...	--	--	--	--	--	--	0	.81	91
31...	--	--	--	--	--	--	--	--	--
JAN 08...	.17	.130	1.9	2.0	.240	8.0	--	--	--
29...	--	--	--	--	--	--	62	907	84
FEB 29...	--	--	--	--	--	--	--	--	--
MAR 11...	.00	.020	1.3	1.3	.070	8.6	40	184	74
APR 15...	--	--	--	--	--	--	509	7960	40
MAY 20...	.28	.070	1.0	1.1	.160	15	--	--	--
20...	--	--	--	--	--	--	491	13300	37
JUL 08...	.00	.040	.96	1.0	.070	11	30	238	86
AUG 20...	.00	.020	1.6	1.6	.110	15	45	350	--
SEP 30...	--	--	--	--	--	--	--	--	--

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 08...	0920	1	100	1	0	1	60
MAR 11...	1415	0	200	<1	0	3	20
MAY 20...	1450	1	40	0	0	1	120
JUL 08...	1510	1	200	<1	0	1	<10

## RED RIVER BASIN

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07336820 RED RIVER NEAR DE KALB, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 08...	2	120	.0	0	0	7
MAR 11...	0	90	.0	0	0	<3
MAY 20...	0	0	.0	0	0	10
JUL 08...	0	9	.0	0	0	8

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR 11...	1415	.0	0	.00	.00	.0	.0	0	.00	.0
JUL 08...	1510	.0	0	.00	.00	.0	.0	0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR 11...	.00	.1	.00	.0	.00	.00	.0	.00	.00	.0
JUL 08...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
MAR 11...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0
JUL 08...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR 11...	.00	.00	.00	.01	0	0	.00	.04	.00	.00
JUL 08...	.00	.00	.00	.00	0	0	.00	.00	.00	.00

## RED RIVER BASIN

07336820 RED RIVER NEAR DE KALB, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	78360	1760	1020	215000	350	73200	240	51100	370
NOV.	1979	63164	1210	682	116000	210	36000	150	25000	290
DEC.	1979	94036	722	399	101000	120	29500	80	20400	190
JAN.	1980	116980	837	462	146000	130	42600	93	29400	210
FEB.	1980	193260	841	470	245000	140	74100	98	51300	210
MAR.	1980	77252	1480	845	176000	280	57800	190	40300	330
APR.	1980	120500	793	437	142000	130	41100	87	28400	200
MAY	1980	223120	544	297	179000	83	50000	57	34400	140
JUNE	1980	477280	1290	738	950000	240	311000	170	216500	290
JULY	1980	96810	1850	1080	283000	370	97800	260	68400	380
AUG.	1980	91340	1900	1110	273000	390	95200	270	66600	390
SEPT	1980	84316	1420	823	187000	280	63500	190	44300	300
TOTAL		1716418	**	**	3015000	**	972000	**	676000	**
WTD. AVG.		4690	1140	651	**	210	**	150	**	260

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1830	1310	1070	666	1300	1800	1420	451	650	1610	1600	1960
2	1780	1370	1150	724	1790	1690	1170	477	590	1550	2060	1970
3	1830	1300	1490	556	1500	1650	1010	367	484	1530	2010	1930
4	1670	1560	1460	444	1240	1660	1020	450	381	1750	1970	1650
5	1850	1430	1390	646	1430	1920	1060	697	289	2040	1980	1500
6	1870	1400	1670	700	1540	1850	800	824	700	1950	1860	1480
7	1800	1350	1520	764	1250	1870	686	469	1250	1930	1730	1450
8	1860	1480	1410	898	570	1740	749	269	1840	1820	1710	1390
9	1680	1400	1460	980	612	1550	620	279	1710	1770	1690	1830
10	1800	812	1510	1150	550	1350	481	410	1680	1800	1880	1900
11	1720	934	1610	1180	450	1320	454	750	1720	1700	2070	1880
12	1680	950	1560	1100	426	1340	500	1100	1750	1860	2040	1780
13	1850	1230	1430	1400	338	1480	550	1460	1960	2140	1990	1850
14	1950	1160	850	1590	322	1410	642	1180	2030	2050	1950	1940
15	1800	1130	846	1500	437	1180	367	1010	2000	2000	1730	2030
16	1860	1090	854	1450	458	1220	376	848	1990	1980	2050	2010
17	1830	1160	850	1360	475	1250	340	465	1960	1950	2020	1960
18	1650	1300	1010	1420	500	1110	692	364	1880	1960	1980	1840
19	1540	1420	1160	1330	429	1170	762	319	1930	1990	1970	1730
20	1750	1570	1270	1220	550	1320	830	269	1890	2000	1850	1870
21	1550	1120	1220	858	1310	1470	892	202	1290	2010	1930	1820
22	1430	1200	1100	526	1230	1380	1260	206	900	1880	1680	1770
23	1700	1250	1030	555	1050	1550	1410	297	1050	1770	1690	1800
24	1860	1220	450	592	1390	1720	1290	247	1100	1690	1820	1770
25	1630	1150	380	502	1480	1500	1110	320	1190	1550	1950	1810
26	1710	1200	490	684	1380	1250	954	385	1270	1400	1970	1930
27	1640	1190	536	900	1500	1030	965	528	1360	1550	1860	1850
28	1750	1130	446	1000	1250	854	973	1070	1450	1700	1750	1500
29	1600	1080	368	1120	1750	900	996	1270	1550	1760	1660	550
30	1650	1130	370	950	---	1010	894	1490	1640	1650	1570	300
31	1450	---	480	828	---	981	---	975	---	1690	1860	---
MEAN	1730	1230	1050	955	983	1400	842	627	1380	1810	1870	1700

## RED RIVER BASIN

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07336820 RED RIVER NEAR DE KALB, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	13.0	5.0	6.0	---	8.0	13.0	19.0	---	30.0	29.0	27.0
2	---	13.0	---	7.0	2.0	5.0	16.0	19.0	25.0	30.0	28.0	27.0
3	22.0	13.0	5.0	7.0	---	5.0	18.0	19.0	25.0	30.0	---	27.0
4	20.0	12.0	5.0	6.0	4.0	6.0	16.0	---	25.0	---	27.0	27.0
5	18.0	12.0	7.0	5.0	5.0	7.0	16.0	21.0	26.0	30.0	27.0	28.0
6	18.0	12.0	8.0	---	5.0	8.0	---	22.0	25.0	30.0	27.0	27.0
7	18.0	11.0	6.0	7.0	5.0	11.0	17.0	22.0	25.0	30.0	28.0	27.0
8	20.0	11.0	7.0	7.0	4.0	13.0	17.0	22.0	---	30.0	---	27.0
9	21.0	13.0	---	5.0	3.0	---	16.0	18.0	24.0	30.0	30.0	27.0
10	17.0	11.0	8.0	6.0	---	14.0	16.0	21.0	24.0	30.0	---	27.0
11	17.0	10.0	8.0	8.0	---	14.0	17.0	---	24.0	31.0	28.0	27.0
12	18.0	9.0	8.0	7.0	2.0	11.0	---	---	24.0	30.0	---	27.0
13	17.0	9.0	8.0	---	3.0	12.0	---	23.0	24.0	30.0	29.0	---
14	---	9.0	7.0	7.0	5.0	11.0	8.0	22.0	24.0	30.0	29.0	---
15	17.0	9.0	7.0	9.0	7.0	13.0	10.0	20.0	---	30.0	28.0	27.0
16	18.0	10.0	6.0	---	6.0	---	13.0	20.0	25.0	---	28.0	27.0
17	19.0	11.0	3.0	10.0	---	---	16.0	21.0	27.0	30.0	---	27.0
18	18.0	---	3.0	10.0	4.0	11.0	16.0	23.0	27.0	30.0	28.0	25.0
19	20.0	12.0	3.0	11.0	6.0	13.0	17.0	23.0	---	30.0	28.0	24.0
20	---	15.0	7.0	---	7.0	14.0	---	22.0	26.0	30.0	28.0	25.0
21	---	9.0	12.0	10.0	10.0	13.0	21.0	23.0	25.0	30.0	28.0	---
22	21.0	---	14.0	9.0	11.0	13.0	21.0	22.0	---	29.0	28.0	26.0
23	18.0	---	---	7.0	11.0	---	21.0	22.0	25.0	---	27.0	26.0
24	17.0	---	---	7.0	11.0	11.0	22.0	23.0	26.0	28.0	---	25.0
25	16.0	---	---	8.0	10.0	11.0	21.0	---	27.0	27.0	27.0	---
26	17.0	9.0	9.0	8.0	8.0	---	19.0	25.0	---	28.0	27.0	---
27	17.0	10.0	10.0	---	8.0	13.0	---	25.0	---	---	27.0	---
28	---	10.0	10.0	---	10.0	13.0	17.0	25.0	30.0	27.0	---	---
29	17.0	6.0	9.0	6.0	10.0	---	18.0	24.0	---	28.0	26.0	---
30	18.0	5.0	8.0	---	---	13.0	19.0	25.0	30.0	29.0	25.0	17.0
31	15.0	---	7.0	3.0	---	11.0	---	25.0	---	32.0	28.0	---
MEAN	18.5	10.5	7.5	7.5	6.5	11.0	17.0	22.0	25.5	29.5	27.5	26.0



## RED RIVER BASIN

## 07337000 RED RIVER AT INDEX, AR

LOCATION.--Lat 33°33'07", long 94°02'28", in NW1/4SW1/4 sec.7, T.14 S., R.28 W., Miller County, Hydrologic Unit 11140106, near right bank on downstream side of bridge on U.S. Highway 71 at Index, 2.2 mi (3.5 km) south of Ogden, 20.6 mi (33.1 km) upstream from Little River, and at mile 485.3 (780.8 km).

DRAINAGE AREA.--48,030 mi<sup>2</sup> (124,400 km<sup>2</sup>), of which 5,936 mi<sup>2</sup> (15,370 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 246.87 ft (75.246 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1939, nonrecording gage at present site and datum, and Dec. 12, 1939, to July 19, 1979, water-stage recorder at site 500 ft (152 m) downstream at present datum.

REMARKS.--Water-discharge records good. Some regulation by Lake Texoma (station 07331500), 241 mi (388 km) upstream since Oct. 31, 1943, capacity, 5,392,900 acre-ft (6.65 km<sup>3</sup>), by Pat Mayse Lake (station 07335390) since Sept. 28, 1967, capacity, 352,700 acre-ft (435 hm<sup>3</sup>), and by Hugo Lake in Oklahoma since Jan. 18, 1974, capacity, 966,700 acre-ft (1,190 hm<sup>3</sup>).

AVERAGE DISCHARGE.--44 years, 11,590 ft<sup>3</sup>/s (328.2 m<sup>3</sup>/s), 8,397,000 acre-ft/yr (10.4 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 297,000 ft<sup>3</sup>/s (8,410 m<sup>3</sup>/s) Feb. 23, 1938, gage height, 34.25 ft (10.439 m); minimum, 378 ft<sup>3</sup>/s (10.7 m<sup>3</sup>/s) Nov. 28, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,000 ft<sup>3</sup>/s (1,080 m<sup>3</sup>/s) June 7, gage height, 13.93 ft (4.246 m); minimum daily, 1,330 ft<sup>3</sup>/s (37.7 m<sup>3</sup>/s) Dec. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3800	2590	1330	5010	4440	4600	3710	3580	7920	5800	3000	2240
2	4160	2510	1360	4950	4040	5370	4070	5350	17200	5300	2400	2590
3	4340	2270	1720	4950	4370	4920	3640	5370	23500	4240	3500	3070
4	4240	2240	1640	4500	5200	3920	3100	5110	22000	3280	4000	3430
5	3280	2750	1450	3630	4270	3680	2880	5520	17500	3090	4300	2770
6	3400	2460	1540	2590	5350	4240	2850	6160	21700	4040	4200	1940
7	3880	2020	1850	2130	4590	4450	3220	8330	36300	4290	3900	1610
8	3520	1880	1670	1900	5110	4400	4030	11200	34800	4320	3370	1450
9	3410	2010	1530	1790	8380	3690	4350	10300	27700	3680	2210	1360
10	3160	2320	1660	1880	9980	2810	3900	7500	24700	3160	2090	1810
11	2850	3150	1590	1920	15600	2370	3400	4730	23800	3000	2310	2360
12	2500	3770	1670	1790	15400	2180	2750	3230	21400	2740	2790	2380
13	2360	3950	2060	1680	14600	2230	3310	2780	18900	2990	2900	2240
14	2780	3790	2330	1760	14000	2290	6110	2530	17700	4450	3280	2370
15	2700	2920	2670	2300	12200	2110	7800	2140	17100	5280	3500	2540
16	2550	2300	2490	2300	10600	1930	8720	2230	15300	4990	3500	2750
17	3060	1950	2050	2130	9310	1900	7580	3340	12800	4780	3540	3160
18	3130	2160	1860	2090	7260	1860	7580	5860	10200	4250	3580	3410
19	2580	2320	1810	2080	5760	1750	8050	9090	8000	3800	3950	2990
20	2120	2310	1970	2300	5130	1880	6740	12200	9150	3760	4970	2310
21	1850	2610	1800	4860	5950	2070	4620	11900	16000	3900	3300	2140
22	1720	3500	1650	8330	7190	1820	3090	9500	19800	3900	2890	2460
23	1850	3320	2730	13100	7070	1710	2960	8250	20300	3400	2750	2250
24	2660	2590	6140	13500	6200	2080	3030	8510	17000	3500	2740	2080
25	3690	2100	10400	13300	5520	2260	2920	8300	13900	3100	2950	1990
26	3290	2000	11600	9150	4850	1960	2730	7900	11200	1900	3430	1750
27	2540	1910	9120	7980	4740	1850	2710	7670	8750	1800	3690	1640
28	2160	1720	6920	8000	4710	2300	2730	7210	7600	2700	3790	1770
29	1930	1540	5780	7980	4200	2440	2320	7210	6320	2900	2430	2660
30	1840	1420	5670	7850	---	2750	2120	7210	5930	2400	2010	7700
31	2270	---	5370	7650	---	3490	---	7260	---	2200	1970	---
TOTAL	89620	74380	103430	155380	216020	87310	127020	207470	514470	112940	99240	75220
MEAN	2891	2479	3336	5012	7449	2816	4234	6693	17150	3643	3201	2507
MAX	4340	3950	11600	13500	15600	5370	8720	12200	36300	5800	4970	7700
MIN	1720	1420	1330	1680	4040	1710	2120	2140	5930	1800	1970	1360
AC-FT	177800	147500	205200	308200	428500	173200	251900	411500	1020000	224000	196800	149200
CAL YR 1979	TOTAL	3782830	MEAN	10360	MAX	62600	MIN	1330	AC-FT	7503000		
WTR YR 1980	TOTAL	1862500	MEAN	5089	MAX	36300	MIN	1330	AC-FT	3694000		

## RED RIVER BASIN

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07337000 RED RIVER AT INDEX, AR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947-56, April to September 1980.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOC- CI, KF AGAR (COLS. PER 100 ML)	
DATE	TIME										
DEC 04...	1100	3280	--	--	--	--	--	--	--	--	
APR 17...	1400	8000	314	7.8	14.5	100	8.8	86	830	K90	
28...	1300	2980	995	8.2	18.0	18	9.5	100	K230	K60	
JUN 03...	1000	21200	490	7.2	26.0	130	6.4	78	K5000	K1600	
24...	1030	16200	920	7.8	27.5	78	--	--	<3	400	
JUL 22...	0830	3960	1925	8.5	31.0	7.6	6.1	81	K23	--	
SEP 04...	0835	3400	1950	8.1	28.5	25	8.2	104	K50	110	
		HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
DEC 04...	--	--	--	--	--	--	--	--	--	--	--
APR 17...	82	27	24	5.3	25	1.2	2.6	55	32	33	
28...	200	84	57	15	100	3.0	4.0	120	110	140	
JUN 03...	110	46	31	9.0	45	1.8	3.1	68	51	64	
24...	170	80	46	14	100	3.3	4.5	93	100	160	
JUL 22...	380	250	100	31	260	5.8	7.4	130	260	390	
SEP 04...	350	220	93	29	240	5.6	7.6	130	230	390	
		FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)
DEC 04...	--	--	--	--	--	--	--	--	--	--	--
APR 17...	.1	5.1	183	162	.53	.49	.180	.040	1.1	.48	
28...	.2	2.3	525	501	.02	.01	.010	.020	1.1	.79	
JUN 03...	.1	5.7	290	251	.42	.36	.180	.070	2.8	2.5	
24...	.2	4.5	477	486	.23	.25	.070	.090	1.1	.64	
JUL 22...	.6	3.4	1180	1130	.00	.02	.000	.010	1.3	1.3	
SEP 04...	.3	4.5	1120	1070	.00	.00	.000	.000	1.4	1.2	
		NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
DEC 04...	--	--	--	--	--	--	--	--	--	--	--
APR 17...	1.3	.52	.240	.060	18	--	--	330	7130	66	
28...	1.1	.81	.120	.030	--	14	.8	39	314	78	
JUN 03...	3.0	2.6	.300	.050	16	--	--	1022	58500	56	
24...	1.2	.73	.140	.060	13	--	--	194	8490	97	
JUL 22...	1.3	1.3	.100	.020	--	22	.9	31	331	54	
SEP 04...	1.4	1.2	.130	.030	21	--	--	64	588	70	

## RED RIVER BASIN

07337000 RED RIVER AT INDEX, AR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC		ARSENIC		BARIUM,		BARIUM,		CADMIUM		CADMIUM		CHROMIUM,		CHROMIUM,	
		TOTAL (UG/L AS AS)	SUS- PENDE TOTAL (UG/L AS AS)	DIS- SOLVED (UG/L AS AS)	TOTAL RECOV- ERABLE (UG/L AS BA)	SUS- PENDE RECOV- ERABLE (UG/L AS BA)	DIS- SOLVED (UG/L AS BA)	TOTAL RECOV- ERABLE (UG/L AS CD)	DIS- SOLVED (UG/L AS CD)	TOTAL RECOV- ERABLE (UG/L AS CR)	SUS- PENDE RECOV- ERABLE (UG/L AS CR)						
APR 17...	1400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
28...	1300	1	0	1	300	200	100	1	<1	0	0						
JUN 03...	1000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
JUL 22...	0830	1	0	1	200	0	200	1	<1	10	0						
SEP 04...	0835	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

DATE	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
APR 17...	--	--	--	--	--	--	--	--	--	--
28...	0	0	<3	8	3	5	1100	1100	50	8
JUN 03...	--	--	--	--	--	--	--	--	--	--
JUL 22...	10	1	<3	8	8	0	680	620	60	10
SEP 04...	--	--	--	--	--	--	--	--	--	--

DATE	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)		LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)		MANGA- NESE, SUS- PENDE RECOV. (UG/L AS MN)		MANGA- NESE, DIS- SOLVED (UG/L AS MN)		MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)		MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)		MERCURY DIS- SOLVED (UG/L AS HG)		NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)		NICKEL, SUS- PENDE RECOV- ERABLE (UG/L AS NI)	
APR 17...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
28...	5	3	160	130	30	1.5	.8	.7	6	4									
JUN 03...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL 22...	10	0	90	60	30	.6	.2	.4	6	6									
SEP 04...	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
			(UG/L AS SE)	(UG/L AS SE)	(UG/L AS AG)	(UG/L AS AG)	(UG/L AS ZN)	(UG/L AS ZN)	(UG/L AS ZN)	
APR 17...	--	--	--	--	0	--	--	--	--	--
28...	2	0	0	0	0	0	0	40	--	<3
JUN 03...	--	--	--	--	0	--	--	--	--	--
JUL 22...	0	1	1	0	0	0	0	50	40	9
SEP 04...	--	--	--	--	0	--	--	--	--	--

## RED RIVER BASIN

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## 07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX

LOCATION.--Lat 33°21'20", long 95°35'39", Hopkins-Delta County line, Hydrologic Unit 11140301, on left bank of cut channel at downstream side of bridge on State Highways 19 and 154, 1.0 mi (1.6 km) downstream from Big Creek, 1.0 mi (1.6 km) upstream from Brushy Creek, 4.5 mi (7.2 km) downstream from Doctors Creek, and 5.6 mi (9.0 km) southeast of Cooper.

DRAINAGE AREA.--527 mi<sup>2</sup> (1,365 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 371.91 ft (113.358 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1970, at datum 3.00 ft (0.914 m) higher. May 9, 1942, to Nov. 8, 1949, nonrecording gage, and Nov. 9, 1949, to May 13, 1955, water-stage recorder at site 700 ft (213 m) to right of present gage.

REMARKS.--Water-discharge records good. Small diversions upstream from station.

AVERAGE DISCHARGE.--38 years (water years 1943-80), 403 ft<sup>3</sup>/s (11.41 m<sup>3</sup>/s), 10.39 in/yr (264 mm/yr), 292,000 acre-ft/yr (360 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,500 ft<sup>3</sup>/s (1,200 m<sup>3</sup>/s) Dec. 10, 1971, gage height, 26.15 ft (7.971 m), from floodmark in gage well; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,600 ft<sup>3</sup>/s (159 m<sup>3</sup>/s) Jan. 23 at 2330 hours, gage height, 20.09 ft (6.123 m), no peak above base of 8,000 ft<sup>3</sup>/s (227 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	94	1.3	15	109	5.6	14	8.1	3.8	2.0	.30	.00
2	.83	32	1.1	12	61	5.0	11	227	3.1	1.4	.20	.00
3	.53	12	1.0	9.9	38	4.4	8.1	1040	3.1	1.2	.09	.00
4	.35	6.9	1.0	8.5	28	4.0	6.0	482	3.8	.89	.06	.00
5	.44	4.3	1.0	7.2	21	3.6	4.6	112	4.4	.65	.05	.00
6	.42	2.7	1.0	6.1	15	3.5	3.6	52	5.0	.43	.05	.00
7	.32	1.7	1.1	4.8	12	3.2	3.2	28	4.9	.32	.04	.00
8	.31	1.1	1.2	3.6	608	2.9	2.7	46	4.6	.24	.03	.00
9	.36	.91	1.1	2.7	2380	2.7	2.4	25	4.3	.18	.03	.00
10	.36	1.4	.91	2.5	2960	2.4	2.1	13	4.2	.11	.03	.00
11	.52	2.0	1.0	2.5	2580	2.4	1.8	8.6	4.2	.07	.01	.00
12	.62	3.5	1.3	1.9	999	2.8	2.1	6.4	4.3	.07	.01	.00
13	.48	7.3	47	1.6	477	2.7	375	5.5	3.9	.07	.00	.00
14	.68	6.1	64	1.3	242	3.3	1760	4.7	4.3	.06	.00	.00
15	1.6	5.0	59	1.2	129	5.3	1420	154	4.6	.06	.00	.00
16	2.0	4.2	24	1.1	82	7.0	238	3370	4.9	.05	.00	.00
17	2.5	3.9	12	1.2	54	5.5	93	3250	5.2	.04	.00	.00
18	2.4	5.1	6.5	1.2	38	4.4	51	3080	5.1	.04	.00	.00
19	1.6	4.1	5.8	1.8	27	3.4	31	1550	5.0	.03	.00	.00
20	9.7	3.0	4.8	201	21	3.0	19	215	34	.03	.00	.00
21	5.8	2.9	3.7	945	19	2.6	12	85	43	.03	.00	.00
22	3.3	2.4	171	2640	16	2.4	8.6	64	34	.02	.00	.00
23	1.9	2.0	978	4490	13	2.3	6.5	26	136	.02	.00	.00
24	1.3	2.0	2750	4690	11	2.1	4.9	17	102	.01	.00	.00
25	2.2	1.7	2790	2790	10	1.9	4.7	14	24	.00	.00	.00
26	5.2	1.7	2400	574	9.0	2.0	95	12	11	.00	.00	.00
27	3.2	1.4	351	141	8.1	2.5	244	10	7.9	.00	.00	.00
28	2.2	1.3	110	68	7.4	4.1	81	8.8	5.6	.00	.00	.00
29	1.5	1.2	57	92	6.5	9.3	30	7.4	3.8	.00	.931	.00
30	1.7	1.3	33	228	---	18	13	5.9	2.7	1.1	.00	1510
31	49	---	21	189	---	16	---	5.0	---	.59	.00	---
TOTAL	104.32	219.11	9900.81	17134.1	10981.0	140.3	4548.3	13932.4	486.7	23.91	.90	2441.00
MEAN	3.37	7.30	319	553	379	4.53	152	449	16.2	.77	.029	81.4
MAX	49	94	2790	4690	2960	18	1760	3370	136	11	.30	1510
MIN	.31	.91	.91	1.1	6.5	1.9	1.8	4.7	2.7	.00	.00	.00
CFSM	.006	.01	.61	1.05	.72	.009	.29	.85	.03	.001	.000	.15
IN.	.01	.02	.70	1.21	.78	.01	.32	.98	.03	.00	.00	.17
AC-FT	207	435	19640	33990	21780	278	9020	27630	965	47	1.8	4840

CAL YR 1979 TOTAL 199274.63 MEAN 546 MAX 18700 MIN .00 AC-FT 395300  
WTR YR 1980 TOTAL 59912.85 MEAN 164 MAX 4690 MIN .00 AC-FT 118800

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1958 to September 1966, October 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1958 to September 1966, October 1967 to current year.

WATER TEMPERATURES: October 1958 to September 1966, October 1967 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,710 micromhos Aug. 14, 1973; minimum daily, 82 micromhos July 2, 1976.

WATER TEMPERATURES: Maximum daily, 36.0°C Aug. 6, 1960, Aug. 10, 1962; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 830 micromhos Mar. 30; minimum daily, 123 micromhos May 16.

WATER TEMPERATURES: Maximum daily, 31.5°C Aug. 8; minimum daily, 2.0°C Dec. 18, Feb. 1, 10, 11.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBAL.T UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)
DEC												
06...	1015	11	378	7.5	7.0	100	22	8.6	71	2.2	77	0
JAN												
07...	1435	4.5	280	7.5	2.0	80	25	10.6	77	2.9	91	0
FEB												
12...	0955	987	189	7.4	2.0	120	94	11.4	82	3.4	72	7
MAR												
10...	1410	2.4	535	7.8	16.5	30	14	10.4	106	4.7	180	0
APR												
15...	1235	1310	164	7.3	11.0	80	120	--	--	--	54	3
MAY												
19...	1350	1480	164	7.0	22.0	120	56	3.7	42	3.5	63	4
JUN												
03...	1015	2.4	405	7.7	25.5	70	26	4.9	60	2.1	140	0
JUL												
07...	1430	.33	290	7.7	33.5	50	16	8.0	111	1.6	100	0
AUG												
06...	0650	.06	341	--	26.0	--	--	--	--	--	120	0
18...	1630	.00	--	--	--	--	--	--	--	--	--	--
SEP												
30...	0740	1520	186	--	17.0	--	--	--	--	--	46	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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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												
06...	26	3.0	52	2.6	5.1	180	0	22	19	.2	9.6	226
JAN												
07...	31	3.3	19	.9	5.6	120	0	23	13	.3	11	166
FEB												
12...	25	2.4	13	.7	2.9	80	0	23	7.6	.2	7.7	121
MAR												
10...	63	6.2	40	1.3	4.6	240	0	54	23	.3	.2	310
APR												
15...	18	2.2	10	.6	3.6	62	0	20	5.6	.2	8.0	98
MAY												
19...	21	2.5	7.7	.4	4.8	72	0	12	4.0	.2	11	99
JUN												
03...	46	5.3	22	.8	5.8	190	0	23	13	.2	13	222
JUL												
07...	34	3.6	18	.8	5.5	130	0	16	12	.4	12	166
AUG												
06...	40	5.6	20	.8	5.9	180	0	18	9.7	.4	8.1	196
18...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
30...	16	1.5	18	1.2	3.7	76	0	17	7.7	.3	8.8	110

## RED RIVER BASIN

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07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (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)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
DEC 06...	24	9	.00	.01	.01	.01	1.6	1.6	.100	16	3	.00
JAN 07...	62	28	.80	.03	.83	.04	1.4	1.4	.300	14	0	.00
FEB 12...	210	32	.62	.04	.66	.12	1.4	1.5	.290	15	2	.00
MAR 10...	24	10	.00	.00	.00	.04	1.5	1.5	.240	10	0	.10
APR 15...	188	30	1.3	.04	1.3	.15	1.7	1.8	.420	20	4	.10
MAY 19...	74	58	.85	.04	.89	.09	2.4	2.5	.380	20	2	.00
JUN 03...	35	9	.31	.01	.32	.08	.81	.89	.310	14	7	.00
JUL 07...	35	3	.02	.00	.02	.08	1.0	1.1	.390	11	0	.00
AUG 06...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 18...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 30...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 07...	1435	9	50	<1	0	0	90
MAR 10...	1410	5	80	<1	0	2	10
MAY 19...	1350	8	40	2	0	2	100
JUL 07...	1430	31	50	1	0	2	<10

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 07...	0	20	.1	0	0	5
MAR 10...	0	20	.0	0	0	6
MAY 19...	1	7	.0	0	0	8
JUL 07...	0	30	.0	0	0	<3



## RED RIVER BASIN

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	104.32	359	204	58	17	4.7	30	8.5	130
NOV.	1979	219.11	385	219	130	18	11	32	19	130
DEC.	1979	9900.81	197	111	2970	8.0	214	17	465	77
JAN.	1980	17134.1	154	87	4010	5.9	272	14	644	63
FEB.	1980	10981.0	197	111	3300	7.9	234	17	519	78
MAR.	1980	140.3	611	353	134	35	13	46	17	170
APR.	1980	4548.3	250	142	1740	11	140	21	258	89
MAY	1980	13932.4	153	86	3230	5.8	219	14	519	62
JUNE	1980	486.7	310	176	231	14	19	26	34	110
JULY	1980	23.91	278	157	10	12	0.8	24	1.5	100
AUG.	1980	0.90	310	176	0.4	14	0.03	26	0.06	110
SEPT	1980	2441.00	201	113	746	8.0	53	18	118	79
TOTAL		59912.85	**	**	16600	**	1180	**	2600	**
WTD. AVG.		164	182	102	**	7.3	**	16	**	71

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	366	392	424	238	262	457	716	277	379	236	280	---
2	372	318	420	248	274	468	711	240	389	249	300	---
3	376	362	414	254	285	480	744	124	396	258	313	---
4	380	364	408	260	290	488	763	186	402	264	326	---
5	384	350	400	266	295	496	755	192	408	272	333	---
6	388	348	390	270	304	501	764	201	414	281	341	---
7	389	346	384	280	322	509	780	214	422	288	349	---
8	390	356	374	290	285	519	779	230	428	296	352	---
9	394	358	358	294	188	526	783	247	432	304	364	---
10	398	362	346	295	161	533	782	308	439	312	369	---
11	400	368	340	296	187	541	780	325	446	320	365	---
12	402	372	338	300	196	544	770	346	453	329	364	---
13	405	380	320	304	224	553	680	350	461	338	---	---
14	406	350	418	310	254	564	190	356	466	340	---	---
15	404	410	524	314	270	570	169	283	470	347	---	---
16	400	428	566	318	289	576	205	123	476	355	---	---
17	390	434	488	322	304	594	227	141	480	368	---	---
18	372	440	454	346	316	607	246	160	485	370	---	---
19	370	448	460	334	322	614	262	171	490	381	---	---
20	362	454	470	282	344	620	278	196	432	387	---	---
21	346	444	456	214	352	624	291	225	304	401	---	---
22	348	458	420	158	369	626	304	301	237	428	---	---
23	350	464	302	137	381	628	316	264	350	448	---	---
24	352	480	188	136	390	629	327	286	203	454	---	---
25	356	490	153	154	399	630	334	303	176	---	---	---
26	345	492	175	162	410	631	331	318	177	---	---	---
27	350	480	190	183	422	632	372	330	190	---	---	---
28	358	466	199	197	430	615	241	340	204	332	---	---
29	360	436	208	210	447	608	245	350	214	152	---	225
30	368	414	222	236	---	830	259	359	225	202	---	186
31	354	---	232	290	---	702	---	365	---	251	---	---
MEAN	375	409	356	255	309	578	480	262	368	320	338	206

## RED RIVER BASIN

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07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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

## 07343000 NORTH SULPHUR RIVER NEAR COOPER, TX

LOCATION.--Lat 33°28'29", Long 95°35'15", Lamar County, Hydrologic Unit 11140301, on left bank at downstream side of highway embankment near left end of downstream bridge on State Highways 19 and 24, 2.3 mi (3.7 km) upstream from Auds Creek, 5.5 mi (8.8 km) upstream from Hickory Creek, 8.7 mi (14.0 km) northeast of Cooper, and 15.6 mi (25.1 km) upstream from mouth.

DRAINAGE AREA.--276 mi<sup>2</sup> (715 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 372.42 ft (113.51 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Nov. 8, 1949, nonrecording gage, Nov. 8, 1949, to May 21, 1960, water-stage recorder at site 50 ft (15 m) upstream at datum 9.00 ft (2.743 m) higher, and May 22, 1960, to Sept. 30, 1970, at datum 5.00 ft (1.524 m) higher.

REMARKS.--Water-discharge records good. In 1928-29, the channel was rectified for a distance of 28 mi (45 km) upstream and 18 mi (29 km) downstream from this station.

AVERAGE DISCHARGE.--31 years, 234 ft<sup>3</sup>/s (6.627 m<sup>3</sup>/s), 11.51 in/yr (292 mm/yr), 169,500 acre-ft/yr (209 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,600 ft<sup>3</sup>/s (2,570 m<sup>3</sup>/s) Oct. 19, 1971, gage height, 36.16 ft (11.022 m), from floodmarks; no flow at times most years.  
Maximum stage since at least 1915, that of Oct. 19, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 2, 1944, reached a stage of 35.6 ft (10.85 m), present datum, and flood in 1932 reached about same stage, from information by Corps of Engineers and local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,400 ft<sup>3</sup>/s (464 m<sup>3</sup>/s) Sept. 29 at 0900 hours, gage height, 17.20 ft (5.243 m), from graph based on daily observations of stage, no peak above base of 20,000 ft<sup>3</sup>/s (566 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	27	1.0	4.5	11	12	12	4.8	2.6	.00	.00	.00
2	.05	11	1.6	3.8	9.0	9.0	10	7.2	1.8	.00	.00	.00
3	.00	5.6	1.6	3.8	6.8	11	9.0	13	.80	.00	.00	.00
4	.00	3.5	1.0	3.2	5.2	11	7.2	6.8	.40	.00	.00	.00
5	.00	2.6	.80	2.4	4.8	9.5	6.8	4.8	.13	.00	.00	.00
6	.00	2.6	1.0	2.6	3.8	9.0	6.8	3.5	.08	.00	.00	.00
7	.00	2.4	1.3	2.1	2.9	9.0	7.7	2.4	.03	.00	.00	.00
8	.00	2.1	1.6	1.3	1720	9.0	6.0	2.1	.08	.00	.00	.00
9	.00	30	1.3	1.3	862	9.0	4.5	3.2	.40	.00	.00	.00
10	.00	18	1.0	1.3	284	9.0	3.8	2.4	.24	.00	.00	.00
11	.00	11	1.3	2.1	337	8.6	4.8	1.6	.05	.00	.00	.00
12	.00	6.4	9.2	1.3	388	17	6.4	1.6	.00	.00	.00	.00
13	.00	4.1	103	1.0	133	17	180	2.6	.00	.00	.00	.00
14	.00	2.9	37	.80	81	11	183	1.6	.00	.00	.00	.00
15	.00	2.4	17	1.0	62	8.6	41	893	.00	.00	.00	.00
16	.00	1.8	10	2.1	47	8.1	20	1830	.00	.00	.00	.00
17	8.1	1.6	6.0	2.9	30	8.6	14	72	.00	.00	.00	.00
18	9.5	1.6	4.5	2.0	32	6.4	11	18	.00	.00	.00	.00
19	5.2	2.1	4.5	7.5	29	6.4	9.5	144	.00	.00	.00	.00
20	2.9	2.1	4.8	55	25	6.8	9.0	22	5.2	.00	.00	.00
21	1.8	5.6	4.8	144	22	5.2	7.7	337	7.7	.00	.00	.00
22	4.8	5.2	180	1950	18	4.8	6.4	280	2.6	.00	.00	.00
23	5.2	4.1	4420	114	16	6.0	6.0	42	4.1	.00	.00	.00
24	3.5	2.9	790	32	15	6.4	6.4	16	1.8	.00	.00	.00
25	2.4	2.4	76	15	14	5.2	8.6	10	.58	.00	.00	.00
26	1.6	1.8	28	9.5	12	5.6	17	6.8	.00	.00	.00	.00
27	1.3	1.0	16	6.8	12	7.7	14	4.5	.00	.00	.00	.00
28	1.0	.40	11	5.6	13	25	9.0	3.8	.00	.00	.00	345
29	.58	.58	8.1	22	12	29	6.4	16	.00	.00	.00	8750
30	223	.58	6.8	30	---	31	4.8	7.2	.00	.00	.00	282
31	180	---	5.2	22	---	18	---	4.5	---	.00	.00	---
TOTAL	451.06	165.36	5755.40	2452.90	4207.5	339.9	638.8	3764.4	28.59	.00	.00	9377.00
MEAN	14.6	5.51	186	79.1	145	11.0	21.3	121	.95	.000	.000	313
MAX	223	30	4420	1950	1720	31	183	1830	7.7	.00	.00	8750
MIN	.00	.40	.80	.80	2.9	4.8	3.8	1.6	.00	.000	.000	.00
CFSM	.05	.02	.67	.29	.53	.04	.08	.44	.003	.000	.000	1.13
IN.	.06	.02	.78	.33	.57	.05	.09	.51	.00	.00	.00	1.26
AC-FT	895	328	11420	4870	8350	674	1270	7470	57	.00	.00	18600
CAL YR 1979	TOTAL	91686.68	MEAN	251	MAX	13500	MIN	.00	CFSM	.91	IN	12.36
WTR YR 1980	TOTAL	27180.91	MEAN	74.3	MAX	8750	MIN	.00	CFSM	.27	IN	3.66
									AC-FT			181900
									AC-FT			53910

## RED RIVER BASIN

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07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to current year.

WATER TEMPERATURES: October 1968 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,290 micromhos Sept. 17, 1969; minimum daily, 191 micromhos Oct. 12, Dec. 10, 1971.

WATER TEMPERATURES: Maximum daily, 39.0°C June 1, 1977; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,510 micromhos Oct. 23; minimum daily, 294 micromhos Sept. 29.

WATER TEMPERATURES: Maximum daily, 30.0°C June 6; minimum daily, 1.0°C Feb. 10, 11, 17, Mar. 2.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L 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...	0800	4.5	1430	19.0	390	300	130	17	150
NOV 30...	0830	.95	1200	4.0	360	230	120	15	120
DEC 31...	0800	7.2	730	6.0	260	70	91	7.7	50
JAN 19...	0700	.03	916	10.0	270	140	91	11	88
APR 14...	1700	111	685	16.0	230	120	80	8.2	47
MAY 19...	1700	95	360	27.5	130	31	46	3.6	18
JUN 30...	1400	.79	1350	31.0	340	260	110	16	150

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 22...	3.3	4.6	110	0	430	130	.4	3.2	919
NOV 30...	2.7	3.7	160	0	340	95	.3	1.5	774
DEC 31...	1.4	3.3	230	0	150	31	.3	7.8	454
JAN 19...	2.3	3.2	160	0	250	66	.4	2.1	591
APR 14...	1.3	3.6	140	0	160	31	.3	6.6	406
MAY 19...	.7	3.9	120	0	49	10	.4	8.0	198
JUN 30...	3.5	5.5	94	0	410	130	.6	3.1	872

## RED RIVER BASIN

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	451.06	563	342	416	34	41	120	149	180
NOV.	1979	165.36	800	491	219	52	23	180	80	260
DEC.	1979	5755.40	362	215	3350	17	266	73	1130	120
JAN.	1980	2452.90	435	260	1720	21	141	88	585	150
FEB.	1980	4207.5	388	231	2620	19	211	78	889	130
MAR.	1980	339.9	952	590	541	68	62	220	202	300
APR.	1980	638.8	787	483	832	51	88	180	304	250
MAY	1980	3764.4	473	284	2880	24	247	98	992	160
JUNE	1980	28.59	1230	782	60	100	8.1	310	24	370
JULY	1980	0.00	*	*	0.00	*	0.00	*	0.00	*
AUG.	1980	0.00	*	*	0.00	*	0.00	*	0.00	*
SEPT	1980	9377.00	332	198	5010	16	403	67	1700	110
TOTAL		27180.91	**	**	17700	**	1490	**	6050	**
WTD. AVG.		74	402	241	**	20	**	82	**	130

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	654	1210	750	674	834	1070	1060	766			---
2	1070	734	1230	794	753	870	1090	1070	854			---
3	---	754	1250	830	781	898	1100	1100	922			---
4	---	806	1290	838	816	914	1110	1120	986			---
5	---	856	1310	854	827	943	1120	1140	1040			---
6	---	914	1320	868	826	937	1110	1200	1080			---
7	---	956	1330	886	825	944	1120	1250	1090			---
8	---	996	1350	894	300	959	1130	1320	1180			---
9	---	600	1370	910	332	949	1140	1360	1240			---
10	---	732	1400	915	399	960	1160	1370	1280			---
11	---	828	1420	918	458	973	1170	1410	1230			---
12	---	872	1300	908	420	965	1220	1440	---			---
13	---	882	680	915	453	929	700	1460	---			---
14	---	906	906	922	539	905	639	1440	---			---
15	---	920	1090	938	601	926	769	600	---			---
16	---	942	1080	925	653	974	805	443	---			---
17	1360	968	1120	918	689	1010	833	461	---			---
18	1250	998	1100	916	745	1030	842	550	---			---
19	1310	1060	1100	875	767	1020	838	413	---			---
20	1420	1070	1070	576	782	1040	853	460	1490			---
21	1440	1050	1100	544	786	1060	888	300	1300			---
22	1430	1080	774	406	773	1080	902	325	1230			---
23	1510	1100	328	358	776	1100	936	451	1310			---
24	1420	1110	298	436	778	1110	969	545	1300			---
25	1400	1110	378	530	788	1120	988	565	1280			---
26	1390	1120	474	602	802	1110	942	583	---			---
27	1400	1100	530	662	824	1120	864	655	---			---
28	1410	1130	594	710	848	950	928	729	---			1250
29	1420	1180	644	675	849	917	971	700	---			294
30	500	1200	688	664	---	852	1020	705	---			394
31	424	---	730	632	---	950	---	707	---			---
MEAN	1250	954	983	760	685	979	974	869	1150			646

## RED RIVER BASIN

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07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	12.0	4.0	---	2.0	8.0	15.0	20.0	26.0			---
2	26.0	14.0	4.0	6.0	2.0	1.0	17.0	21.0	25.0			---
3	---	12.0	5.0	8.0	4.0	4.0	17.0	20.0	25.0			---
4	---	11.0	5.0	5.0	4.0	9.0	15.0	21.0	25.0			---
5	---	12.0	7.0	3.0	6.0	4.0	15.0	22.0	25.0			---
6	---	11.0	8.0	6.0	7.0	8.0	19.0	22.0	30.0			---
7	---	10.0	---	5.0	6.0	15.0	18.0	23.0	26.0			---
8	---	11.0	8.0	4.0	4.0	16.0	15.0	24.0	28.0			---
9	---	14.0	7.0	8.0	4.0	14.0	14.0	18.0	23.0			---
10	---	10.0	9.0	10.0	1.0	15.0	14.0	19.0	23.0			---
11	---	9.0	14.0	10.0	1.0	14.0	17.0	22.0	24.0			---
12	---	9.0	8.0	8.0	4.0	10.0	14.0	23.0	---			---
13	---	8.0	5.0	---	5.0	13.0	10.0	24.0	---			---
14	---	8.0	8.0	7.0	8.0	8.0	7.0	20.0	---			---
15	---	9.0	6.0	10.0	12.0	10.0	10.0	20.0	---			---
16	---	9.0	7.0	14.0	7.0	15.0	15.0	18.0	---			---
17	21.0	10.0	3.0	11.0	1.0	14.0	17.0	22.0	---			---
18	20.0	14.0	4.0	9.0	5.0	14.0	15.0	24.0	---			---
19	21.0	14.0	5.0	10.0	9.0	15.0	16.0	19.0	---			---
20	22.0	---	8.0	12.0	12.0	20.0	18.0	22.0	25.0			---
21	23.0	---	11.0	9.0	15.0	12.0	21.0	22.0	25.0			---
22	19.0	---	15.0	9.0	14.0	15.0	20.0	18.0	28.0			---
23	15.0	---	12.0	6.0	18.0	9.0	22.0	20.0	25.0			---
24	15.0	10.0	10.0	6.0	12.0	12.0	22.0	22.0	27.0			---
25	17.0	9.0	9.0	8.0	9.0	12.0	20.0	---	27.0			---
26	15.0	9.0	12.0	9.0	6.0	14.0	16.0	25.0	---			---
27	17.0	12.0	11.0	5.0	7.0	14.0	14.0	27.0	---			---
28	20.0	8.0	11.0	4.0	12.0	12.0	25.0	26.0	---			15.0
29	20.0	6.0	11.0	4.0	14.0	15.0	27.0	24.0	---			16.0
30	20.0	4.0	9.0	3.0	---	16.0	25.0	24.0	---			22.0
31	13.0	---	6.0	2.0	---	12.0	---	25.0	---			---
MEAN	19.5	10.0	8.0	7.5	7.5	12.0	17.0	22.0	25.5			17.5



## RED RIVER BASIN

07343200 SULPHUR RIVER NEAR TALCO, TX

LOCATION.--Lat 33°23'10", long 95°07'56", Franklin County, Hydrologic Unit 11140302, on downstream side of highway embankment near right end of bridge on U.S. Highway 271, 2.2 mi (3.5 km) northwest of Talco, 3.2 mi (5.1 km) downstream from Mustang Creek, and 162 mi (261 km) upstream from mouth.

DRAINAGE AREA.--1,365 mi<sup>2</sup> (3,535 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WDR TX-76-1(P).

GAGE.--Water-stage recorder. Datum of gage is 290.82 ft (88.642 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those below 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s), which are fair. River Crest Electric Generating Plant diverted 55 acre-ft (67,800 m<sup>3</sup>) for cooling purposes upstream from this station during the current year. Flow is affected at times by discharge from flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 8,210 acre-ft (10.1 hm<sup>3</sup>). These structures control runoff from 23.4 mi<sup>2</sup> (60.6 km<sup>2</sup>) in the Auds and Deport Creek drainage basins.

AVERAGE DISCHARGE.--24 years, 1,416 ft<sup>3</sup>/s (40.10 m<sup>3</sup>/s), 14.09 in/yr (358 mm/yr), 1,026,000 acre-ft/yr (1.27 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 77,000 ft<sup>3</sup>/s (2,180 m<sup>3</sup>/s) Dec. 11, 1971, gage height, 29.40 ft (8.961 m), from floodmark; no flow at times in 1957, 1964-65, 1970, and 1979-80.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1908 and 1914 each reached a stage of 27.5 ft (8.38 m), and flood in 1945 reached a stage of 26.5 ft (8.08 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 15,000 ft<sup>3</sup>/s (425 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Dec. 24	2200	*18,000 510	23.28 7.096	Feb. 9	1830	16,300 462	23.04 7.023
Jan. 23	1300	16,500 467	23.08 7.035	May 17	1400	16,100 456	23.02 7.016

Minimum discharge, 0.04 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Sept. 4-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	292	6.7	113	427	38	152	94	39	8.3	.66	.05
2	4.7	158	6.4	84	315	36	99	66	28	4.0	.22	.04
3	4.0	111	6.0	68	237	34	67	171	16	3.8	.08	.04
4	3.2	63	5.3	56	182	30	48	1310	9.6	3.4	.06	.04
5	2.7	39	5.0	48	147	29	36	770	7.5	1.7	.06	.04
6	2.4	26	4.7	43	127	29	27	248	3.8	.85	.06	.04
7	1.9	16	4.6	38	109	27	20	123	3.1	.56	.05	.04
8	1.3	11	4.6	35	740	24	15	84	3.8	.38	.05	.04
9	1.3	9.8	4.2	31	11600	21	12	63	31	.28	.06	.04
10	1.1	8.8	5.2	29	13600	22	11	55	185	.23	.06	.04
11	1.3	33	8.6	27	9680	22	8.6	43	141	.19	.05	.04
12	1.4	36	26	27	7870	22	7.3	33	48	.21	.05	.04
13	1.1	24	49	27	4120	21	326	25	17	.26	.06	.05
14	.88	14	248	24	1140	32	6140	19	6.9	.27	.07	.04
15	.82	9.5	223	22	552	36	9960	21	3.4	.29	.07	.04
16	.82	7.0	145	21	370	31	4980	3820	1.4	.33	.06	.05
17	.97	6.1	98	20	269	24	1150	14900	.77	.35	.06	.06
18	1.1	6.8	61	20	204	20	382	13500	.58	.35	.06	.08
19	1.3	7.4	41	20	169	20	196	10200	.72	.36	.06	.11
20	2.5	7.4	32	284	143	18	127	6470	3.0	.30	.06	.10
21	4.1	11	24	2050	123	16	88	1220	485	.24	.05	.10
22	5.3	12	776	6160	104	16	69	1740	862	.34	.05	.09
23	5.8	11	3280	14900	86	15	55	1510	576	.38	.05	.09
24	5.8	11	12200	13800	73	13	44	487	380	.41	.05	.09
25	6.9	11	15200	11800	62	11	39	230	310	.39	.05	.09
26	6.6	11	9710	8930	54	11	75	147	169	.40	.04	.10
27	6.7	10	5630	2550	48	12	141	100	80	.36	.04	.13
28	6.4	9.1	1410	451	44	16	361	67	41	.61	.04	.43
29	5.6	8.3	412	346	41	65	247	46	30	1.3	.07	909
30	5.8	7.3	260	376	---	143	140	39	20	1.4	.09	8200
31	148	---	160	503	---	249	---	42	---	1.2	.05	---
TOTAL	247.19	987.5	50046.3	62903	52636	1103	25022.9	57643	3502.57	33.44	2.54	9111.14
MEAN	7.97	32.9	1614	2029	1815	35.6	834	1859	117	1.08	.082	304
MAX	148	292	15200	14900	13600	249	9960	14900	862	8.3	.66	8200
MIN	.82	6.1	4.2	20	41	11	7.3	19	.58	.19	.04	.04
CFSM	.006	.02	1.18	1.49	1.33	.03	.61	1.36	.09	.001	.000	.22
IN.	.01	.03	1.36	1.71	1.43	.03	.68	1.57	.10	.00	.00	.25
AC-FT	490	1960	99270	124800	104400	2190	49630	114300	6950	66	5.0	18070
CAL YR 1979	TOTAL	704488.39	MEAN	1930	MAX	26800	MIN	.82	AC-FT	1397000		
WTR YR 1980	TOTAL	263238.58	MEAN	719	MAX	15200	MIN	.04	AC-FT	522100		

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,800 micromhos Feb. 17, 1976; minimum daily, 100 micromhos Sept. 11, 1974.

WATER TEMPERATURES: Maximum daily, 38.0°C Aug. 15, 1975; minimum daily, 0.0°C on several days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,100 micromhos Mar. 26, 27; minimum daily, 161 micromhos Jan 25.  
WATER TEMPERATURES: Maximum daily, 34.0°C July 10; minimum daily, 1.0°C Feb. 11.

[illegible]

## RED RIVER BASIN

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 07...	1650	3	70	<1	0	0	70
MAR 13...	0930	1	100	<1	0	2	<10
MAY 22...	0935	5	50	0	0	1	30
JUL 10...	1000	5	100	1	0	1	<10

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 07...	2	80	.1	0	0	3
MAR 13...	0	90	.0	1	0	<3
MAY 22...	1	10	.0	0	0	10
JUL 10...	0	170	.0	0	1	<3

DATE	TIME	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR 13...	0930	.0	0	.00	.00	.0	.0	0	.00	7.6	.00	14
JUL 10...	1000	.0	0	.00	.00	.0	.0	0	.00	<6.6	.00	<19

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL (UG/L)
MAR 13...	.00	5.5	.00	--	.00	.7	.00	.00	.00	.1	.00	--	.00
JUL 10...	.00	<1.6	.00	.0	.00	3.0	.00	.00	.00	.0	.00	.0	.00

DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METHYL TRI- THION, TOTAL (UG/L)
MAR 13...	.0	.00	.0	.00	.1	.00	--	.00	.0	.00	--	.00
JUL 10...	.0	.00	.0	.00	.0	.00	.0	.00	.7	.00	.0	.00

DATE	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, TOTAL (UG/L)	TOX- APHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL (UG/L)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR 13...	--	.00	.00	--	0	0	.00	--	.02	.00	.00	--	.00
JUL 10...	.0	.00	.00	.0	0	<10	.00	.0	--	--	--	--	--

## 07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	247.19	633	374	249	34	23	86	57	220
NOV.	1979	987.5	602	355	948	33	87	82	219	210
DEC.	1979	50046.3	247	142	19200	7.9	1070	26	3530	92
JAN.	1980	62903	204	117	19900	5.8	979	20	3480	77
FEB.	1980	52636	241	138	19700	7.3	1040	25	3530	90
MAR.	1980	1103	838	502	1490	56	168	130	386	280
APR.	1980	25022.9	270	156	10500	9.0	611	29	1960	100
MAY	1980	57643	254	147	22800	8.3	1290	27	4210	95
JUNE	1980	3502.57	301	174	1640	10	98	33	310	110
JULY	1980	33.44	468	273	25	21	1.9	58	5.2	170
AUG.	1980	2.54	641	379	2.6	36	0.2	89	0.6	220
SEPT	1980	9111.14	314	182	4490	12	295	36	882	120
TOTAL		263238.58	**	**	101000	**	5670	**	18600	**
WTD. AVG.		719	247	142	**	8.0	**	26	**	92

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	538	816	818	310	345	674	608	463	449	381	513	891
2	500	474	816	338	346	692	450	427	465	402	529	795
3	514	432	822	360	347	706	541	350	480	404	551	828
4	490	422	832	382	371	721	606	200	506	416	550	788
5	516	426	842	410	385	739	669	189	514	433	562	893
6	540	416	852	430	421	742	688	253	519	448	577	918
7	500	422	858	454	452	765	715	277	519	464	575	916
8	504	454	860	472	415	786	723	296	492	484	544	919
9	574	480	860	492	272	804	725	319	498	513	584	847
10	518	510	860	508	216	828	732	334	449	525	577	933
11	514	504	854	534	188	844	754	356	358	540	592	938
12	580	452	650	550	212	816	768	378	281	565	608	926
13	630	550	484	562	248	858	704	406	323	580	619	935
14	552	604	784	582	261	878	345	430	354	602	596	942
15	556	612	802	610	272	921	215	443	370	608	677	943
16	542	602	444	626	292	930	197	599	393	622	710	944
17	646	602	438	642	316	982	239	254	411	641	736	933
18	580	618	458	666	358	971	265	197	431	610	760	936
19	652	652	432	692	399	949	286	202	465	668	782	940
20	616	700	582	550	421	1000	319	234	502	678	726	958
21	664	708	1040	258	457	988	346	271	350	696	791	966
22	586	726	646	248	493	984	372	293	272	702	816	960
23	616	738	238	232	531	1030	400	264	227	722	825	964
24	608	746	298	180	565	1060	427	271	217	727	839	970
25	578	742	216	161	593	1080	457	291	303	737	847	975
26	574	746	192	170	611	1100	380	311	295	722	843	978
27	560	756	199	189	640	1100	454	339	380	769	854	980
28	616	764	226	236	643	1070	459	375	409	781	857	962
29	682	772	246	252	664	962	361	394	391	541	865	750
30	640	788	254	272	---	589	364	418	384	492	889	266
31	668	---	280	342	---	899	---	425	---	507	914	---
MEAN	576	608	587	410	405	886	486	331	400	580	700	896

## RED RIVER BASIN

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	13.0	5.0	7.0	3.0	9.0	14.0	19.0	25.5	29.0	27.0	26.5
2	20.5	13.0	5.0	7.0	3.0	8.0	16.0	20.0	25.0	29.0	27.0	26.5
3	20.0	12.0	4.0	8.0	3.0	5.0	20.0	19.0	26.0	29.0	28.0	26.0
4	19.0	12.0	5.0	6.0	3.0	4.0	15.0	20.0	26.0	29.0	28.0	26.0
5	17.0	12.0	6.0	9.0	4.0	9.0	16.0	19.0	26.5	29.0	28.0	26.0
6	17.0	11.5	7.0	6.0	4.0	9.0	18.0	20.0	27.0	29.0	28.0	26.0
7	17.0	10.0	6.0	6.0	5.0	13.0	14.0	21.0	28.0	29.0	28.0	26.0
8	19.0	11.0	7.0	6.0	5.0	13.5	18.0	21.0	28.0	31.0	27.0	26.0
9	20.0	14.0	7.0	5.0	4.0	12.0	18.0	19.0	24.0	33.0	27.0	26.0
10	16.0	11.0	8.0	7.0	2.0	13.0	17.5	20.0	23.0	34.0	27.0	25.0
11	16.0	11.0	11.0	9.0	1.0	14.0	19.0	23.0	23.0	30.0	27.0	25.0
12	16.0	10.0	9.0	7.0	2.0	13.0	16.0	22.0	24.0	30.0	28.0	25.0
13	18.0	9.0	7.0	6.0	3.0	13.0	13.0	23.0	24.0	29.0	27.0	25.0
14	16.0	9.0	7.0	6.0	6.0	12.0	8.0	22.0	25.0	30.0	27.0	25.0
15	15.0	8.0	5.0	10.0	9.0	13.0	10.0	21.0	27.0	29.0	27.0	25.0
16	17.0	8.0	6.0	12.0	7.0	16.0	13.0	20.0	27.0	28.0	27.0	25.0
17	18.0	8.0	4.0	10.0	5.0	14.0	15.0	20.0	27.0	27.0	27.0	25.0
18	18.0	11.0	4.0	9.0	5.0	13.0	16.0	22.0	27.0	28.0	27.0	25.0
19	18.0	9.0	4.0	11.0	7.0	13.0	17.0	22.0	29.0	28.0	27.0	24.0
20	20.0	15.0	6.0	11.0	8.0	15.0	19.0	22.0	26.0	28.0	27.0	24.0
21	22.0	17.0	9.0	10.0	11.0	13.0	19.0	22.0	25.0	30.0	27.0	26.0
22	20.0	12.0	12.0	9.0	11.0	13.0	20.0	22.0	25.0	29.0	28.0	26.0
23	16.0	10.0	15.0	6.0	12.0	15.0	20.0	20.0	25.0	27.0	28.0	26.0
24	15.0	10.0	10.5	6.0	12.0	13.0	22.0	22.0	25.0	26.0	27.0	25.0
25	15.0	9.0	9.5	7.0	10.0	13.0	21.0	23.0	26.5	27.0	27.0	25.0
26	15.0	9.0	9.0	8.0	9.0	13.0	17.0	23.0	28.0	28.0	26.5	24.0
27	15.0	12.0	10.0	7.0	9.0	14.0	18.0	24.5	29.0	27.0	28.0	20.0
28	18.0	10.0	11.0	6.0	11.0	13.5	17.0	25.0	29.0	25.0	25.0	18.0
29	18.0	8.0	10.0	5.0	12.0	15.0	17.0	25.0	29.0	26.0	24.5	18.0
30	19.0	5.0	10.0	4.0	---	13.0	17.0	25.0	29.0	27.0	24.0	17.0
31	15.0	---	7.0	3.0	---	12.0	---	25.0	---	27.0	25.0	---
MEAN	17.5	10.5	7.5	7.5	6.5	12.0	16.5	21.5	26.5	28.5	27.0	24.5

## RED RIVER BASIN

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07343460 LAKE SULPHUR SPRINGS NEAR SULPHUR SPRINGS, TX

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS $\text{CaCO}_3$ )	HARDNESS, NONCARBONATE (MG/L $\text{CaCO}_3$ )	CALCIUM DIS-SOLVED (MG/L AS $\text{Ca}$ )	MAGNESIUM DIS-SOLVED (MG/L AS $\text{Mg}$ )	SODIUM, DIS-SOLVED (MG/L AS $\text{Na}$ )	SODIUM ADSORPTION RATIO
MAR 13...	1230	70	14.0	23	3	5.8	2.0	3.5	.3
JUL 10...	1240	83	33.0	29	6	7.1	2.7	4.2	.3

DATE	POTASSIUM, DIS-SOLVED (MG/L AS $\text{K}$ )	BICARBONATE (MG/L AS $\text{HCO}_3$ )	CARBONATE (MG/L AS $\text{CO}_3$ )	SULFATE DIS-SOLVED (MG/L AS $\text{SO}_4$ )	CHLORIDE, DIS-SOLVED (MG/L AS $\text{Cl}$ )	FLUORIDE, DIS-SOLVED (MG/L AS $\text{F}$ )	SILICA, DIS-SOLVED (MG/L AS $\text{SiO}_2$ )	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
MAR 13...	3.7	24	0	9.8	3.9	.1	6.5	47
JUL 10...	4.5	28	0	16	3.9	.2	25	77



## RED RIVER BASIN

## 07343500 WHITE OAK CREEK NEAR TALCO, TX

LOCATION.--Lat 33°19'20", long 95°05'33", Titus County, Hydrologic Unit 11140303, near center of main channel on downstream side of bridge on U.S. Highway 271, 0.8 mi (1.3 km) downstream from Lewis Creek, 2.4 mi (3.9 km) upstream from Ripley Creek, 2.7 mi (4.3 km) south of Talco, and 38.4 mi (61.8 km) upstream from mouth.

DRAINAGE AREA.--494 mi<sup>2</sup> (1,279 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder. Datum of gage is 286.45 ft (87.310 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Several small diversions above station for municipal supply. Records furnished by the cities of Sulphur Springs and Mount Vernon show that during the year, 1,210 acre-ft (1.49 hm<sup>3</sup>) and 1,130 acre-ft (1.39 hm<sup>3</sup>), respectively, were discharged into tributaries above this station.

AVERAGE DISCHARGE.--30 years (water years 1951-80), 451 ft<sup>3</sup>/s (12.77 m<sup>3</sup>/s), 12.40 in/yr (315 mm/yr), 326,700 acre-ft/yr (403 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft<sup>3</sup>/s (1,360 m<sup>3</sup>/s) Dec. 11, 1971, gage height, 21.20 ft (6.462 m), from rating curve extended above 23,000 ft<sup>3</sup>/s (651 m<sup>3</sup>/s); no flow at times in 1954, 1956, 1964-65, 1969-73, 1976, and 1978-79.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, 22.9 ft (6.98 m) Mar. 31, 1945, from floodmarks and from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 34,600 ft<sup>3</sup>/s (980 m<sup>3</sup>/s) Jan. 24 at 0730 hours, gage height, 19.86 ft (6.053 m), no other peak above base of 9,000 ft<sup>3</sup>/s (255 m<sup>3</sup>/s); minimum, 0.13 ft<sup>3</sup>/s (0.004 m<sup>3</sup>/s) Sept. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	175	5.8	197	691	45	614	175	22	13	395	1.0
2	4.5	168	4.3	130	643	43	428	96	20	10	186	.68
3	3.5	186	3.4	102	446	41	182	132	18	8.6	45	.66
4	2.9	101	2.6	87	253	38	89	221	16	7.0	19	.78
5	2.6	44	2.1	76	181	34	59	392	14	6.1	11	.68
6	2.2	20	1.8	67	153	31	45	533	14	5.8	7.6	.55
7	1.9	11	1.5	61	137	31	36	551	13	5.1	5.8	.41
8	1.5	7.0	1.4	52	435	33	30	338	26	4.6	5.1	.29
9	1.3	5.5	1.5	46	1550	32	26	252	112	4.4	4.1	.27
10	1.1	6.2	1.9	45	2620	29	23	210	47	4.3	3.3	.32
11	.94	43	2.2	46	4070	30	25	164	18	4.1	2.8	.37
12	.82	144	25	42	4110	35	34	143	13	3.9	2.5	.35
13	.65	122	483	39	2980	37	235	118	11	3.4	2.1	.30
14	.43	56	746	39	2020	45	1450	122	9.7	2.4	1.7	.24
15	.33	26	802	40	1230	61	2680	181	8.6	1.6	1.4	.21
16	.31	14	753	38	608	63	5010	512	8.1	1.0	1.1	.16
17	1.1	8.8	723	34	319	47	4190	888	7.5	.71	.86	.17
18	2.8	6.4	459	35	229	34	2770	1330	7.2	.56	.72	1.1
19	1.6	4.7	163	44	185	30	1690	2570	6.8	.45	.62	5.0
20	.98	3.6	73	120	152	32	646	6430	23	.34	.52	4.7
21	.64	24	47	1430	130	31	226	5220	95	.30	.48	4.9
22	8.5	71	270	9920	118	28	132	3940	265	.76	.48	3.0
23	16	70	1050	27600	106	24	94	2230	443	1.4	.34	2.0
24	11	106	2430	31700	92	22	77	993	564	1.3	.30	6.4
25	6.7	120	5350	16000	80	21	81	344	667	1.2	.27	10
26	4.1	70	5290	5940	69	21	235	129	535	3.8	.23	7.7
27	2.4	37	4640	2670	60	21	374	68	194	16	.20	6.4
28	1.9	21	3360	1530	54	28	480	47	56	13	.20	16
29	1.4	13	2230	682	48	82	442	36	28	9.8	.21	101
30	1.9	8.3	1270	475	---	404	300	29	19	141	.23	235
31	99	---	472	607	---	602	---	25	---	341	.87	---
TOTAL	191.00	1692.5	30664.5	99894	23769	2055	22703	28419	3280.9	616.92	700.03	410.64
MEAN	6.16	56.4	989	3222	820	66.3	757	917	109	19.9	22.6	13.7
MAX	99	186	5350	31700	4110	602	5010	6430	667	341	395	235
MIN	.31	3.6	1.4	34	48	21	23	25	6.8	.30	.20	.16
CFSM	.01	.11	2.00	6.52	1.66	.13	1.53	1.86	.22	.04	.05	.03
IN.	.01	.13	2.31	7.52	1.79	.15	1.71	2.14	.25	.05	.05	.03
AC-FT	379	3360	60820	198100	47150	4080	45030	56370	6510	1220	1390	815
CAL YR 1979	TOTAL	206765.04	MEAN	566	MAX	13200	MIN	.17	AC-FT	410100		
WTR YR 1980	TOTAL	214396.49	MEAN	586	MAX	31700	MIN	.16	AC-FT	425300		

## RED RIVER BASIN

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07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURES: October 1967 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,220 micromhos June 15, 1972; minimum daily, 33 micromhos May 16, 1969.

WATER TEMPERATURES: Maximum daily, 37.0°C July 18, Aug. 3, 15, 1975; minimum daily, 0.0°C on several days during January 1968, 1970, and 1978.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 688 micromhos Mar 16; minimum daily, 75 micromhos Jan. 24.

WATER TEMPERATURES: Maximum daily, 36.0°C July 10; minimum daily, 1.0°C Feb. 11.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 04...	0840	108	230	13.0	53	13	13	4.9	18
DEC 26...	0815	5220	92	9.0	25	5	5.9	2.6	5.6
JAN 18...	0810	33	412	10.0	96	51	22	10	38
MAR 31...	0750	581	365	12.0	83	50	19	8.6	39
APR 16...	1725	5220	89	16.5	24	9	5.9	2.3	5.6
MAY 07...	0815	582	152	21.0	39	11	9.4	3.7	12
JUN 18...	0745	3.8	574	27.0	140	65	34	14	67
JUL 31...	0800	323	65	25.0	18	2	4.3	1.8	4.3
AUG 22...	0735	.48	225	28.0	64	8	15	6.4	18

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
NOV 04...	1.1	10	48	0	33	21	.2	9.8	134
DEC 26...	.5	6.5	25	0	14	7.0	.1	7.3	61
JAN 18...	1.7	6.6	55	0	81	40	.2	12	237
MAR 31...	1.9	5.8	40	0	91	39	.2	7.6	230
APR 16...	.5	4.0	18	0	14	7.2	.1	5.3	53
MAY 07...	.8	5.6	34	0	23	12	.1	7.9	90
JUN 18...	2.4	7.6	94	0	110	64	.4	13	356
JUL 31...	.4	5.2	20	0	11	4.9	.1	6.9	48
AUG 22...	1.0	7.3	68	0	28	19	.2	11	138

## RED RIVER BASIN

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1979	191.00	249	153	79	23	12	38	19	61
NOV.	1979	1692.5	225	137	627	20	92	35	158	57
DEC.	1979	30664.5	103	62	5130	6.9	573	17	1430	29
JAN.	1980	99894	88	53	14200	5.7	1540	15	3980	25
FEB.	1980	23769	131	79	5090	10	643	21	1360	35
MAR.	1980	2055	503	319	1770	73	404	61	340	93
APR.	1980	22703	134	82	5000	11	653	22	1320	36
MAY	1980	28419	116	70	5350	8.2	628	19	1470	32
JUNE	1980	3280.9	207	127	1130	20	178	31	275	50
JULY	1980	616.92	215	132	219	21	34	32	54	52
AUG.	1980	700.03	108	65	122	7.2	14	18	34	30
SEPT	1980	410.64	389	244	270	48	53	52	58	82
TOTAL		214396.49	**	**	39000	**	4830	**	10500	**
WTD. AVG.		586	111	67	**	8.3	**	18	**	30

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	194	146	266	180	224	402	258	224	373	204	102	247
2	198	234	270	204	206	416	242	218	397	214	95	250
3	200	292	273	232	208	429	252	230	428	224	123	253
4	202	230	275	252	221	441	264	220	453	234	132	255
5	206	232	276	270	242	454	291	190	474	241	142	259
6	210	234	280	282	268	471	322	150	498	250	148	264
7	214	246	286	296	299	483	347	152	515	257	155	267
8	224	250	290	314	250	490	372	161	532	268	161	270
9	230	254	296	332	109	515	398	156	400	275	169	275
10	232	262	300	346	103	525	429	176	424	284	174	278
11	242	268	306	362	95	530	453	200	289	289	181	281
12	250	200	275	384	90	540	481	205	311	296	186	285
13	258	210	183	390	100	620	400	251	426	301	191	288
14	260	240	162	404	109	544	156	253	473	308	195	292
15	262	242	161	384	131	577	109	300	506	312	200	294
16	266	248	147	410	161	688	86	197	546	316	205	296
17	272	254	154	416	205	598	89	150	567	318	208	298
18	274	258	158	412	238	584	96	117	574	321	213	300
19	286	262	169	432	258	611	116	97	588	325	215	294
20	290	264	182	400	285	631	145	88	572	329	222	302
21	294	256	197	136	295	647	198	93	338	333	224	330
22	294	242	178	120	311	648	233	98	294	334	227	354
23	296	178	118	80	328	646	264	116	250	334	231	356
24	332	206	90	75	348	630	290	134	169	338	232	350
25	306	216	84	76	357	638	310	161	106	341	235	334
26	314	238	92	77	371	648	350	195	119	344	236	310
27	320	246	91	82	378	662	317	225	147	400	236	309
28	324	252	89	103	388	655	260	253	168	384	238	299
29	336	256	93	135	393	654	232	283	181	425	240	550
30	352	260	112	189	---	550	231	311	194	350	244	345
31	225	---	140	244	---	365	---	342	---	125	245	---
MEAN	263	239	193	259	240	558	266	192	377	299	194	303

## RED RIVER BASIN

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07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	14.0	5.0	7.0	4.0	9.0	14.0	19.0	25.5	29.0	26.0	26.0
2	20.0	13.0	5.0	7.0	3.0	8.0	16.0	20.0	25.5	29.0	27.0	26.5
3	20.0	13.0	4.0	8.0	3.0	5.0	20.0	19.0	26.0	29.0	28.0	26.0
4	19.0	13.0	5.0	6.0	3.0	9.0	16.0	20.0	26.0	29.0	28.0	26.0
5	---	12.0	6.0	9.0	4.5	9.0	16.0	19.0	26.5	29.0	28.0	26.0
6	17.0	12.0	7.0	6.0	4.5	9.0	18.0	20.0	27.0	29.0	28.0	26.0
7	17.0	11.0	6.0	6.0	5.0	13.0	19.0	21.0	28.0	29.0	28.0	26.0
8	19.0	11.0	7.0	6.0	5.0	13.5	18.0	21.0	28.0	32.0	27.0	26.0
9	20.0	14.0	7.0	5.0	4.0	12.0	18.0	19.0	24.0	33.0	27.0	26.0
10	16.5	11.0	8.0	7.0	2.5	13.0	18.0	20.0	23.5	36.0	27.0	26.0
11	16.0	11.0	11.0	8.5	1.0	14.0	19.0	22.0	24.0	30.0	27.0	26.0
12	16.0	10.0	9.0	7.0	2.0	13.0	16.5	22.0	24.0	31.0	28.0	25.5
13	18.0	9.0	7.0	6.0	3.0	13.0	13.0	22.0	24.0	29.0	27.0	25.5
14	16.0	9.0	7.0	6.0	6.0	12.0	8.5	22.0	25.0	30.0	27.0	26.0
15	16.0	9.0	5.0	10.0	9.0	13.0	10.0	21.0	27.0	29.0	27.0	25.5
16	17.5	9.0	6.5	12.0	7.0	15.5	13.0	20.0	27.0	28.0	27.0	25.5
17	18.0	8.5	4.0	10.0	5.0	14.0	15.0	20.0	27.0	27.0	27.0	25.5
18	18.0	11.0	4.0	10.0	5.0	13.0	17.0	23.0	27.0	28.0	27.0	26.0
19	18.0	9.0	4.0	11.0	7.0	13.0	17.0	23.0	29.0	28.0	27.0	24.0
20	20.0	15.0	6.0	11.0	8.0	15.0	19.5	22.0	26.0	28.0	27.0	24.0
21	22.0	12.0	9.0	10.0	11.0	13.0	19.0	22.0	25.0	30.0	27.0	26.0
22	20.0	12.0	12.0	9.0	11.0	13.0	20.0	22.0	25.0	29.0	28.0	26.0
23	17.0	10.0	15.0	7.0	12.0	15.0	20.0	21.0	25.0	27.0	28.0	26.0
24	15.0	10.0	12.0	7.0	12.0	13.0	21.5	22.0	25.0	27.0	27.0	25.0
25	15.0	9.0	10.0	7.0	10.0	13.0	20.5	23.0	26.5	27.0	27.0	25.0
26	15.0	9.0	9.0	9.0	9.0	13.0	17.0	23.0	27.5	28.0	26.5	24.0
27	15.0	12.0	11.0	8.0	9.0	14.0	18.0	24.5	28.0	27.0	28.0	21.0
28	18.0	10.0	11.0	6.0	11.0	13.5	16.0	25.0	29.0	25.0	26.0	19.0
29	18.0	8.0	10.0	5.0	12.0	15.0	17.0	25.0	29.0	26.0	26.0	18.0
30	19.0	5.0	10.0	4.0	---	13.0	17.0	25.0	29.0	27.0	25.0	18.0
31	15.0	---	7.0	4.0	---	12.0	---	25.0	---	25.0	25.0	---
MEAN	18.0	10.5	7.5	7.5	6.5	12.5	17.0	21.5	26.5	28.5	27.0	24.5

## 07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX

LOCATION.--Lat 33°18'16", long 94°09'38", Bowie-Cass County line, Hydrologic Unit 11140302, in intake structure of Wright Patman Dam on the Sulphur River, 0.5 mi (0.8 km) upstream from U.S. Highway 59, 10 mi (16 km) southwest of Texarkana, and 44.5 mi (71.6 km) upstream from mouth.

DRAINAGE AREA.--3,443 mi<sup>2</sup> (8,917 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1953 to current year. Published as Texarkana Reservoir prior to October 1970 and as Lake Texarkana from October 1970 to September 1972.

REVISED RECORDS.--WSP 1561: 1957(M). WSP 1711: 1959(M).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). July 19 to Dec. 31, 1953, nonrecording gage at site about 125 ft (38 m) upstream at datum 200 ft (61.0 m) higher.

REMARKS.--The lake is formed by a rolled earthfill dam 18,500 ft (5,640 m) long, including a 200-foot (61 m) uncontrolled spillway and a 1-mile (2 km) long dike. Temporary impoundment of water began July 2, 1953, and deliberate impoundment began June 27, 1956. The dam was completed in December 1957. The flood-control outlet works consist of two 20.0-foot-diameter (6.1 m) conduits controlled by four 10.0- by 20.0-foot (3.0 by 6.1 m) electrically driven broome-type gates. Flow is affected at times by discharge from flood-detention pools of 25 floodwater-retarding structures with combined detention capacity of 13,450 acre-ft (16.6 hm<sup>3</sup>). These structures control runoff from 40.0 mi<sup>2</sup> (104 km<sup>2</sup>) in the Sulphur River and Langford Creek drainage basins. Flow discharging over the spillway passes into an outlet channel and then to the Sulphur River. The lake was built for flood control and conservation. The capacity table is based on a 1948 survey. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	286.0	-
Crest of spillway.....	259.5	2,654,300
Top of conservation pool.....	220.0	145,300
Lowest gated outlet (invert).....	200.0	2,600

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,912,100 acre-ft (2.36 km<sup>3</sup>) May 9, 1966, elevation, 252.64 ft (77.005 m); minimum since first appreciable storage and after deliberate impoundment began, 137,500 acre-ft (170 hm<sup>3</sup>) Sept. 5, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 437,600 acre-ft (540 hm<sup>3</sup>) May 30 at 0530 hours, elevation, 230.01 ft (70.107 m); minimum, 154,400 acre-ft (190 hm<sup>3</sup>) Feb. 29, elevation, 220.44 ft (67.190 m).

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

220.0	145,300	228.0	364,100
222.0	189,300	230.0	437,200
224.0	240,200	232.0	518,400
226.0	298,500		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	285100	167100	157600	178300	258900	156100	166400	302500	378800	346600	300000	272300
2	281800	167100	157600	178800	256900	156300	168700	297900	369000	346000	299100	270800
3	277900	166400	158000	182300	250400	156300	171100	292300	362400	344000	297900	269900
4	274300	165300	158200	184800	242100	156900	172400	289300	355800	341900	297000	269300
5	268400	164500	158200	184800	232400	156500	175800	286900	352700	339900	296300	267900
6	262400	162700	157800	183400	216600	157100	176400	287200	349700	337900	295700	267000
7	255500	161000	157800	175800	201400	157800	178100	286300	347700	335900	294800	266100
8	250100	159900	157600	173100	192900	157600	177700	287500	350700	333300	293900	265500
9	242900	160600	157400	168900	198700	157800	176700	289300	353800	332600	292700	265000
10	238000	159100	157600	164700	197700	158000	176500	290800	355100	330000	292300	263800
11	232600	158800	157600	160400	197900	159900	177200	291700	354800	327400	288400	262600
12	226300	158800	159900	159500	185800	161000	178800	294800	353800	325400	299200	262400
13	219000	157800	160800	157800	190200	161200	192400	298500	353100	322900	289300	261500
14	213300	157800	162300	156900	183700	161200	205700	297000	352100	320600	288400	260300
15	207500	158000	165100	158000	180600	161200	218400	304700	351000	318700	287500	259500
16	204300	158000	166000	159100	180600	164700	229700	309100	348700	317100	286900	258300
17	201800	158200	166200	159700	184400	164700	242900	313900	347700	315800	286000	257400
18	198400	159100	164900	160100	188800	164300	254600	319600	346300	313500	285100	258300
19	195000	159300	162900	160400	190700	163200	264100	326100	346300	311600	284200	258900
20	191700	159300	162300	166400	189300	162100	276400	336900	345600	309700	283000	258300
21	188300	162500	162300	175200	184800	160100	286900	342600	344600	309100	281200	257500
22	185100	163200	162900	193600	177400	159500	301300	350400	344600	309400	279700	256900
23	181800	162900	170900	206600	175200	163600	310700	357500	345300	307200	278800	256300
24	179300	163200	174900	216400	173100	160100	320300	362400	346000	306900	278200	254100
25	176300	164300	175800	221600	164900	158200	332300	373900	347000	306300	277300	247600
26	174000	164300	177200	213600	162100	156700	335600	380600	347700	306000	276400	247100
27	172000	162700	177700	215100	159700	158400	332600	389200	348300	305700	276100	247400
28	168900	161400	178800	222100	157600	159500	327100	395700	348700	305000	275200	249600
29	167500	159500	176300	237700	154400	163600	315800	396100	348000	303500	275500	254700
30	168900	159100	179500	249300	---	164500	309100	393200	347000	302200	274300	258600
31	168400	---	181100	256600	---	164500	---	386300	---	301300	273400	---
MAX	285100	167100	181100	256600	258900	164700	335600	396100	378800	346600	300000	272300
MIN	167500	157800	157400	156900	154400	156100	166400	286300	344600	301300	273400	247100
(†)	221.09	220.66	221.65	224.59	220.24	220.91	226.34	228.63	227.50	226.09	225.17	224.66
(‡)	-122300	-9300	+22000	+75500	-102200	+10100	+144600	+77200	-39300	-45700	-27900	-14800
(††)	4930	4660	4270	4640	4570	4990	9500	4940	4980	5400	5740	5750
CAL YR 1979	MAX	539800	MIN	157400	‡	+21200	††	52460				
WTR YR 1980	MAX	396100	MIN	154400	‡	-32100	††	64370				

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial use.

## RED RIVER BASIN

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07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

## WATER-QUALITY RECORDS

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

331838094095901 WRIGHT PATMAN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
FEB										
07...	0830	1.0	142	7.2	4.5	.30	11.4	88	51	13
07...	0832	10	141	7.1	4.5	--	11.3	87	--	--
07...	0833	20	140	7.1	4.5	--	11.3	87	--	--
07...	0834	25	140	7.1	4.5	--	11.3	87	49	11
MAY										
28...	0930	1.0	191	6.8	24.5	.61	4.1	49	59	13
28...	0932	10	191	6.7	24.0	--	2.9	35	--	--
28...	0933	20	191	6.6	23.5	--	2.4	28	--	--
28...	0934	29	191	6.5	22.5	--	1.0	12	58	14
AUG										
12...	1220	1.0	207	8.7	32.0	.70	8.9	122	67	9
12...	1222	10	207	8.3	31.5	--	7.5	100	--	--
12...	1224	20	207	7.1	30.0	--	3.3	44	--	--
12...	1226	26	207	7.1	30.0	--	2.7	36	67	3

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
FEB									
07...	17	2.0	7.7	.5	3.6	46	0	17	7.4
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	16	2.1	7.2	.5	3.6	46	0	16	8.5
MAY									
28...	19	2.7	12	.7	3.3	56	0	23	11
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	19	2.6	12	.7	3.1	54	0	23	11
AUG									
12...	22	2.8	13	.7	3.6	70	0	16	14
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	22	2.8	13	.7	3.8	78	0	16	14

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
07...	.1	8.0	86	.28	.82	1.1	.170	150	20
07...	--	--	--	.25	.96	1.2	.160	150	20
07...	--	--	--	--	--	--	--	--	--
07...	--	7.7	84	.27	.77	1.0	.170	120	20
MAY									
28...	.1	5.8	105	.08	.60	.68	.070	120	8
28...	--	--	--	.10	2.1	2.2	.090	180	10
28...	--	--	--	.11	3.2	3.3	.090	70	30
28...	--	6.6	104	.14	2.3	2.4	.100	150	260
AUG									
12...	.2	5.6	112	.00	.88	.88	.080	<10	<1
12...	--	--	--	.00	1.6	1.6	.070	10	0
12...	--	--	--	.00	1.1	1.1	.090	0	0
12...	--	6.0	116	.00	.97	.97	.090	<10	90



## RED RIVER BASIN

## WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331903094100201 WRIGHT PATMAN LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
07...	0930	1.0	150	7.2	5.0	11.1	87
07...	0931	10	150	7.2	5.0	11.1	87
07...	0932	15	150	7.2	5.0	11.1	87
MAY							
28...	0915	1.0	185	7.1	25.5	6.3	77
28...	0916	10	191	6.7	24.0	3.7	44
28...	0917	17	191	6.6	23.5	2.3	27
AUG							
12...	1310	1.0	207	8.7	31.5	8.2	111
12...	1312	10	207	8.6	31.5	7.8	105
12...	1314	15	207	8.5	31.0	7.7	103

332142094115001 WRIGHT PATMAN LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
FEB							
07...	0950	1.0	138	7.2	5.5	.50	11.4
07...	0951	11	138	7.2	5.5	--	11.4
MAY							
28...	1010	1.0	183	7.7	27.5	1.16	7.5
28...	1011	5.0	183	7.2	27.5	--	6.4
28...	1012	10	183	6.5	24.0	--	2.1
28...	1013	16	183	6.5	23.5	--	1.4
AUG							
12...	1340	1.0	207	9.0	32.5	.60	8.2
12...	1342	5.0	207	9.0	32.5	--	8.2
12...	1344	12	207	7.4	31.5	--	3.4

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB							
07...	90	.25	.94	1.2	.060	170	20
07...	90	.22	.97	1.2	.060	170	20
MAY							
28...	95	.05	.51	.56	.050	20	40
28...	81	--	--	--	--	--	--
28...	25	--	--	--	--	--	--
28...	16	.12	2.5	2.6	.070	80	190
AUG							
12...	114	.00	1.4	1.4	.070	20	0
12...	114	--	--	--	--	--	--
12...	46	.00	1.3	1.3	.090	10	20

## RED RIVER BASIN

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## WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331935094112901 WRIGHT PATMAN LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPEK- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
FEB							
07...	1005	1.0	137	7.0	5.5	.50	10.7
07...	1006	10	139	7.0	5.5	--	10.7
07...	1007	16	139	7.0	5.5	--	10.7
MAY							
28...	1040	1.0	181	7.8	27.5	1.01	7.4
28...	1041	5.0	181	7.6	26.5	--	7.2
28...	1042	10	170	6.7	25.5	--	4.0
28...	1043	22	187	6.5	22.5	--	.6
AUG							
12...	1405	1.0	204	9.0	32.0	.70	8.7
12...	1407	10	204	8.1	31.0	--	5.5
12...	1409	15	207	7.2	30.5	--	2.7
12...	1411	19	207	7.0	30.5	--	.9

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB							
07...	85	.31	1.1	1.4	.090	210	40
07...	85	--	--	--	--	--	--
07...	85	.30	1.0	1.3	.090	210	40
MAY							
28...	94	.05	2.8	2.9	.040	70	50
28...	90	--	--	--	--	--	--
28...	49	--	--	--	--	--	--
28...	7	.15	.10	.25	.140	120	400
AUG							
12...	119	.00	.95	.95	.060	0	10
12...	73	--	--	--	--	--	--
12...	36	--	--	--	--	--	--
12...	12	.00	1.4	1.4	.120	30	640

331628094121901 WRIGHT PATMAN LAKE SITE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPEK- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
07...	1045	1.0	154	7.3	4.5	11.7	90
07...	1046	8.0	154	7.3	4.5	11.7	90
MAY							
28...	1130	1.0	194	7.9	26.5	7.8	98
28...	1131	10	196	7.2	26.0	6.1	75
28...	1132	14	198	6.9	25.5	4.0	49
AUG							
12...	1500	1.0	209	8.7	32.0	8.4	115
12...	1502	5.0	209	8.4	30.5	7.4	99
12...	1504	11	209	7.3	30.5	4.3	57

## RED RIVER BASIN

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331706094130501 WRIGHT PATMAN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
07...	1030	1.0	145	7.2	4.5	11.3	87
07...	1031	10	145	7.2	4.5	11.3	87
07...	1032	20	145	7.2	4.5	11.3	87
07...	1033	30	145	7.2	4.5	11.3	87
MAY							
28...	1110	1.0	191	8.0	27.5	7.7	97
28...	1111	10	191	7.2	26.5	6.2	78
28...	1112	15	194	6.7	24.0	2.3	27
28...	1113	20	194	6.6	23.0	1.2	14
28...	1114	30	199	6.7	22.0	.2	2
28...	1115	33	199	6.7	22.0	.2	2
AUG							
12...	1445	1.0	209	8.7	32.0	8.1	111
12...	1447	5.0	209	8.3	31.0	7.2	96
12...	1449	10	209	7.1	30.0	3.2	43
12...	1451	20	211	7.0	30.0	1.9	25
12...	1453	30	224	7.0	29.5	.1	1

331519094141101 WRIGHT PATMAN LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
FEB									
07...	1100	1.0	156	7.2	5.0	.30	11.3	88	51
07...	1101	10	156	7.2	5.0	--	11.3	88	--
07...	1102	20	156	7.2	5.0	--	11.3	88	52
MAY									
28...	1204	1.0	195	8.3	28.0	.61	8.3	106	59
28...	1205	5.0	195	8.1	27.5	--	7.8	99	--
28...	1206	10	211	6.7	26.0	--	3.3	41	--
28...	1207	15	218	6.6	24.5	--	1.0	12	--
28...	1208	20	203	6.6	23.5	--	.4	5	--
28...	1209	29	203	6.7	22.5	--	.2	2	62
AUG									
12...	1520	1.0	213	7.6	32.5	.70	5.6	78	70
12...	1522	5.0	213	7.4	30.0	--	4.6	61	--
12...	1524	10	213	7.2	30.0	--	3.6	48	--
12...	1526	15	213	7.1	30.0	--	3.5	47	--
12...	1528	20	215	7.1	29.5	--	2.3	30	--
12...	1530	27	228	7.1	29.5	--	.1	1	73

DATE	HARD- NESS, NONCAR- BONATE (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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
07...	13	17	2.1	8.6	.5	3.6	47	0	21
07...	--	--	--	--	--	--	--	--	--
07...	8	17	2.2	8.8	.5	3.6	53	0	23
MAY									
28...	12	19	2.9	12	.7	3.3	58	0	22
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	3	20	3.0	12	.7	3.2	72	0	21
AUG									
12...	3	23	3.0	13	.7	3.7	82	0	16
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	0	24	3.1	13	.7	3.7	94	0	14

## RED RIVER BASIN

219

## WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331519094141101 WRIGHT PATMAN LAKE SITE EC--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
07...	9.2	7.9	93	.23	.96	1.2	.160	180	50
07...	--	--	--	--	--	--	--	--	--
07...	8.7	8.1	98	.23	.86	1.1	.170	370	220
MAY									
28...	12	4.8	105	.04	1.1	1.1	.090	60	3
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	.14	2.8	2.9	.100	100	140
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	.16	1.5	1.7	.160	120	530
28...	11	9.0	116	.09	2.9	3.0	.240	150	1100
AUG									
12...	13	6.5	119	.00	1.3	1.3	.100	<10	20
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	.00	1.5	1.5	.120	20	40
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	.00	.94	.94	.120	20	150
12...	14	8.5	128	.00	1.2	1.2	.190	120	1400

331533094210901 WRIGHT PATMAN LAKE SITE GC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CaCO3)
FEB										
07...	1310	1.0	200	7.0	5.0	.20	10.6	83	57	
07...	1312	10	200	7.0	5.0	--	10.6	83	--	
07...	1313	20	200	7.0	5.0	--	10.6	83	61	
MAY										
28...	1430	1.0	203	6.9	26.0	.30	5.4	67	74	
28...	1432	5.0	207	6.8	25.5	--	4.1	50	--	
28...	1433	10	210	6.8	25.0	--	3.5	43	--	
28...	1434	20	210	6.8	25.0	--	3.4	41	--	
28...	1435	23	210	6.8	25.0	--	3.4	41	77	
AUG										
12...	1720	1.0	241	7.4	31.5	.50	7.5	101	81	
12...	1722	5.0	241	7.0	30.5	--	3.6	48	--	
12...	1724	10	241	6.8	30.0	--	.6	8	--	
12...	1726	15	241	6.8	30.0	--	.1	1	--	
12...	1728	19	241	6.8	30.0	--	.1	1	79	

DATE	HARD- NESS, NONCAR- BONATE (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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
07...	24	17	3.6	14	.8	3.8	40	0	34
07...	--	--	--	--	--	--	--	--	--
07...	28	18	3.8	15	.8	3.8	40	0	34
MAY									
28...	5	25	2.8	9.5	.5	4.1	84	0	17
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	5	26	3.0	9.5	.5	4.3	88	0	18
AUG									
12...	0	27	3.4	14	.7	4.8	100	0	14
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	0	26	3.4	14	.7	4.7	100	0	15

## RED RIVER BASIN

## WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331533094210901 WRIGHT PATMAN LAKE SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
07...	17	9.1	118	.28	.76	1.0	.120	210	30
07...	--	--	--	--	--	--	--	--	--
07...	17	9.4	121	.25	.71	.96	.130	220	30
MAY									
28...	7.7	8.2	116	.27	2.9	3.2	.170	130	30
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	.20	2.2	2.4	.190	120	30
28...	--	--	--	--	--	--	--	--	--
28...	7.6	8.5	120	.25	.54	.79	.190	120	40
AUG									
12...	18	7.1	138	.00	1.0	1.0	.090	10	7
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	.00	1.2	1.2	.130	40	450
12...	--	--	--	--	--	--	--	--	--
12...	16	7.8	138	.00	1.3	1.3	.380	1200	950

331838094095901 WRIGHT PATMAN LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)
FEB							
07...	0830	1.0	1	30	<1	0	0
07...	0832	10	--	--	--	--	--
07...	0834	25	1	30	<1	0	0
MAY							
28...	0930	1.0	1	40	1	0	3
28...	0932	10	--	--	--	--	--
28...	0933	20	--	--	--	--	--
28...	0934	29	1	40	1	0	3
AUG							
12...	1220	1.0	4	40	<1	10	0
12...	1222	10	--	--	--	--	--
12...	1224	20	--	--	--	--	--
12...	1226	26	4	40	1	0	0

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB							
07...	150	0	20	.0	0	0	7
07...	150	--	20	--	--	--	--
07...	120	1	20	.0	0	0	10
MAY							
28...	120	2	8	.0	0	0	<3
28...	180	--	10	--	--	--	--
28...	70	--	30	--	--	--	--
28...	150	2	260	.0	1	0	30
AUG							
12...	<10	1	<1	.1	0	0	<3
12...	10	--	0	--	--	--	--
12...	0	--	0	--	--	--	--
12...	<10	2	90	.0	0	0	20

## RED RIVER BASIN

221

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331838094095901 WRIGHT PATMAN LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	FEB 7,80 0831	MAY 28,80 1031	AUG 12,80 1221
TOTAL CELLS/ML	690	9700	170000
DIVERSITY: DIVISION	0.9	1.5	0.3
..CLASS	0.9	1.5	0.3
...ORDER	1.1	1.7	0.5
...FAMILY	1.4	2.2	0.8
...GENUS	2.1	3.0	1.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	56	1	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	1000	10	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	120#	17	510	5	*	0
...DICTYOSPHAERIUM	--	-	--	-	*	0
....KIRCHNERIELLA	28	4	1500#	15	--	-
...OOCYSTIS	22	3	110	1	--	-
....SELENASTRUM	--	-	--	-	*	0
...TREUBARIA	--	-	56	1	*	0
...SCENEDESMACEAE						
...SCENEDESMUS	44	6	340	3	2000	1
...TETRASTRUM	22	3	--	-	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	*	0
...PHACOTACEAE						
....PTEROMONAS	--	-	--	-	*	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	390#	56	3400#	35	1400	1
....MELOSIRA	55	8	960	10	--	-
...STEPHANODISCUS	--	-	110	1	--	-
..PENNALES						
...FRAGILARIACEAE						
....SYNEDRA	6	1	--	-	--	-
...NAVICULACEAE						
....NAVICULA	6	1	--	-	--	-
...NITZSCHACEAE						
....NITZSCHIA	6	1	110	1	1000	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENLLUM	--	-	450	5	--	-
...ANACYSTIS	--	-	280	3	4400	3
...HORMOGONALES						
...NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	7400	4
...APHANIZOMENON	--	-	840	9	--	-
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	28000#	17
...OSCILLATORIA	--	-	--	-	120000#	73
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%



## RED RIVER BASIN

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331533094210901 WRIGHT PATMAN LAKE SITE GC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	FEB 7, 80 1311	MAY 28, 80 1431	AUG 12, 80 1721
TOTAL CELLS/ML	360	24000	45000
DIVERSITY: DIVISION	0.8	1.6	1.1
..CLASS	0.8	1.6	1.1
..ORDER	1.4	2.2	1.9
...FAMILY	1.8	2.8	2.0
....GENUS	2.0	3.6	2.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	--	-	*	0
...HYDRODICTYACEAE						
....PEDIASTRUM	--	-	790	3	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	10	3	530	2	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	30	8	660	3	*	0
...CHODATELLA	--	-	130	1	--	-
...DICTYOSPHAERIUM	20	6	790	3	420	1
...KIRCHNERIELLA	--	-	260	1	--	-
...OOCYSTIS	--	-	130	1	--	-
...SELENASTRUM	--	-	--	-	310	1
...TETRAEDRON	--	-	130	1	310	1
...TREUBARIA	--	-	--	-	*	0
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	1000	2
...SCENEDESMUS	20	6	2400	10	2500	6
...TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	10	3	--	-	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	530	2	520	1
...CHLOROGONIUM	--	-	--	-	*	0
...PHACOTACEAE						
...PTEROMONAS	--	-	--	-	*	0
...ZYGNETALES						
...DESMIDIACEAE						
...EUASTRUM	--	-	--	-	*	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTETRA	230#	63	4400#	18	1300	3
....MELOSIRA	--	-	5400#	22	2500	6
...PENNIALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	660	3	*	0
...FRAGILARIACEAE						
....SYNEDRA	--	-	260	1	--	-
...NAVICULACEAE						
....NAVICULA	20	6	130	1	--	-
...NITZSCHACEAE						
....NITZSCHIA	25	7	790	3	310	1
...SURIPELLACEAE						
....SURIPELLA	--	-	260	1	--	-
...XANTHOPHYCEAE						
...HETEROCOCCALES						
...CHLOROTHECIACEAE						
...OPHIOCYTIUM	--	-	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
...CHROOMONAS	--	-	130	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	2100	9	3300	7
....ANACYSTIS	--	-	2500	10	20000#	44
...GOMPHOSPHAERIA	--	-	--	-	1300	3
...HORMOGONALES						
...OSCILLATORIA						
....OSCILLATORIA	--	-	920	4	7700#	17
...PHORMIDIUM	--	-	--	-	1700	4
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	130	1	*	0
...TRACHELOMONAS	--	-	260	1	310	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## RED RIVER BASIN

223

07344210 SULPHUR RIVER NEAR TEXARKANA, TX

LOCATION.--Lat 33°18'20", long 94°09'03", Bowie County, Hydrologic Unit 11140302, on downstream side of highway embankment near left end of downstream (northbound) bridge on U.S. Highway 59, 0.4 mi (0.6 km) downstream from Texarkana Dam, 1.4 mi (2.3 km) upstream from Elliott Creek, 11.7 mi (18.8 km) southwest of Texarkana, and at mile 44.1 (71.0 km).

DRAINAGE AREA.--3,443 mi<sup>2</sup> (8,917 km<sup>2</sup>).

PERIOD OF RECORD.--October 1979 to September 1980. August 1937 to July 1953 and October 1953 to September 1979 (daily gage heights); January to December 1933, January 1937 to December 1942, and January 1945 to September 1979 (discharge measurements); January to December 1939 and January 1945 to September 1979 (daily discharges) published by Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft (54.864 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair above 50 ft<sup>3</sup>/s (1.42 m<sup>3</sup>/s) and poor below. Daily discharge determined from flow through gates, computed from relation between discharge, head, and gate openings, and adjusted to discharge measurements. Flow regulated by Wright Patman Lake (station 07344200). Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft<sup>3</sup>/s (295 m<sup>3</sup>/s) Jan. 28 to Feb. 6, 1980; maximum gage height, 32.47 ft (9.897 m) Feb. 2, 1980 at 2400 hours; no flow June 25, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 94,000 ft<sup>3</sup>/s (2,660 m<sup>3</sup>/s) Apr. 4, 1945; maximum stage, 47.23 ft (14.396 m) Apr. 14, 1945; no flow on various occasions.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,400 ft<sup>3</sup>/s (295 m<sup>3</sup>/s) Jan. 28 to Feb. 6; maximum gage height, 32.47 ft (9.897 m) Feb. 2 at 2400 hours; no flow June 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1930	1000	200	5280	10400	506	79	6080	6050	642	87	88
2	1200	1000	67	6030	10400	302	10	4550	6050	642	87	88
3	1000	1000	1.1	6030	10400	200	10	3670	4580	642	87	88
4	1410	1000	1.1	6030	10400	80	10	2960	2990	642	87	88
5	2290	1000	1.1	6030	10400	7.8	10	2000	1960	642	87	88
6	2600	1000	5.2	6030	10400	7.8	10	1220	1230	642	87	88
7	2600	1000	10	6030	10200	7.8	10	679	651	642	87	88
8	2600	1000	10	4490	10100	7.8	10	367	472	642	41	88
9	2600	1000	10	2980	7200	7.8	10	106	472	642	10	88
10	2600	677	10	2590	5820	7.8	10	6.2	472	642	35	88
11	2600	500	10	1930	5820	7.8	10	6.2	472	642	88	88
12	2600	500	10	1220	8120	7.8	10	6.2	472	642	88	88
13	2600	309	129	1020	7250	130	10	6.2	472	642	88	88
14	2600	77	200	689	7660	200	10	6.2	472	642	88	88
15	2600	10	394	312	8600	200	10	6.2	472	383	88	88
16	1930	10	828	200	8600	397	10	6.2	472	228	88	88
17	1600	10	1460	200	8600	830	10	6.2	472	228	88	88
18	1600	10	1740	396	8600	1020	10	6.2	472	228	88	88
19	1600	10	1740	509	8600	1020	10	6.2	472	228	88	88
20	1600	10	1260	509	8600	1020	142	6.2	472	228	88	88
21	1600	10	1000	846	8600	696	444	6.2	472	140	88	88
22	1600	129	1000	1430	8600	510	864	6.2	472	87	88	88
23	1200	200	1000	2340	6820	510	1450	127	472	87	88	88
24	1000	200	1390	3440	4420	829	2300	200	387	87	88	88
25	1000	200	2250	5390	3650	1020	3430	407	145	87	88	88
26	1000	377	3350	8600	2960	694	5300	846	484	87	88	88
27	1000	780	3780	9780	1960	318	6080	1410	642	87	88	88
28	1000	971	3780	10200	1230	200	6080	2290	642	87	88	88
29	1000	704	5270	10400	690	200	6080	3370	642	87	88	88
30	1000	292	4520	10400	---	200	6080	5200	642	87	88	88
31	1000	---	3780	10400	---	200	---	6050	---	87	88	---
TOTAL	54560	14986	39206.5	131731	215100	11344.4	38509	41612.6	34647	11521	2543	2640
MEAN	1760	500	1265	4249	7417	366	1284	1342	1155	372	82.0	88.0
MAX	2600	1000	5270	10400	10400	1020	6080	6080	6050	642	88	88
MIN	1000	10	1.1	200	690	7.8	10	6.2	145	87	10	88
AC-FT	108200	29720	77770	261300	426700	22500	76380	82540	68720	22850	5040	5240
CAL YR 1979	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		
WTR YR 1980	TOTAL	598400.5	MEAN	1635	MAX	10400	MIN	1.1	AC-FT	1187000		

## RED RIVER BASIN

07344482 BIG CYPRESS CREEK NEAR WINNSBORO, TX

LOCATION.--Lat 33°01'24", long 95°16'12", Franklin County, Hydrologic Unit 11140305, on left bank at downstream side of bridge on State Highway 37, 0.3 mi (0.5 km) downstream from Glade Branch, 1.8 mi (2.9 km) upstream from Little Cypress Creek, 4.7 mi (7.6 km) north of Winnsboro, and 146.5 mi (235.7 km) upstream from mouth.

DRAINAGE AREA.--27.2 mi<sup>2</sup> (70.4 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 375.83 ft (114.553 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow affected slightly by Lake Franklin located upstream on Glade Branch. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--6 years (water years 1975-80), 22.0 ft<sup>3</sup>/s (0.623 m<sup>3</sup>/s), 10.98 in/yr (279 mm/yr), 15,940 acre-ft/yr (19.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,320 ft<sup>3</sup>/s (122 m<sup>3</sup>/s) Nov. 24, 1974, gage height, 12.39 ft (3.776 m); no flow Aug. 24, 1974, June 29 to Sept. 30, Oct. 1-25, 1978, and Aug. 9-15, 23-31, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft<sup>3</sup>/s (25.5 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Jan. 22	1515	*1,380	39.1	10.91	3.325	Apr. 25	1830	933	28.1	10.60	3.231
Feb. 8	2330	910	25.8	10.52	3.206	May 16	0645	1,060	30.0	10.66	3.249
Apr. 14	0030	1,080	30.6	10.68	3.255						

Minimum discharge, no flow Aug. 9-15, 23-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.90	7.2	3.6	7.0	19	6.1	15	11	2.7	.83	.21	.10		
2	.73	3.9	3.6	6.7	17	5.4	12	169	2.4	.76	.25	.35		
3	.67	3.2	3.7	9.8	15	6.5	11	36	1.8	.68	.32	.25		
4	.61	3.0	3.8	10	14	7.1	8.6	16	1.7	.67	.24	.17		
5	.71	3.0	4.7	7.7	13	5.4	7.9	12	1.8	.59	.28	.15		
6	.73	2.8	3.7	8.1	13	5.6	8.2	11	1.8	.51	.20	.13		
7	.72	2.9	3.8	6.1	12	6.6	9.0	10	1.6	.48	.08	.11		
8	1.1	3.2	3.5	5.9	264	5.9	15	19	1.2	.45	.02	.08		
9	.76	52	3.4	5.8	448	5.6	8.5	24	1.2	.38	.00	.06		
10	.62	16	3.9	6.1	121	5.6	7.2	12	1.3	.34	.00	.04		
11	.84	6.2	4.5	7.1	46	5.7	6.7	8.5	1.3	.30	.00	.02		
12	.83	4.5	11	6.0	29	24	7.2	42	1.4	.29	.00	.02		
13	.71	4.0	34	5.7	22	13	529	43	1.4	.25	.00	.13		
14	.60	3.7	12	5.6	19	7.2	573	17	1.3	.21	.00	.27		
15	.67	3.6	7.6	6.0	18	6.2	49	102	1.4	.15	.00	.21		
16	.99	3.5	6.1	33	15	9.4	25	662	1.2	.12	.38	.17		
17	1.6	4.8	16	12	18	16	50	1.0	.07	.38	.61			
18	2.0	4.1	4.7	10	12	9.4	13	16	1.0	.05	.25	.43		
19	1.3	5.1	5.0	8.3	12	7.2	11	10	1.1	.04	.19	1.2		
20	1.4	5.1	5.2	17	11	7.3	9.8	8.0	16	.08	.15	1.4		
21	1.0	7.1	5.3	146	10	5.5	8.7	12	6.2	.09	.11	1.6		
22	1.2	8.2	62	909	8.9	5.3	7.7	36	52	.47	.04	1.5		
23	.85	5.9	50	207	7.9	5.9	6.9	10	38	.53	.00	1.2		
24	.80	4.6	88	38	7.6	5.9	6.8	6.9	4.3	.37	.00	.86		
25	.89	4.2	22	25	7.0	4.9	386	5.7	2.2	.25	.00	1.5		
26	.98	4.2	13	19	6.5	5.1	363	5.0	1.5	.28	.00	1.6		
27	1.1	4.9	10	16	6.7	9.9	38	4.1	1.2	.41	.00	1.6		
28	.95	3.2	8.9	14	7.2	56	20	3.7	1.2	.79	.00	2.5		
29	.98	3.2	8.5	80	6.7	72	14	3.3	1.1	.47	.00	12		
30	15	3.3	8.4	50	---	44	11	3.0	.93	.39	.00	6.4		
31	44	---	7.4	32	---	20	---	2.7	---	.26	.00	---		
TOTAL	86.24	189.3	416.1	1723.9	1200.5	401.7	2204.2	1370.9	153.23	11.56	3.10	36.66		
MEAN	2.78	6.31	13.4	55.6	41.4	13.0	73.5	44.2	5.11	.37	.10	1.22		
MAX	.44	52	88	909	448	72	573	662	52	.83	.38	1.2		
MIN	.60	2.8	3.4	5.6	6.5	4.9	6.7	2.7	.93	.04	.00	.02		
CFSM	.10	.23	.49	2.04	1.52	.48	2.70	1.63	.19	.01	.004	.05		
IN.	.12	.26	.57	2.36	1.64	.55	3.01	1.87	.21	.02	.00	.05		
AC-FT	171	375	825	3420	2380	797	4370	2720	304	23	6.1	73		
CAL YR 1979	TOTAL	9050.44	MEAN	24.8	MAX	678	MIN	.33	CFSM	.91	IN	12.38	AC-FT	17950
WTR YR 1980	TOTAL	7797.39	MEAN	21.3	MAX	909	MIN	.00	CFSM	.78	IN	10.66	AC-FT	15470

## 07344484 LAKE CYPRESS SPRINGS NEAR MOUNT VERNON, TX

LOCATION.--Lat 33°03'22", long 95°08'21", Franklin County, Hydrologic Unit 11140305, in brick meter house located on upstream side and near center of dam on Big Cypress Creek, 1.5 mi (2.4 km) upstream from Andy's Creek, 2.6 mi (4.2 km) downstream from Panther Creek, and 10.3 mi (16.6 km) southeast of Mount Vernon.

DRAINAGE AREA.--75.0 mi<sup>2</sup> (194.2 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to current year.

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

REMARKS.--The lake is formed by a rolled earthfill dam 5,230 ft (1,590 m) long. Deliberate impoundment began July 7, 1970, and the dam was completed Feb. 15, 1971. The emergency spillway is an excavated channel through natural ground 1,000 ft (300 m) wide located to the left of left end of dam. The service spillway is a rectangular 23- by 23 foot (7 by 7 m) drop inlet located near the right end of dam. The low-flow outlet works consist of an 18-inch-diameter (457 mm) concrete pipe that has duplicate valve controls and discharges into the service spillway conduit. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	397.0	-
Crest of spillway.....	385.0	100,400
Crest of spillway.....	378.0	72,850
Lowest gated outlet (invert).....	317.75	0

COOPERATION.--The capacity table, furnished by the Franklin County Water District, was based on data prepared by Wisenbaker, Fix, and Associates, Consulting Engineers. Records of diversions furnished by Franklin County Water District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 83,770 acre-ft (103 hm<sup>3</sup>) Feb. 2, 1975, elevation, 381.00 ft (116.129 m); minimum, 59,440 acre-ft (73.3 hm<sup>3</sup>) Nov. 12-14, 1978, elevation, 373.79 ft (113.931 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 78,070 acre-ft (96.3 hm<sup>3</sup>) Jan. 23 at 0500 hours, elevation, 379.48 ft (115.666 m); minimum, 67,950 acre-ft (83.8 hm<sup>3</sup>) Sept. 23, elevation, 376.53 ft (114.766 m).

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

376.0	66,240	379.0	76,340
377.0	69,490	380.0	79,980
378.0	72,850		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74060	73540	73120	73950	75140	73500	74090	74820	73670	73020	71090	69160
2	73850	73500	73020	73880	74960	73500	74060	75030	73570	72990	70950	69090
3	73740	73430	73020	73880	74820	73470	73990	74930	73540	72950	70850	68990
4	73640	73330	73050	73850	74650	73470	73850	74790	73470	72810	70790	68990
5	73500	73300	73120	73740	74610	73430	73810	74650	73360	72710	70650	68900
6	73430	73260	73050	73710	74470	73400	73740	74440	73330	72680	70590	68800
7	73360	73230	73050	73710	74370	73500	73880	74330	73260	72680	70520	68770
8	73330	73190	72990	73640	75380	73430	73710	74230	73230	72580	70490	68860
9	73190	73740	72990	73610	76230	73400	73670	74120	73190	72510	70350	68800
10	73190	73670	73050	73710	76270	73400	73570	74060	73160	72410	70320	68470
11	73120	73610	73090	73610	75950	73470	73610	73990	73090	72370	70290	68410
12	73090	73570	73500	73500	75700	73670	73640	74260	73050	72240	70220	68340
13	72990	73500	73540	73570	75450	73640	75560	74330	72990	72170	70150	68210
14	72880	73470	73500	73540	75210	73610	76450	74190	72920	72070	70120	68210
15	72880	73470	73500	73740	74960	73570	76200	75100	72850	72000	70050	68210
16	72880	73430	73430	73850	74790	73740	75810	75980	72850	71930	69950	68140
17	72990	73360	73400	73850	74650	73670	75450	75880	72750	71900	69920	68080
18	72990	73400	73400	73850	74470	73670	75210	75490	72750	71800	69820	68080
19	73020	73430	73400	73880	74440	73610	75000	75310	72710	71690	69790	68140
20	72990	73470	73430	74060	74370	73540	74750	75030	73230	71590	69650	68080
21	73050	73640	73570	74750	74260	73500	74650	75100	73230	71730	69620	68050
22	73020	73500	73920	77960	74190	73400	74470	75030	73500	71630	69490	68050
23	72950	73470	74440	77850	74120	73260	74300	74820	73640	71520	69390	68050
24	72920	73400	74540	77200	73950	73360	74120	74610	73640	71420	69320	68240
25	72880	73400	74510	76700	73850	73360	75630	74440	73500	71420	69290	68210
26	72880	73400	74440	76230	73780	73330	75910	74330	73430	71360	69220	68110
27	72850	73360	74300	75840	73780	73610	75740	74190	73330	71360	69190	68140
28	72850	73260	74160	75590	73780	73780	75450	74120	73260	71290	69130	68270
29	72810	73160	74160	75590	73670	74300	75210	74020	73190	71260	69290	68990
30	73570	73160	74090	75520	---	74260	74960	73850	73120	71220	69220	69060
31	73570	---	73990	75350	---	74190	---	73740	---	71120	69160	---
MAX	74060	73740	74540	77960	76270	74300	76450	75980	73670	73020	71090	69160
MIN	72810	73160	72990	73500	73670	73260	73570	73740	72710	71120	69130	68050
(†)	378.21	378.09	378.33	378.72	378.24	378.39	378.61	378.26	378.08	377.49	376.90	376.87
(+)	-550	-410	+830	+1360	-1680	+520	+770	-1220	-620	-2000	-1960	-100
(††)	43	46	46	47	47	47	40	46	46	52	172	99
CAL YR 1979	MAX	78100	MIN	62520	±	+11440	††	622				
WTR YR 1980	MAX	77960	MIN	68050	±	-5060	††	733				

† Elevation, in feet, at end of month.

± Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and commercial use.

## RED RIVER BASIN

07344484 LAKE CYPRESS SPRINGS NEAR MOUNT VERNON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS $\text{CaCO}_3$ )	HARDNESS, NONCARBONATE (MG/L $\text{CaCO}_3$ )	CALCIUM DIS-SOLVED (MG/L AS $\text{Ca}$ )	MAGNESIUM, DIS-SOLVED (MG/L AS $\text{Mg}$ )	SODIUM, DIS-SOLVED (MG/L AS $\text{Na}$ )	SODIUM ADSORPTION RATIO
FEB 11...	1110	162	7.5	42	15	8.9	4.7	11	.7
SEP 10...	1810	184	32.0	49	16	11	5.3	14	.9

DATE	POTASSIUM, DIS-SOLVED (MG/L AS $\text{K}$ )	BICARBONATE (MG/L AS $\text{HCO}_3$ )	CARBONATE (MG/L AS $\text{CO}_3$ )	SULFATE DIS-SOLVED (MG/L AS $\text{SO}_4$ )	CHLORIDE, DIS-SOLVED (MG/L AS $\text{Cl}$ )	FLUORIDE, DIS-SOLVED (MG/L AS $\text{F}$ )	SILICA, DIS-SOLVED (MG/L AS $\text{SiO}_2$ )	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
FEB 11...	3.8	32	0	20	15	.2	3.9	83
SEP 10...	4.6	40	0	23	21	.2	2.7	102

## RED RIVER BASIN

227

07344486 BRUSHY CREEK AT SCROGGINS, TX

LOCATION.--Lat 32°58'32", long 95°11'03", Franklin County, Hydrologic Unit 11140305, on downstream side of highway embankment near left end of bridge on Farm Road 115, 0.1 mi (0.2 km) north of Scroggins, 0.3 mi (0.5 km) downstream from Briary Creek, 2.5 mi (4.0 km) upstream from South Brushy Creek, and 9.5 mi (15.3 km) upstream from mouth.

DRAINAGE AREA.--23.4 mi<sup>2</sup> (60.6 km<sup>2</sup>).

PERIOD OF RECORD.--December 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 343.90 ft (104.821 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,140 ft<sup>3</sup>/s (60.6 m<sup>3</sup>/s) Sept. 20, 1979, gage height, 13.46 ft (4.103 m); no flow for many days during period December 1977 to September 1978 and part of day on July 7, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,880 ft<sup>3</sup>/s (53.2 m<sup>3</sup>/s) May 2 at 0300 hours, gage height, 13.37 ft (4.075 m), no other peak above base of 800 ft<sup>3</sup>/s (22.7 m<sup>3</sup>/s); no flow July 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	7.7	16	7.9	12	19	10	19	20	5.3	.22	.16	.31		
2	6.6	9.2	7.7	12	18	8.9	17	564	5.1	.09	.15	.26		
3	6.1	7.2	7.7	17	17	8.8	16	85	5.1	.05	.16	.23		
4	4.8	6.4	7.7	16	15	9.8	14	30	4.8	.03	.15	.23		
5	4.7	6.2	8.7	13	16	9.2	13	21	4.4	.03	.15	.23		
6	4.6	6.2	8.4	12	16	8.3	13	25	3.8	.01	.19	.20		
7	4.6	6.0	7.5	12	14	8.9	13	21	3.3	.01	.17	.19		
8	4.9	6.3	6.8	11	88	9.1	12	32	3.0	.02	.15	.22		
9	4.8	85	6.6	11	174	8.1	10	43	4.0	.02	.16	.25		
10	4.9	42	7.0	11	109	8.1	10	19	3.4	.01	.15	.27		
11	5.3	16	7.9	12	41	8.3	10	14	3.1	.01	.15	.25		
12	5.1	11	18	10	27	42	14	16	2.6	.02	.32	.23		
13	4.6	10	61	9.9	22	17	130	34	2.4	.02	.34	.20		
14	4.1	9.0	22	10	20	10	159	19	2.2	.02	.31	.17		
15	4.0	8.4	15	10	19	9.1	40	39	2.0	.02	.28	.18		
16	5.2	8.2	13	18	17	82	23	199	1.8	.03	.34	.20		
17	6.2	7.8	10	15	15	145	19	69	2.0	.03	.30	.19		
18	9.6	8.4	10	12	15	28	17	26	2.7	.04	.25	.19		
19	6.4	11	10	11	15	20	15	18	3.2	.05	.22	.26		
20	5.5	12	11	34	14	19	13	15	16	.06	.21	.33		
21	4.6	22	11	69	13	15	12	13	19	.08	.17	.29		
22	4.8	24	45	356	12	14	11	13	16	.14	.15	.25		
23	4.7	14	46	152	11	14	10	11	20	.20	.13	.23		
24	4.6	11	102	45	11	15	10	10	1.8	.19	.11	.25		
25	4.5	10	27	29	10	12	165	9.3	1.4	.18	.10	.40		
26	4.5	10	20	23	9.2	12	162	9.1	1.4	.20	.09	.41		
27	4.7	9.4	17	19	9.5	21	43	7.8	1.4	.20	.10	.37		
28	4.8	8.4	15	18	9.9	83	25	6.8	.96	.20	.14	.79		
29	4.9	7.7	14	41	9.8	62	19	6.3	.66	.23	.26	4.3		
30	13	7.7	16	37	---	52	16	5.6	.42	.23	.45	5.8		
31	63	---	13	27	---	22	---	5.2	---	.20	.36	---		
TOTAL	227.8	416.5	579.9	1084.9	786.4	791.6	1050	1406.1	143.24	2.84	6.37	17.68		
MEAN	7.35	13.9	18.7	35.0	27.1	25.5	35.0	45.4	4.77	.092	.21	.59		
MAX	63	85	102	356	174	145	165	564	20	.23	.45	5.8		
MIN	4.0	6.0	6.6	9.9	9.2	8.1	10	5.2	.42	.01	.09	.17		
CFSM	.31	.59	.80	1.50	1.16	1.09	1.50	1.94	.20	.004	.009	.03		
IN.	.36	.66	.92	1.72	1.25	1.26	1.67	2.24	.23	.00	.01	.03		
AC-FT	452	826	1150	2150	1560	1570	2080	2790	284	5.6	13	35		
CAL YR 1979	TOTAL	7228.55	MEAN	19.8	MAX	670	MIN	.41	CFSM	.85	IN	11.49	AC-FT	14340
WTR YR 1980	TOTAL	6513.33	MEAN	17.8	MAX	564	MIN	.01	CFSM	.76	IN	10.35	AC-FT	12920



## 07344489 LAKE BOB SANDLIN NEAR MOUNT PLEASANT, TX

LOCATION.--Lat 33°04'48", long 95°00'07", Titus County, Hydrologic Unit 11140305, in control room in left abutment of service spillway at left end of Fort Sherman Dam on Big Cypress Creek, 1.7 mi (2.7 km) upstream from Tankersley Creek, 3.5 mi (5.6 km) upstream from bridge on U.S. Highway 271, 5.7 mi (9.2 km) southwest of the county courthouse in Mount Pleasant, and 129.2 mi (207.9 km) upstream from mouth.

DRAINAGE AREA.--239 mi<sup>2</sup> (619 km<sup>2</sup>).

PERIOD OF RECORD.--August 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. A nonrecording gage was located at same site and datum prior to Apr. 12, 1978.

REMARKS.--The lake is formed by a rolled earthfill dam 10,800 ft (3,290 m) long including spillways. Deliberate impoundment began Aug. 8, 1977, and the dam was completed by April 1978. The emergency spillway is an excavated channel cut through natural ground. The spillway is 4,500 ft (1,400 m) wide, located to the left of the left end of the dam. The service spillway is 289.5 ft (88.2 m) wide with 160 ft (50 m) of net flow width controlled by four 40- by 22.5-foot (12 by 6.9 m) tainter gates. The dam was built and is owned, maintained, and operated by the Titus County Fresh Water Supply District No. 1 to provide water for municipal use. Flow from 75.0 mi<sup>2</sup> (194.2 km<sup>2</sup>) above this station is controlled by Lake Cypress Springs on Big Cypress Creek and from 36.0 mi<sup>2</sup> (93.2 km<sup>2</sup>) above this station is controlled by Montecello Reservoir on Blundell Creek, a tributary to Big Cypress Creek. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	349.0	-
Crest of uncontrolled spillway.....	341.3	251,000
Crest of gated spillway.....	316.5	64,790
Lowest gated outlet (invert).....	294.5	3,300

COOPERATION.--Area and capacity tables were compiled by Forest and Cotton, Inc., Consulting Engineers. Records of diversions and return flow were furnished by Titus County Fresh Water Supply District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 171,100 acre-ft (211 hm<sup>3</sup>) Apr. 15, 1980, elevation, 332.77 ft (101.428 m); minimum, 516 acre-ft (0.636 hm<sup>3</sup>) Aug. 8-17, 1977, elevation, 290.00 ft (88.392 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 171,100 acre-ft (211 hm<sup>3</sup>) Apr. 15 at 0900 hours, elevation, 332.77 ft (101.428 m); minimum observed, 110,200 acre-ft (136 hm<sup>3</sup>) Oct. 29, elevation, 324.60 ft (98.938 ft).

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

324.0	106,400	330.0	148,700
326.0	119,600	332.0	164,700
328.0	133,700	334.0	181,600

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113600	111700	113700	120100	145900	161800	165800	166600	166000	162700	154600	147700
2	113500	111700	113600	120300	146300	161900	165400	166500	166000	162400	154200	147500
3	113400	111700	113700	120600	146600	162000	165300	165400	165900	162100	153900	147400
4	113400	111600	113700	120700	146900	162200	165100	165800	166000	161900	153500	147400
5	113000	111500	113700	120800	147300	162000	165000	166000	165900	161600	153300	147100
6	112800	111400	113700	121000	147500	162100	165000	165700	165800	161300	152900	147000
7	112700	111200	113700	120900	147700	162300	165400	165400	165800	161000	152800	146900
8	112500	111200	113400	121000	151000	162400	165000	165500	165900	160700	152400	146700
9	112300	112300	113400	121100	155000	162400	164900	165700	165800	160400	152000	146700
10	112100	112500	113200	121400	156400	162400	164700	165500	165800	160200	151700	146600
11	111900	112600	113200	121200	156900	162600	165000	165400	165500	159900	151600	146500
12	111800	112800	114200	121200	157500	163400	165200	165600	165200	159500	151300	146300
13	111500	112800	114400	121300	158100	163500	169000	165500	165000	159200	151200	146200
14	111400	112800	114600	121400	158600	163600	170800	165500	164700	158900	150800	146100
15	111300	112800	114800	121400	159200	163600	168500	167700	164500	158600	150600	145900
16	111200	112800	114700	122200	159500	165000	167000	166900	164200	158200	150500	145800
17	111300	112900	114800	122300	159800	166200	167000	167700	164000	157900	150100	145500
18	111300	113100	114800	122500	160100	166500	166700	167700	163700	157600	149900	145900
19	111300	113200	114900	122800	160400	166400	166500	165700	163400	157300	149500	145900
20	111300	113400	114900	123700	160700	166100	166200	166000	164500	157100	149300	146000
21	111300	113900	115400	126600	160800	166000	166000	166900	164200	156900	149000	145800
22	111200	113900	116000	136100	161000	165900	165900	167100	165000	156800	148700	145800
23	111200	113900	117700	138900	161200	166700	165700	167000	164900	156500	148200	145600
24	111100	113900	118200	140400	161300	165900	165500	166700	164600	156200	148000	146000
25	110900	114100	118600	141200	161400	165700	166900	166400	164400	155900	147700	145800
26	110700	114100	119000	142000	161500	165500	166000	166000	164100	155500	147400	145600
27	110600	114000	119300	142500	161600	166000	166500	165900	163700	155700	147500	145700
28	110400	113900	119500	143000	161700	166000	166000	165000	163400	155500	147300	145900
29	110200	113700	119800	144100	161900	166500	166200	166000	163200	155400	148000	149000
30	111400	113700	120000	145000	---	166100	166200	166000	162900	155000	148000	149000
31	111700	---	120100	145500	---	165800	---	166000	---	154800	147900	---
MAX	113600	114100	120100	145500	161900	166700	170800	167700	166000	162700	154600	149000
MIN	110200	111200	113200	120100	145900	161800	164700	165400	162900	154800	147300	145500
(†)	324.83	325.13	326.08	329.58	331.65	332.13	332.18	332.18	331.08	330.77	329.89	330.03
(‡)	-1800	+2000	+6400	+25400	+16400	+3900	+400	0	-8900	-2500	-6900	+1100
(††)	2820	677	1850	259	220	236	224	166	2150	1790	1940	478
CAL YR 1979	MAX	---	MIN	13970	†	---	††	---				
WTR YR 1980	MAX	170800	MIN	110200	†	+35500	††	12810				

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use.

## RED RIVER BASIN

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## 07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX

LOCATION.--Lat 33°01'15", long 94°52'55", Camp-Titus County line, Hydrologic Unit 11140305, near center of stream at downstream side of bridge on State Highway 11, 0.5 mi (0.8 km) upstream from Louisiana & Arkansas Railway Co. bridge, 1.4 mi (2.3 km) upstream from Williamson Creek, 5.2 mi (8.4 km) east of Pittsburg, 19.2 mi (30.9 km) downstream from Lake Bob Sandlin, and 110.0 mi (177.0 km) upstream from mouth.

DRAINAGE AREA.--366 mi<sup>2</sup> (948 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1943 to January 1963 (published as Cypress Creek near Pittsburg), October 1967 to current year. Gage-height records collected at this site September 1963 to December 1967 are published in reports by the Corps of Engineers.

REVISED RECORDS.--WSP 1211: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 247.49 ft (75.435 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 12, 1954, water-stage recorder at site 1,900 ft (579 m) downstream at present datum.

REMARKS.--Water-discharge records good. Flow partly regulated by Lake Cypress Springs (station 07344484) since July 1970 and by Monticello Reservoir (on Blundell Creek) since August 1972. Flow largely regulated by Lake Bob Sandlin (station 07344489) since August 1977. Records furnished by the city of Mount Pleasant show that 3,140 acre-ft (3.87 hm<sup>3</sup>) of sewage effluent was returned to a tributary above the station. Records furnished by the city of Pittsburg show that 718 acre-ft (0.885 hm<sup>3</sup>) of sewage effluent was returned to a tributary below the station.

AVERAGE DISCHARGE.--24 years (water years 1944-62, 1968-72), prior to combined regulation by Lake Cypress Springs and Monticello Reservoir, 327 ft<sup>3</sup>/s (9.261 m<sup>3</sup>/s), 12.13 in/yr (308 mm/yr), 236,900 acre-ft/yr (292 hm<sup>3</sup>/yr); 8 years (water years 1973-80) regulated, 280 ft<sup>3</sup>/s (7.930 m<sup>3</sup>/s) 202,900 acre-ft/yr (250 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,500 ft<sup>3</sup>/s (1,660 m<sup>3</sup>/s) Mar. 30, 1945, gage height, 28.3 ft (8.63 m), from floodmark and adjusted to present site on basis of record for flood of Apr. 27, 1958, from rating curve extended above 20,000 ft<sup>3</sup>/s (566 m<sup>3</sup>/s); no flow Aug. 20 to Oct 3, 1954, July 19 to Nov. 4, 1956. Maximum stage since at least 1895, that of Mar. 30, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in January 1938 reached a stage of about 25 ft (7.6 m), present site, adjusted as explained above, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,870 ft<sup>3</sup>/s (138 m<sup>3</sup>/s) Jan. 22 at 2000 hours, gage height, 14.83 ft (4.520 m); minimum, 2.6 ft<sup>3</sup>/s (0.074 m<sup>3</sup>/s) Aug. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	184	19	39	173	38	372	433	26	13	9.0	8.5
2	21	55	18	36	101	37	312	754	24	12	8.3	4.8
3	20	25	18	38	79	35	249	1900	22	12	9.1	3.6
4	19	20	17	49	69	34	178	2210	21	12	9.2	2.9
5	18	18	17	44	67	35	96	802	20	11	8.7	3.3
6	16	16	19	38	79	35	86	202	19	10	7.3	3.8
7	16	15	19	36	73	35	83	325	17	9.7	5.2	4.2
8	15	15	17	32	173	35	83	334	29	10	4.9	3.9
9	13	156	16	31	1010	34	81	202	201	9.9	4.6	4.0
10	15	386	16	29	1540	33	79	52	390	9.3	5.0	4.7
11	15	153	19	30	1010	33	81	165	132	9.1	5.0	7.6
12	15	40	22	29	496	74	118	174	31	12	4.8	5.1
13	14	28	207	27	205	112	407	214	23	12	4.3	3.9
14	13	24	303	26	124	61	1480	398	20	10	4.1	3.6
15	12	21	150	26	100	40	1760	249	19	9.6	4.3	3.3
16	13	20	54	65	87	108	1670	828	17	9.5	4.3	2.9
17	14	19	37	187	70	832	1910	3800	15	8.5	4.3	3.4
18	25	19	30	105	59	468	879	1820	15	8.1	4.4	8.0
19	26	22	28	52	57	161	472	984	15	7.8	4.1	7.9
20	18	24	28	178	55	159	332	835	29	7.9	4.0	9.5
21	16	38	27	723	51	221	293	944	151	8.4	3.9	6.8
22	15	87	138	3470	49	167	247	327	170	8.1	4.1	4.6
23	14	64	376	3900	46	90	172	430	145	10	4.4	3.7
24	15	40	646	1660	42	90	152	414	122	9.9	4.6	3.2
25	15	31	587	741	40	96	688	347	38	8.8	3.7	2.8
26	14	27	273	255	37	114	2690	319	24	8.0	3.1	3.8
27	13	23	92	127	37	131	3040	300	20	8.6	2.7	4.8
28	13	21	60	91	37	262	1450	172	18	23	3.1	5.2
29	13	19	48	117	37	432	867	39	16	34	6.3	13
30	17	19	47	214	---	527	539	31	14	15	7.1	38
31	187	---	45	248	---	481	---	28	---	11	12	---
TOTAL	673	1629	3393	12643	6003	5010	20866	20032	1803	348.2	169.9	184.8
MEAN	21.7	54.3	109	408	207	162	696	646	60.1	11.2	5.48	6.16
MAX	187	386	646	3900	1540	832	3040	3800	390	34	12	38
MIN	12	15	16	26	37	33	79	28	14	7.8	2.7	2.8
AC-FT	1330	3230	6730	25080	11910	9940	41390	39730	3580	691	337	367
CAL YR 1979	TOTAL	78884.7	MEAN	216	MAX	4720	MIN	6.6	AC-FT	156500		
WTR YR 1980	TOTAL	72754.9	MEAN	199	MAX	3900	MIN	2.7	AC-FT	144300		

## RED RIVER BASIN

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to current year.

WATER TEMPERATURES: October 1968 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1968-69, 1971-80): Maximum daily, 941 micromhos Sept. 1, 1971; minimum daily, 69 micromhos July 30, 1969, Sept. 22, 1979.

WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 20, 1969; minimum daily, 0.5°C Jan. 21, 22, 1978.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 571 micromhos Sept. 15; minimum daily, 98 micromhos Jan. 23.

WATER TEMPERATURES: Maximum daily, 29.0°C July 19; minimum daily, 2.0°C Feb. 11.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 31...	1645	229	175	16.0	34	20	8.3	3.1	13
NOV 30...	1545	19	396	10.0	83	62	20	8.0	38
DEC 26...	0730	320	256	12.0	73	49	17	7.5	25
FEB 12...	1550	431	212	5.5	51	31	12	5.1	17
APR 14...	0730	1310	146	8.0	38	17	8.8	3.9	12
MAY 13...	1215	198	265	21.0	65	29	15	6.6	25
JUL 22...	0630	8.5	401	26.0	71	24	18	6.4	44
AUG 31...	0930	15	517	25.0	78	18	20	6.8	59
SEP 03...	0630	3.7	550	25.0	78	28	20	6.9	64

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 31...	1.0	7.5	17	0	25	21	.1	9.5	96
NOV 30...	1.8	5.8	25	0	68	52	.1	19	223
DEC 26...	1.3	5.6	30	0	55	33	.1	14	172
FEB 12...	1.0	3.8	24	0	41	22	.1	9.7	123
APR 14...	.8	4.0	26	0	27	18	.1	5.9	93
MAY 13...	1.4	4.7	44	0	39	33	.2	6.9	152
JUL 22...	2.3	9.6	58	0	49	55	.4	8.5	220
AUG 31...	2.9	12	73	0	54	74	.4	6.2	268
SEP 03...	3.1	13	62	0	57	84	.5	8.3	284

## RED RIVER BASIN

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07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	673	295	163	296	38	70	40	72	63
NOV.	1979	1629	231	129	568	29	126	32	143	53
DEC.	1979	3393	290	160	1470	37	340	39	362	63
JAN.	1980	12643	159	90	3060	19	660	23	782	38
FEB.	1980	6003	220	123	2000	27	443	31	503	51
MAR.	1980	5010	262	146	1970	33	451	36	487	58
APR.	1980	20866	185	105	5910	22	1250	27	1530	45
MAY	1980	20032	199	113	6090	24	1300	29	1570	48
JUNE	1980	1803	259	144	703	33	159	36	175	58
JULY	1980	348.2	360	196	184	48	45	47	44	73
AUG.	1980	169.9	421	225	103	59	27	52	24	78
SEPT	1980	184.8	482	255	127	69	34	57	28	82
TOTAL		72754.9	**	**	22500	**	4900	**	5710	**
WTD. AVG.		199	204	114	**	25	**	29	**	48

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	285	200	394	400	287	384	241	225	344	352	296	543
2	288	252	390	392	299	394	240	187	350	360	326	567
3	296	260	402	396	318	407	243	178	365	376	344	550
4	302	280	408	370	345	389	241	202	375	380	366	542
5	314	295	402	414	356	387	297	223	388	386	360	537
6	320	308	386	418	358	412	291	263	386	385	361	509
7	322	320	400	422	382	427	288	224	390	376	368	478
8	342	316	410	425	320	423	286	227	368	379	367	454
9	336	163	416	426	197	429	298	225	275	375	367	431
10	340	150	430	412	150	433	280	276	221	384	372	402
11	352	220	444	418	158	428	286	383	260	387	376	398
12	318	242	425	438	196	407	258	220	310	395	376	437
13	322	260	288	450	220	386	198	270	345	391	367	473
14	356	286	270	440	283	432	146	247	344	387	382	540
15	384	300	300	438	306	426	139	224	355	363	412	571
16	376	310	320	420	330	360	169	140	356	369	431	569
17	366	318	350	394	346	127	197	178	360	381	437	569
18	326	320	372	376	347	230	222	168	362	384	447	565
19	366	322	378	392	360	333	230	204	360	385	460	561
20	348	314	392	384	363	287	232	211	352	396	490	533
21	328	306	404	284	380	243	231	210	227	403	506	432
22	376	254	342	114	385	253	230	218	208	401	512	449
23	404	280	288	98	404	292	245	234	180	395	522	448
24	388	300	248	106	408	274	246	216	224	398	526	452
25	386	332	260	160	383	288	218	217	247	398	522	470
26	376	344	256	240	394	277	149	217	286	404	519	477
27	366	346	290	274	397	265	163	217	313	396	533	494
28	360	362	320	296	392	235	179	218	341	340	535	456
29	370	380	338	318	387	286	212	265	354	252	530	450
30	350	396	356	296	---	261	222	302	370	264	491	438
31	175	---	382	280	---	262	---	326	---	283	517	---
MEAN	340	291	357	345	326	337	229	230	321	372	433	493

## RED RIVER BASIN

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	14.0	8.0	11.0	4.0	10.0	13.0	17.0	23.0	27.0	25.0	25.0
2	22.0	14.0	8.0	10.0	4.0	---	15.0	17.0	24.0	27.0	25.0	25.0
3	23.0	---	8.0	12.0	4.0	4.0	16.0	18.0	24.0	27.0	26.0	25.0
4	23.0	11.0	9.0	11.0	5.0	6.0	15.0	19.0	24.0	27.0	26.0	25.0
5	22.0	12.0	11.0	8.0	6.0	6.0	14.0	19.0	24.0	27.0	26.0	25.0
6	23.0	12.0	8.0	7.0	5.0	8.0	15.0	20.0	25.0	27.0	26.0	25.0
7	17.0	12.0	11.0	8.0	6.0	11.0	16.0	20.0	---	27.0	26.0	25.0
8	20.0	12.0	11.0	6.0	5.0	14.0	16.0	19.0	26.0	27.0	26.0	25.0
9	20.0	15.0	9.0	6.0	4.0	12.0	15.0	16.0	---	27.0	26.0	25.0
10	17.0	13.0	10.0	7.0	3.0	12.0	15.0	17.0	27.0	27.0	26.0	24.0
11	18.0	12.0	13.0	9.0	2.0	14.0	16.0	20.0	---	27.0	26.0	24.0
12	18.0	10.0	---	10.0	4.0	12.0	15.0	21.0	---	27.0	26.0	24.0
13	19.0	10.0	10.0	7.0	---	13.0	10.0	20.0	26.0	27.0	26.0	24.0
14	16.0	10.0	10.0	7.0	7.0	12.0	8.0	20.0	28.0	27.0	26.0	24.0
15	17.0	10.0	9.0	9.0	10.0	14.0	10.0	19.0	26.0	27.0	26.0	24.0
16	17.0	10.0	9.0	11.0	9.0	14.0	13.0	18.0	25.0	27.0	26.0	24.0
17	17.0	10.0	9.0	11.0	6.0	14.0	15.0	19.0	25.0	27.0	26.0	24.0
18	19.0	10.0	8.0	11.0	5.0	11.0	16.0	21.0	25.0	27.0	26.0	24.0
19	20.0	14.0	9.0	12.0	6.0	12.0	17.0	21.0	26.0	29.0	26.0	23.0
20	21.0	15.0	11.0	12.0	9.0	13.0	17.0	20.0	25.0	27.0	26.0	23.0
21	21.0	16.0	12.0	11.0	12.0	12.0	16.0	21.0	23.0	27.0	26.0	24.0
22	20.0	13.0	16.0	10.0	13.0	12.0	16.0	20.0	24.0	26.0	26.0	25.0
23	18.0	11.0	16.0	8.0	13.0	14.0	17.0	19.0	23.0	26.0	26.0	25.0
24	17.0	14.0	15.0	7.0	12.0	12.0	17.0	21.0	25.0	25.0	25.0	25.0
25	14.0	11.0	13.0	9.0	10.0	12.0	18.0	21.0	25.0	25.0	25.0	24.0
26	14.0	11.0	12.0	10.0	13.0	12.0	16.0	21.0	26.0	25.0	25.0	23.0
27	17.0	13.0	13.0	10.0	8.0	13.0	15.0	21.0	26.0	26.0	25.0	21.0
28	17.0	11.0	13.0	7.0	9.0	12.0	16.0	21.0	27.0	24.0	24.0	18.0
29	17.0	9.0	13.0	6.0	12.0	15.0	16.0	22.0	27.0	24.0	24.0	18.0
30	---	10.0	13.0	6.0	---	13.0	16.0	23.0	27.0	24.0	23.0	18.0
31	16.0	---	11.0	3.0	---	12.0	---	23.0	---	25.0	25.0	---
MEAN	19.0	12.0	11.0	9.0	7.5	11.5	15.0	20.0	25.0	26.5	25.5	23.5



## 07345500 ELLISON CREEK RESERVOIR NEAR LONE STAR, TX

LOCATION.--Lat 32°55'16", long 94°43'17", Morris County, Hydrologic Unit 11140305, at pumphouse of Lone Star Steel Co., on left bank 1,700 ft (518 m) upstream from Ellison Creek Dam on Ellison Creek, 0.6 mi (1.0 km) upstream from Big Cypress Creek, and 1.4 mi (2.3 km) southwest of Lone Star.

DRAINAGE AREA.--37.0 mi<sup>2</sup> (95.8 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 22, 1943, staff gage at site just upstream from dam at datum 200 ft (61.0 m) lower.

REMARKS.--The reservoir is formed by a rolled earthfill dam 4,000 ft (1,200 m) long, with an uncontrolled concrete spillway 300 ft (91 m) long at the left end of dam. Deliberate impoundment began Jan. 14, 1943, and the dam was completed in April 1943. Another spillway is cut through natural ground near the right end of dam. In addition, there is a relief dam, approximately 125 ft (38 m) long, located near the reservoir pumphouse that can be breached if the other spillways are unable to release sufficient floodwater. There is a 36-inch-diameter (914 mm) conduit through the dam that is used for pumping water from Big Cypress Creek into the reservoir and can also be used to discharge water from the reservoir into Big Cypress Creek. The dam is owned by Lone Star Steel Co. Records furnished by the company show that during the current year, the city of Lone Star diverted 245 acre-ft (302,000 m<sup>3</sup>) from the reservoir. Area capacity curves are based on a survey made in 1942. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

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

COOPERATION.--Capacity table, area-capacity curves, and records of diversions were furnished by Lone Star Steel Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 31,240 acre-ft (38.5 hm<sup>3</sup>) Apr. 26, 1958, elevation, 272.11 ft (82.939 m); minimum since lake first filled in May 1944, 15,760 acre-ft (19.4 hm<sup>3</sup>) Dec. 24, 1975, elevation, 261.28 ft (79.638 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 25,870 acre-ft (31.9 hm<sup>3</sup>) Jan. 22, elevation, 268.90 ft (81.961 m); minimum, 21,550 acre-ft (26.6 hm<sup>3</sup>) Sept. 18, elevation, 266.01 ft (81.080 m).

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

266.0	21,540	268.0	24,470
267.0	22,970	269.0	26,020

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22640	24160	23590	24040	24560	23120	24590	24370	22910	24050	23630	22460
2	22410	24220	23680	23930	24500	22970	24430	24430	22880	23980	23590	22420
3	22160	23990	23740	23920	24430	22840	24380	24380	22880	23930	23560	22370
4	22020	23770	23830	23870	24350	22850	24260	24290	22880	23900	23510	22300
5	22020	23630	23890	23800	24290	22910	24160	24170	22880	23860	23500	22230
6	22040	23710	23930	23720	24220	22960	24040	24100	22870	23830	23470	22160
7	22060	23780	23980	23660	24160	23050	23920	24220	22880	23830	23420	22130
8	22070	23870	24020	23590	24800	22990	23780	24250	23240	23830	23420	22090
9	22130	24630	24050	23540	25180	23240	23630	24130	23600	23830	23390	22090
10	22130	24720	24100	23450	25090	23330	23440	24020	23660	23830	23380	22040
11	22160	24660	24170	23360	24900	23410	23570	23920	23690	23830	23360	22020
12	22160	24550	24530	23210	24780	23900	23770	23930	23720	23810	23350	21960
13	22130	24440	24630	23080	24670	24050	25120	23900	23720	23800	23320	21900
14	22100	24340	24550	22970	24580	24110	25210	23770	23690	23800	23260	21900
15	22040	24230	24470	22880	24530	24190	24970	24020	23660	23800	23230	21880
16	22040	24110	24370	22880	24410	25060	24730	24470	23650	23780	23180	21790
17	22200	23980	24230	22880	24350	25150	24610	24530	23720	23740	23150	21710
18	22300	23870	24140	22990	24290	24890	24500	24470	23710	23660	23110	21820
19	22320	23780	24040	23170	24200	24730	24400	24490	23680	23620	23030	21810
20	22380	23630	23950	23590	24110	24660	24290	24380	23930	23570	22990	21790
21	22480	23930	23840	24170	24040	24560	24160	24310	23980	23570	22940	21760
22	22690	23960	24050	25870	23960	24670	24040	24200	24190	23570	22910	21780
23	22720	23960	24500	25380	23870	24460	23860	24070	24230	23570	22870	21780
24	22790	23920	24690	25070	23800	24440	23680	23930	24250	23560	22810	21820
25	22870	23810	24670	24900	23690	24370	25210	23810	24250	23540	22750	21810
26	22910	23710	24590	24810	23560	24280	25230	23690	24250	23500	22640	21740
27	22960	23620	24530	24730	23420	24260	24950	23510	24230	23680	22580	21720
28	23030	23450	24430	24690	23330	24320	24750	23300	24140	23680	22580	21720
29	23110	23420	24370	24690	23230	24550	24590	23110	24080	23680	22570	21820
30	23570	23510	24260	24690	---	24610	24470	23000	24080	23680	22540	22210
31	24020	---	24140	24610	---	24590	---	22940	---	23660	22480	---
MAX	24020	24720	24690	25870	25180	25150	25230	24530	24250	24050	23630	22460
MIN	22020	23420	23590	22880	23230	22840	23440	22940	22870	23500	22480	21710
(†)	267.70	267.36	267.78	268.09	267.17	268.08	268.00	266.98	267.74	267.46	266.67	266.48
(‡)	+1090	-510	+630	+470	+1380	-1360	-120	-1530	+1140	-420	-1180	-270
(††)	10440	13990	14610	14920	13600	15300	14300	14220	15860	18010	16720	15150

CAL YR 1979 MAX 25680 MIN 22020 † +490 †† 125200  
WTR YR 1980 MAX 25870 MIN 21710 ‡ -720 †† 177100

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for industrial use by Lone Star Steel Co.



## RED RIVER BASIN

07345500 ELLISON CREEK RESERVOIR NEAR LONE STAR, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
SEP 10...	1115	360	30.0	100	68	32	5.4	20	.9

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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)
SEP 10...	10	42	0	78	34	1.1	.4	202

## 07345900 LAKE O' THE PINES NEAR JEFFERSON, TX

LOCATION.--Lat 32°45'04", long 94°29'59", Marion County, Hydrologic Unit 11140305, on left bank 1,500 ft (457 m) upstream from left end of Ferrell's Bridge Dam on Big Cypress Creek, on Farm Road 726, 9.0 mi (14.5 km) west of Jefferson, and 80.1 mi (128.9 km) upstream from mouth.

DRAINAGE AREA.--850 mi<sup>2</sup> (2,202 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Nov. 12, 1957, nonrecording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 10,600 ft (3,230 m) long, including a 200-foot (61 m) concrete spillway. Impoundment of water began Aug. 21, 1957, and the dam was completed June 25, 1958. Official operation began Dec. 11, 1959. The flood-control outlet works consist of two 10.0-foot-diameter (3.0 m) conduits that are controlled by two 8.0- by 12.5-foot (2.4 by 3.8 m) electrically driven broome-type gates. The low-flow outlet works consist of one controlled 14-inch (356 mm) pipe. Flow over the spillway is discharged into a 2,000-foot (610 m) channel and then into Cypress Creek. The capacity table is based on a survey made in 1950. The lake was built for flood control, conservation, and water supply. During the current year, 870 acre-ft (1.07 hm<sup>3</sup>) was diverted from lake for municipal use and 3,830 acre-ft (4.72 hm<sup>3</sup>) was diverted by Southwestern Electric Power Co. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	277.0	-
Crest of spillway.....	249.5	842,100
Top of conservation pool.....	228.5	254,900
Crest of intake to wet well (14 in).....	202.5	5,760
Lowest gated outlet (invert).....	200.0	2,860

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 694,360 acre-ft (856 hm<sup>3</sup>) May 5, 1966, elevation, 245.41 ft (74.801 m); minimum since December 1959, 219,700 acre-ft (271 hm<sup>3</sup>) Nov. 16, 1963, elevation, 226.54 ft (69.049 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 331,200 acre-ft (408 hm<sup>3</sup>) Feb. 1 at 0001 hours, elevation, 232.29 ft (70.802 m); minimum, 249,500 acre-ft (308 hm<sup>3</sup>) Sept. 28 at 0800 hours, elevation, 228.21 ft (69.558 m).

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

228.0	245,600	232.0	324,800
230.0	283,700	234.0	348,800

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	289600	259700	255400	256900	329100	255800	263700	268500	283500	283500	270400	256300
2	283700	260100	254800	256500	325600	254800	264300	268500	283500	283300	269900	256300
3	279000	259700	254800	257300	321600	255200	264700	265600	283300	282300	269100	256300
4	272100	259000	254800	257100	316300	255400	263900	264500	283300	282300	268100	255200
5	266200	258800	254800	256500	313200	255600	262800	263900	283100	282100	268100	255000
6	262200	257800	255600	255400	307100	256000	261400	264500	282700	281700	267700	254500
7	259200	256700	255800	256500	303400	256300	260700	264300	282700	281500	267700	254300
8	256900	255400	255400	256700	304500	256500	259200	262800	286100	281300	267300	253900
9	256000	257300	255600	257100	304500	256700	256900	260900	286100	280100	266800	253500
10	254800	257100	255800	258000	303800	257800	256300	260100	286300	279500	266200	253000
11	254500	257800	257700	258000	304700	257500	257700	259200	287900	279300	266200	252800
12	254500	259000	259000	256700	304700	257700	258600	262600	287700	278800	265600	252100
13	253400	259200	259000	256900	303400	258600	264800	264300	288100	278400	265000	251900
14	253500	258400	258800	256500	301600	258400	267700	265200	287500	277800	264700	251300
15	253400	257100	258600	256700	299700	257700	271800	269100	287100	276600	264300	251100
16	253400	256500	258600	256500	295300	260500	273700	273300	286700	276200	263900	250200
17	254800	255600	257100	256300	289600	261600	274300	275400	286100	275400	263300	250000
18	254800	255800	256500	256000	284900	263300	273700	282000	285700	275200	262800	251700
19	254800	256200	256700	256900	280900	265000	272100	286100	285500	274700	262400	251700
20	254700	255800	256700	258600	275800	266200	269200	290000	285900	275100	262000	251900
21	254800	257700	257700	262200	271400	264700	266200	292100	286100	274700	261200	251300
22	256300	260100	260900	276800	266200	262200	262400	293500	286700	273900	260300	251300
23	256000	260100	266200	289600	262200	262400	259200	293700	286900	273700	259500	251100
24	255600	260900	266200	306100	259200	259200	257700	293300	287300	272300	259000	250900
25	255600	262400	266000	314800	257100	256700	262400	293300	287300	271900	258600	250600
26	255200	260900	265200	320500	256000	255200	264300	292100	286700	271600	258200	250000
27	255200	260500	264500	323900	255600	256000	268500	290000	286300	272100	258600	250000
28	255200	251500	263300	326700	255200	256700	272500	288700	285700	271900	258000	249800
29	254800	257100	262400	328800	255200	260700	273300	286900	284900	271600	257500	253400
30	259000	256000	260300	330800	---	261800	271200	285500	284100	271400	256900	253400
31	260100	---	258600	331000	---	262400	---	284100	---	270600	256500	---
MAX	289600	262400	266200	331000	329100	266200	274300	293700	288100	283500	270400	256300
MIN	253400	255400	254800	255400	255200	254800	256300	259200	282700	270600	256500	249800
(†)	228.78	228.56	228.70	232.29	228.52	228.90	229.36	230.02	230.02	229.33	228.59	228.42
(†)	-35800	-4100	+2600	+72400	-75800	+7200	+8800	+12900	0	-13500	-14100	-3100
(††)	64	59	58	63	57	72	58	60	73	815	1465	1855
CAL YR 1979	MAX	308800	MIN	241100	+	+20200	††	1010				
WTR YR 1980	MAX	331000	MIN	249800	+	-42500	††	4700				

† Elevation, in feet, at end of month.

± Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial use.

## RED RIVER BASIN

07345900 LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

## WATER-QUALITY RECORDS

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

324509094303901 LAKE O'THE PINES SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
06...	1320	1.0	110	6.6	8.5	10.8	92
06...	1321	10	110	6.6	8.5	10.7	91
06...	1322	20	110	6.6	8.0	10.7	90
06...	1323	31	110	6.6	8.0	10.6	89
MAY							
29...	0955	1.0	128	6.5	25.5	7.8	95
29...	0956	10	128	6.0	23.0	4.9	57
29...	0957	20	128	5.9	21.5	3.8	43
29...	0958	27	137	6.0	19.5	1.0	11
AUG							
13...	1055	1.0	122	7.0	31.5	7.3	99
13...	1057	10	122	6.5	30.5	6.8	91
13...	1059	20	122	5.9	28.5	1.0	13
13...	1101	28	146	6.6	24.0	.2	2

324518094300801 LAKE O'THE PINES SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
FEB										
06...	1300	1.0	110	6.6	8.5	2.10	10.8	92	21	14
06...	1302	10	110	6.5	8.5	--	10.7	91	--	--
06...	1303	20	110	6.4	8.0	--	10.6	89	--	--
06...	1304	30	110	6.3	8.0	--	10.5	88	--	--
06...	1305	40	110	6.3	8.0	--	10.5	88	--	--
06...	1306	48	110	6.3	8.0	--	10.4	87	21	14
MAY										
29...	0900	1.0	128	6.5	25.5	1.80	7.9	96	28	20
29...	0902	10	128	5.9	22.5	--	4.9	57	--	--
29...	0903	20	128	5.9	21.5	--	4.0	45	--	--
29...	0904	25	131	5.9	20.5	--	2.0	22	--	--
29...	0905	30	136	6.0	19.5	--	.9	10	--	--
29...	0906	40	142	6.1	19.0	--	.3	3	--	--
29...	0907	48	145	6.1	18.5	--	.2	2	30	12
AUG										
13...	1025	1.0	122	6.8	31.5	1.70	7.3	99	23	15
13...	1027	10	122	6.5	30.5	--	6.9	92	--	--
13...	1029	15	122	6.0	29.0	--	4.6	60	--	--
13...	1031	20	122	5.8	28.0	--	.6	8	--	--
13...	1033	30	151	6.7	23.0	--	.2	2	--	--
13...	1037	40	161	6.8	22.0	--	.2	2	--	--
13...	1039	45	161	6.8	22.0	--	.2	2	34	1

## RED RIVER BASIN

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## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324518094300801 LAKE O'THE PINES SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
FEB									
06...	3.8	2.7	10	1.0	4.1	8	0	22	14
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	3.8	2.7	9.9	1.0	4.1	8	0	24	14
MAY									
29...	6.0	3.1	10	.8	3.5	10	0	25	14
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	6.7	3.1	10	.8	3.6	22	0	25	12
AUG									
13...	4.1	3.2	11	1.0	3.8	10	0	23	15
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	7.7	3.5	11	.8	3.8	58	0	35	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)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
06...	.2	6.8	68	.06	.45	.51	.010	30	3
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	.07	.42	.49	.010	50	20
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	6.8	69	.07	.41	.48	.010	50	20
MAY									
29...	.1	8.6	75	.11	.42	.53	.020	80	40
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	.13	.23	.36	.020	80	450
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	.14	.44	.58	.020	100	1800
29...	--	--	--	--	--	--	--	--	--
29...	--	11	86	.06	.63	.69	.020	70	3700
AUG									
13...	.2	11	76	.00	1.1	1.1	.020	<10	8
13...	--	--	--	.00	.45	.45	.020	10	20
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	.00	.71	.71	.030	80	630
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	16	124	.00	2.0	2.0	.200	5800	6900

## RED RIVER BASIN

## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324613094323001 LAKE O'THE PINES SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
FEB							
06...	1330	1.0	118	6.6	8.5	1.80	10.8
06...	1331	10	118	6.6	8.0	--	10.8
06...	1332	20	118	6.6	8.0	--	10.8
06...	1333	30	115	6.6	8.0	--	10.8
06...	1334	41	113	6.6	8.0	--	10.7
MAY							
29...	1015	1.0	126	6.7	26.5	2.01	7.8
29...	1016	10	126	6.4	26.0	--	7.4
29...	1017	20	130	5.9	21.0	--	2.7
29...	1018	30	135	6.0	20.0	--	1.2
29...	1019	40	141	6.1	19.0	--	.4
AUG							
13...	1120	1.0	120	7.2	31.0	1.60	7.4
13...	1122	10	120	6.7	30.0	--	7.1
13...	1124	15	120	6.4	30.0	--	6.7
13...	1126	20	125	5.9	28.0	--	.1
13...	1128	30	160	6.8	23.0	--	.1
13...	1130	40	179	7.0	21.5	--	.1
13...	1132	44	181	7.0	21.5	--	.1

DATE	TIME	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB								
06...	92	.10	.42	.52	.010	60	10	--
06...	91	--	--	--	--	--	--	--
06...	91	.10	.42	.52	.010	60	10	--
06...	91	--	--	--	--	--	--	--
06...	90	.08	.38	.46	.010	60	10	--
MAY								
29...	98	.08	2.0	2.1	.020	90	50	--
29...	91	--	--	--	--	--	--	--
29...	30	.13	2.4	2.5	.020	80	340	--
29...	13	.11	.21	.32	.020	80	1200	--
29...	4	.13	1.9	2.0	.020	100	2200	--
AUG								
13...	99	.00	.47	.47	.020	10	0	--
13...	95	.00	.62	.62	.020	20	30	--
13...	89	--	--	--	--	--	--	--
13...	1	.00	.56	.56	.020	50	1600	--
13...	1	--	--	--	--	--	--	--
13...	1	--	--	--	--	--	--	--
13...	1	.00	2.3	2.3	.380	9100	6800	--

324738094325101 LAKE O'THE PINES SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
06...	1355	1.0	105	6.4	8.5	10.0	85
06...	1356	10	108	6.4	8.0	10.1	85
06...	1357	20	108	6.4	8.0	10.0	84
06...	1358	24	108	6.4	8.0	10.0	84
MAY							
29...	1040	1.0	128	7.0	28.0	8.0	103
29...	1041	10	128	6.8	27.0	7.8	98
29...	1042	15	128	6.0	24.0	3.9	46
29...	1043	21	138	6.1	22.0	.2	2
AUG							
13...	1150	1.0	122	7.1	31.5	7.4	100
13...	1152	10	122	6.4	31.0	6.3	84
13...	1154	15	122	5.8	29.5	.1	1
13...	1156	20	130	5.8	29.0	.1	1

## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324806094350001 LAKE O'THE PINES SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
06...	1435	1.0	66	6.1	8.0	9.5	80
06...	1436	10	87	6.3	7.5	9.7	81
06...	1437	17	98	6.3	7.5	9.7	81
MAY							
29...	1135	1.0	123	6.6	28.0	7.7	99
29...	1136	10	123	6.4	27.5	7.3	92
29...	1137	15	89	5.8	24.5	2.2	26
29...	1138	22	98	5.8	23.5	.7	8
AUG							
13...	1250	1.0	120	6.6	31.5	6.9	93
13...	1252	10	120	6.0	30.5	4.8	64
13...	1254	15	123	5.8	29.5	.2	3
13...	1256	20	123	5.8	29.5	.1	1
13...	1258	23	123	5.8	29.5	.1	1

324726094363801 LAKE O'THE PINES SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
FEB									
06...	1410	1.0	145	6.7	8.0	1.70	10.6	89	32
06...	1411	10	146	6.7	7.5	--	10.5	88	--
06...	1412	20	146	6.7	7.5	--	10.5	88	--
06...	1413	33	146	6.7	7.5	--	10.4	87	32
MAY									
29...	1100	1.0	128	6.8	27.5	1.77	7.8	99	29
29...	1101	10	128	6.7	27.0	--	7.6	95	--
29...	1102	15	128	6.3	27.0	--	5.9	74	--
29...	1103	20	133	5.8	23.0	--	1.4	16	--
29...	1104	25	135	5.9	22.0	--	.8	9	--
29...	1105	29	142	6.1	20.5	--	.2	2	31
AUG									
13...	1220	1.0	118	6.7	32.0	1.70	7.5	103	21
13...	1222	10	118	6.3	30.5	--	6.7	89	--
13...	1224	15	118	5.7	29.5	--	1.9	25	--
13...	1226	20	118	5.7	29.0	--	.1	1	--
13...	1228	29	170	7.0	23.0	--	.1	1	36

DATE	HARD- NESS, NONCAR- BONATE (MG/L AS CAC03)	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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
06...	22	7.3	3.3	12	.9	4.4	12	0	30
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	22	7.5	3.3	12	.9	4.4	12	0	32
MAY									
29...	19	6.0	3.3	9.7	.8	3.7	12	0	24
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	15	6.9	3.4	11	.9	3.8	20	0	25
AUG									
13...	16	2.8	3.3	11	1.1	3.9	6	0	23
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	0	8.2	3.8	13	.9	3.9	69	0	4.4



## RED RIVER BASIN

## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324726094363801 LAKE O'THE PINES SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
06...	16	9.8	89	.24	.52	.76	.020	200	40
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	16	10	91	.25	.49	.74	.020	220	40
MAY									
29...	13	8.5	74	.06	.87	.93	.020	110	30
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	.11	2.1	2.2	.030	180	830
29...	--	--	--	--	--	--	--	--	--
29...	13	11	86	.06	2.0	2.1	.030	180	1600
AUG									
13...	16	12	75	.00	.58	.58	.030	20	20
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	.00	.65	.65	.050	170	1200
13...	15	17	117	.00	2.7	2.7	.210	11000	6900

325100094420301 LAKE O'THE PINES SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)
FEB									
06...	1600	1.0	150	6.7	7.0	.70	9.8	81	38
06...	1602	10	150	6.7	7.0	--	9.7	80	--
06...	1603	24	148	6.6	6.5	--	9.6	78	37
MAY									
29...	1340	1.0	178	6.8	27.5	.91	7.4	94	48
29...	1342	10	191	6.3	26.0	--	3.9	48	--
29...	1343	15	195	6.3	25.0	--	1.7	20	--
29...	1344	22	195	6.2	25.0	--	.7	8	52
AUG									
13...	1430	1.0	126	6.0	32.5	.90	6.3	88	21
13...	1432	10	147	6.2	30.5	--	1.9	25	--
13...	1434	15	164	6.3	30.0	--	.1	1	--
13...	1436	20	173	6.5	30.0	--	.1	1	38

DATE	HARD- NESS, NONCAR- BONATE (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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
06...	22	9.7	3.3	11	.8	4.3	20	0	31
06...	--	--	--	--	--	--	--	--	--
06...	21	9.4	3.4	11	.8	4.2	19	0	31
MAY									
29...	19	12	4.4	13	.8	4.3	36	0	26
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	17	13	4.7	13	.8	4.5	42	0	26
AUG									
13...	15	2.8	3.5	13	1.2	4.3	8	0	20
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	3	8.1	4.3	17	1.2	4.5	43	0	19

## RED RIVER BASIN

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## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

325100094420301 LAKE O'THE PINES SITE FC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
06...	14	12	96	.29	.59	.88	.060	310	70
06...	--	--	--	--	--	--	--	--	--
06...	14	13	96	.26	.84	1.1	.060	310	70
MAY									
29...	16	8.2	102	.04	2.7	2.7	.070	280	30
29...	--	--	--	.09	2.1	2.2	.070	370	150
29...	--	--	--	--	--	--	--	--	--
29...	17	9.5	109	.09	.90	.99	.080	420	630
AUG									
13...	19	16	83	.00	.90	.90	.070	80	70
13...	--	--	--	.00	.85	.85	.070	100	60
13...	--	--	--	--	--	--	--	--	--
13...	20	17	114	.00	1.3	1.3	.120	1200	1400

324518094300801 LAKE O'THE PINES SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)
FEB							
06...	1300	1.0	0	50	<1	0	0
06...	1303	20	--	--	--	--	--
06...	1306	48	0	50	<1	0	0
MAY							
29...	0900	1.0	1	60	<1	0	2
29...	0903	20	--	--	--	--	--
29...	0905	30	--	--	--	--	--
29...	0907	48	1	100	<1	0	2
AUG							
13...	1025	1.0	1	40	<1	10	1
13...	1027	10	--	--	--	--	--
13...	1031	20	--	--	--	--	--
13...	1039	45	6	200	1	10	1

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB							
06...	30	0	3	.0	0	0	<3
06...	50	--	20	--	--	--	--
06...	50	0	20	.0	0	0	4
MAY							
29...	80	5	40	.0	0	0	<3
29...	80	--	450	--	--	--	--
29...	100	--	1800	--	--	--	--
29...	70	2	3700	.1	0	0	20
AUG							
13...	<10	4	8	.0	0	0	<3
13...	10	--	20	--	--	--	--
13...	80	--	630	--	--	--	--
13...	5800	4	6900	.1	0	0	<3

## RED RIVER BASIN

## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324518094300801 LAKE O' THE PINES SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	FEB 6, 80 1301	MAY 29, 80 0901	AUG 13, 80 1026
TOTAL CELLS/ML	210000	11000	820
DIVERSITY: DIVISION	0.3	1.3	0.9
..CLASS	0.3	1.3	0.9
..ORDER	0.5	2.2	1.5
...FAMILY	0.5	2.6	1.9
....GENUS	0.5	2.8	1.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	370	3	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	1300	1	140	1	270#	33
....CHLORELLA	7200	3	--	-	--	-
....DICTYOSPHAERIUM	--	-	430	4	--	-
....KIRCHNERIELLA	*	0	*	0	--	-
...OOCYSTIS	--	-	270	3	--	-
....TREUBARIA	--	-	*	0	--	-
..SCENEDESMACEAE						
...SCENEDESMUS	*	0	370	3	--	-
..VOLVOCELES						
..CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	-	160	2	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....EUASTRUM	--	-	*	0	--	-
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCEAE						
....CYCLOTELLA	*	0	430	4	140#	17
....MELOSIRA	1700	1	270	3	--	-
...PENNALES						
...FRAGILARIACEAE						
....SYNEDRA	*	0	110	1	--	-
...NAVICULACEAE						
....NAVICULA	--	-	*	0	140#	17
...NITZSCHACEAE						
....NITZSCHIA	--	-	--	-	270#	33
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	500	5	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	200000#	93	3500#	33	--	-
...HORMOGONALES						
...NOSTOCACEAE						
....APHANIZOMENON	--	-	3500#	33	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	1200	1	480	5	--	-
...SCHIZOTRICH	3400	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

325100094420301 LAKE O'THE PINES SITE FC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	FEB 6,80 1601	MAY 29,80 1341	AUG 13,80 1431
TOTAL CELLS/ML	3300	42000	22000
DIVERSITY: DIVISION	1.3	1.6	0.8
..CLASS	1.3	1.7	0.8
..ORDER	1.3	2.1	1.7
...FAMILY	2.0	2.4	1.8
....GENUS	2.9	3.2	1.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
....MICRACTINIACEAE						
....MICRACTINIUM	39	1	--	-	*	0
...OOCYSTACEAE						
....ANKISTRODESMUS	430	13	1800	4	*	0
....CHLORELLA	1100#	33	--	-	--	-
....CHODATELLA	20	1	--	-	--	-
....DICTYOSPHAERIUM	--	-	2700	6	--	-
....KIRCHNERIELLA	180	5	720	2	160	1
...OOCYSTIS	78	2	--	-	*	0
....TREUBARIA	--	-	--	-	*	0
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	2900	7	--	-
...SCENEDESMUS	--	-	2500	6	330	2
....TETRASTRUM	550#	17	720	2	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	1300	3	370	2
....POLYTOMA	--	-	*	0	--	-
...PHACOTACEAE						
....PTEROMONAS	--	-	--	-	290	1
..ZYGNEATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	*	0
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
....COSCINODISCACEAE						
....CYCLOTELLA	140	4	4700	11	160	1
....MELOSIRA	--	-	1400	3	210	1
...PENNALES						
....ACHNANTHACEAE						
....ACHNANTHES	--	-	*	0	120	1
...FRAGILARIACEAE						
....SYNEDRA	39	1	540	1	--	-
...NAVICULACEAE						
....NAVICULA	20	1	--	-	*	0
...NITZSCHIA						
....NITZSCHIA	59	2	720	2	210	1
..CHRYSOPHYCEAE						
...CHRYSONOMADALES						
....CHROMULINACEAE						
....CHRYSOCOCCLUS	--	-	360	1	--	-
..XANTHOPHYCEAE						
...HETEROCOCCALES						
....CHLOROTHECIACEAE						
....OPHIOCYTIUM	--	-	360	1	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
....CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
....CHROOCOCCACEAE						
....AGMENELLUM	--	-	2200	5	--	-
....ANACYSTIS	--	-	17000#	41	12000#	56
...HORMOGONALES						
....OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	6800#	32
....OSCILLATORIA	--	-	720	2	--	-
....SCHIZOTHRIX	510#	15	--	-	--	-
EUGLENOPHYTA (EUGLENIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
....EUGLENACEAE						
....EUGLENA	--	-	--	-	*	0
....TRACHELOMONAS	180	5	360	1	250	1
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...PERIDINIALES						
....GLENODINIACEAE						
....GLENODINIUM	--	-	*	0	210	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## RED RIVER BASIN

07346000 BIG CYPRESS CREEK NEAR JEFFERSON, TX  
(Formerly published as Cypress Creek near Jefferson)

LOCATION.--Lat 32°44'58", long 94°29'55", Marion County, Hydrologic Unit 11140306, on left bank 950 ft (290 m) downstream from Ferrell's Bridge Dam, 7.6 mi (12.2 km) upstream from French Creek, and 8.5 mi (13.7 km) west of Jefferson.

DRAINAGE AREA.--850 mi<sup>2</sup> (2,202 km<sup>2</sup>).

PERIOD OF RECORD.--July 1924 to September 1959 (published as Cypress Creek), October 1979 to September 1980. Records of stage and discharge for the period October 1959 to September 1979 published by the Corps of Engineers, New Orleans District.

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft (54.864 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers benchmark). Prior to Nov. 2, 1933, staff gage, and Nov. 2, 1933, to Dec. 8, 1955, water-stage recorder, at site about 950 ft (290 m) upstream at datum 3.7 ft (1.13 m) higher. After Dec. 9, 1955, at site about 550 ft (167.6 m) downstream or at present site at datum 180.00 ft (54.864 m) lower.

REMARKS.--Records good except for those periods of faulty or missing gage-heights, Oct. 12-18, Nov. 10, 17-29, Apr. 1, 2, and July 31 to Sept. 8, which are fair. Flow regulated by Lake O' the Pines (station 07345900) since August 1957. Several observations of water temperature were obtained during the year.

AVERAGE DISCHARGE.--36 years (water years 1925-59, 1980), 692 ft<sup>3</sup>/s (19.60 m<sup>3</sup>/s), 501,400 acre-ft/yr (618 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 57,100 ft<sup>3</sup>/s (1,620 m<sup>3</sup>/s) Apr. 1, 1945, gage height, 28.78 ft (8.772 m) site and datum then in use, from rating curve extended above 29,000 ft<sup>3</sup>/s (821 m<sup>3</sup>/s); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,790 ft<sup>3</sup>/s (79.0 m<sup>3</sup>/s) Oct. 2 at 1800 hours, gage height, 19.39 ft (5.910 m); minimum daily, 1.2 ft<sup>3</sup>/s (0.034 m<sup>3</sup>/s) Oct. 23, 24, Mar. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2730	147	331	1040	1310	503	507	2700	359	92	17	17
2	2770	297	142	762	2170	360	759	2720	160	11	17	17
3	2750	466	65	494	2670	182	989	2690	75	16	17	17
4	2740	471	8.1	459	2700	87	994	2150	13	22	17	17
5	2730	472	7.6	454	2700	1.2	998	1690	17	21	17	17
6	2300	472	7.3	452	2680	1.6	1000	1650	16	20	17	17
7	1520	472	7.3	306	2680	3.0	1000	1640	16	20	17	17
8	1090	472	7.1	140	2690	3.1	999	1620	17	19	17	17
9	837	317	7.1	135	2700	3.3	999	1360	18	18	17	5.9
10	386	148	7.1	135	2700	94	805	1040	17	18	17	6.0
11	89	323	83	307	2710	172	560	990	18	18	17	6.2
12	3.0	474	148	461	2700	170	552	817	18	17	17	6.3
13	2.3	465	320	450	2700	338	618	439	80	17	17	6.5
14	1.9	584	686	449	2700	499	798	97	192	16	17	6.8
15	1.8	848	921	449	2700	504	1280	15	197	16	17	6.8
16	1.8	732	944	449	2680	506	2120	72	197	17	17	7.0
17	1.7	402	948	448	2700	739	2700	15	191	17	17	6.9
18	1.6	144	746	446	2740	987	2740	6.2	191	17	17	7.7
19	1.5	141	334	445	2740	1010	2740	4.8	192	18	17	7.0
20	1.4	140	146	446	2730	1350	2750	89	193	17	17	6.8
21	1.3	138	142	452	2710	1740	2730	339	192	17	17	6.8
22	1.3	140	320	587	2700	1790	2720	524	191	19	17	6.8
23	1.2	139	734	559	2680	1810	2250	750	191	17	56	4.1
24	1.2	138	1320	490	2220	1810	1460	982	191	16	185	2.7
25	1.6	297	1690	471	1480	1800	1100	1000	192	17	25	3.3
26	1.8	465	1730	316	902	1550	1310	1010	192	16	17	3.9
27	2.3	630	1740	72	569	905	1630	1280	193	18	17	4.2
28	3.6	795	1740	3.3	503	536	2120	1340	193	17	17	4.3
29	4.3	813	1740	82	493	507	2650	1050	192	18	17	4.8
30	8.4	679	1730	347	---	507	2700	1010	194	17	17	4.3
31	79	---	1420	732	---	504	---	781	---	17	17	---
TOTAL	20065.0	12221	20171.6	12838.3	66357	20972.2	46578	31871.0	4098	616	742	261.1
MEAN	647	407	651	414	2288	677	1553	1028	137	19.9	23.9	8.70
MAX	2770	848	1740	1040	2740	1810	2750	2720	359	92	185	17
MIN	1.2	138	7.1	3.3	493	1.2	507	4.8	13	11	17	2.7
AC-FT	39800	24240	40010	25460	131600	41600	92390	63220	8130	1220	1470	518
CAL YR 1979	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-	-	-
WTR YR 1980	TOTAL	236791.2	MEAN	647	MAX	2770	MIN	1.2	AC-FT	469700	-	-

## RED RIVER BASIN

245

## 07346045 BLACK CYPRESS BAYOU AT JEFFERSON, TX

LOCATION.--Lat 32°46'40", long 94°21'26", Marion County, Hydrologic Unit 11140306, near center of channel at downstream side of bridge on U.S. Highway 59, 1.1 mi (1.8 km) north of Jefferson, 2.0 mi (3.2 km) upstream from Texas and Pacific Railway Co. bridge, and 5.2 mi (8.4 km) upstream from mouth.

DRAINAGE AREA.--365 mi<sup>2</sup> (945 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1968 to current year. May 1938 to September 1955 (daily gage heights) and November 1956 to August 1968 (daily gage heights and discharge measurements) published by Corps of Engineers as "Black Cypress Creek at Jefferson". September 1964 to August 1968 operated as low-flow partial-record station only.

GAGE.--Water-stage recorder. Datum of gage is 171.47 ft (52.264 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. No known regulation or diversion in vicinity of gage.

AVERAGE DISCHARGE.--11 years (water years 1969-79), 352 ft<sup>3</sup>/s (9.969 m<sup>3</sup>/s), 13.10 in/yr (333 mm/yr), 255,000 acre-ft/yr (314 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,120 ft<sup>3</sup>/s (202 m<sup>3</sup>/s) Apr. 25, 1974, gage height, 17.69 ft (5.392 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1938, 22.42 ft (6.834 m) Apr. 29, 1958, from records of Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,790 ft<sup>3</sup>/s (107 m<sup>3</sup>/s) Jan. 26 at 1000 hours, gage height, 15.92 ft (4.852 m), no peak above base of 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s); no flow Sept. 11-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	317	167	378	747	819	309	738	1630	152	54	2.8	.35
2	189	148	338	648	727	305	783	1240	140	44	2.2	.23
3	123	167	296	586	671	296	788	966	147	36	1.9	.15
4	94	215	260	538	629	287	743	793	179	29	1.5	.10
5	77	243	234	497	604	280	674	663	203	25	1.2	.06
6	64	252	214	463	586	274	596	564	188	21	.98	.04
7	55	257	199	437	561	273	520	487	149	18	.71	.04
8	48	260	187	418	576	273	449	428	158	14	.59	.03
9	43	254	180	402	743	270	386	387	317	12	.51	.02
10	38	232	179	384	833	263	337	371	276	11	.41	.01
11	36	214	174	371	969	257	306	364	198	8.5	.32	.00
12	38	212	183	354	1450	257	331	364	193	6.8	.29	.00
13	39	249	229	329	1700	257	453	485	205	5.8	.24	.00
14	36	292	249	306	1620	258	638	485	190	4.9	.21	.00
15	32	325	252	288	1390	275	695	453	158	3.8	.21	.00
16	29	360	271	279	1130	335	1220	672	126	3.0	.24	.00
17	28	396	309	268	921	448	1810	762	100	2.6	.22	.00
18	37	400	349	255	773	584	1830	690	82	2.2	.18	.00
19	46	362	379	245	671	739	1570	646	71	1.8	.16	.00
20	47	301	405	292	596	1140	1240	673	89	1.7	.13	.00
21	51	285	413	421	536	1190	968	677	135	2.0	.08	.00
22	67	310	436	773	487	1060	780	694	115	1.7	.05	.00
23	80	278	534	1290	445	924	649	702	118	1.4	.03	.00
24	76	256	720	1770	409	815	545	625	131	1.2	.02	.00
25	73	271	796	3020	378	694	487	512	132	1.1	.01	.00
26	72	319	878	3730	352	589	514	413	129	1.1	.01	.00
27	70	368	1050	3130	330	515	509	336	120	1.8	.02	.00
28	66	401	1100	2160	312	522	521	278	103	9.4	.03	.00
29	63	413	1030	1530	298	578	1360	234	84	15	.16	.41
30	65	405	961	1200	---	657	2030	199	67	7.3	.59	14
31	137	---	861	970	---	697	---	171	---	4.1	.47	---
TOTAL	2236	8612	14044	28101	21516	15621	24470	17964	4455	351.2	16.47	15.44
MEAN	72.1	287	453	906	742	504	816	579	149	11.3	.53	.51
MAX	317	413	1100	3730	1700	1190	2030	1630	317	54	2.8	14
MIN	28	148	174	245	298	257	306	171	67	1.1	.01	.00
CFSM	.20	.79	1.24	2.48	2.03	1.38	2.24	1.59	.41	.03	.001	.001
IN.	.23	.88	1.43	2.86	2.19	1.59	2.49	1.83	.45	.04	.00	.00
AC-FT	4440	17080	27860	55740	42680	30980	48540	35630	8840	697	33	31

CAL YR 1979	TOTAL	198670.00	MEAN	544	MAX	3470	MIN	13	CFSM	1.49	IN	20.25	AC-FT	394100
WTR YR 1980	TOTAL	137402.11	MEAN	375	MAX	3730	MIN	.00	CFSM	1.03	IN	14.00	AC-FT	272500



## RED RIVER BASIN

07346045 BLACK CYPRESS BAYOU AT JEFFERSON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 10...	1340	38	60	19.0	14	2	3.4	1.3	3.9
NOV 28...	1120	396	55	11.0	10	4	2.5	1.0	3.6
JAN 09...	1145	404	52	8.0	13	6	2.7	1.4	5.0
FEB 14...	1815	1530	42	8.5	9	4	1.8	1.0	2.8
APR 02...	1145	814	40	10.0	12	2	2.8	1.1	3.6
MAY 14...	1250	505	40	20.0	13	1	2.9	1.3	2.9
JUN 18...	1400	82	55	29.0	19	6	4.9	1.7	4.4
JUL 30...	1000	8.1	80	27.0	22	1	5.2	2.2	4.8
SEP 09...	1620	.03	134	31.5	36	8	8.5	3.5	11

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 10...	.5	2.2	14	0	7.2	6.7	.1	19	51
NOV 28...	.5	2.9	8	0	11	6.7	.0	17	49
JAN 09...	.6	1.7	8	0	6.5	6.5	.1	17	45
FEB 14...	.4	1.5	6	0	7.5	4.0	.1	11	33
APR 02...	.5	1.4	12	0	5.5	4.8	.1	11	36
MAY 14...	.4	1.6	14	0	5.6	4.8	.0	13	39
JUN 18...	.4	2.1	16	0	7.6	6.3	.1	20	55
JUL 30...	.4	2.4	26	0	2.1	8.5	.1	15	53
SEP 09...	.8	2.7	34	0	4.7	23	.2	14	84

## RED RIVER BASIN

247

07346050 LITTLE CYPRESS CREEK NEAR ORE CITY, TX

LOCATION.--Lat 32°40'21", long 94°45'03", Upshur County, Hydrologic Unit 11140307, on right bank at downstream side of bridge on U.S. Highway 259, 4 mi (6 km) downstream from Clear Creek, 9 mi (14 km) south of Ore City, and 12 mi (19 km) north of Longview.

DRAINAGE AREA.--383 mi<sup>2</sup> (992 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 232.67 ft (70.918 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversion above station. During the water year, the city of Gilmer discharged 839 acre-ft (1.03 hm<sup>3</sup>) of sewage effluent into a tributary above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years (water years 1964-80), 289 ft<sup>3</sup>/s (8.184 m<sup>3</sup>/s), 10.25 in/yr (260 mm/yr), 209,400 acre-ft/yr (258 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,500 ft<sup>3</sup>/s (666 m<sup>3</sup>/s) Apr. 24, 1966, gage height, 20.20 ft (6.157 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1902 occurred in March 1945; maximum stage since 1945, that of Apr. 24, 1966. The flood in April 1958 reached a stage of 19.4 ft (5.91 m), or 1.3 ft (0.40 m) lower than the flood of March 1945 at a point 6 mi (10 km) upstream, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,070 ft<sup>3</sup>/s (86.9 m<sup>3</sup>/s) Jan. 24 at 0600 hours, gage height, 11.68 ft (3.560 m), no other peak above base of 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s); no flow Aug. 19 to Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	208	243	178	637	603	235	806	898	107	20	3.9	.00
2	124	250	159	525	582	244	832	818	97	16	3.3	.00
3	93	251	146	449	575	240	735	804	88	14	2.4	.00
4	80	274	137	392	535	239	606	879	79	12	1.7	.00
5	72	279	136	337	482	237	485	1110	73	11	1.3	.00
6	66	217	134	296	438	226	390	1060	65	9.5	.94	.00
7	62	145	131	279	396	216	322	850	59	8.6	.70	.00
8	60	112	127	262	436	212	276	647	76	7.6	.51	.00
9	58	101	125	244	883	205	230	474	228	7.0	.35	.00
10	56	114	121	228	1320	199	204	345	237	6.0	.28	.00
11	55	158	119	220	1700	195	182	255	160	5.2	.25	.00
12	54	196	126	208	1950	201	171	258	79	4.9	.27	.00
13	53	233	220	196	1700	204	440	583	58	4.4	.19	.00
14	49	265	315	190	1390	193	989	610	49	3.8	.11	.00
15	49	296	345	184	1140	208	1550	470	44	3.4	.07	.00
16	48	336	399	183	941	274	1850	719	39	3.0	.04	.00
17	48	355	509	184	806	462	1550	981	34	2.6	.02	.00
18	53	311	606	189	708	573	1310	792	33	2.0	.01	.00
19	57	206	566	216	622	719	1080	680	30	1.9	.00	.00
20	57	152	460	323	546	973	864	778	31	1.7	.00	.00
21	61	139	363	484	483	1080	690	876	59	1.5	.00	.00
22	65	196	362	1200	431	1000	523	801	67	1.9	.00	.00
23	73	266	571	2680	385	835	372	695	83	1.3	.00	.00
24	75	313	929	3020	345	708	268	577	87	.92	.00	.00
25	77	344	1260	2610	311	573	291	415	79	.87	.00	.00
26	77	377	1460	1790	277	449	610	307	66	.84	.00	.00
27	69	378	1350	1260	254	385	784	250	56	.86	.00	.00
28	62	337	1190	1010	244	406	754	215	42	1.0	.00	.00
29	59	265	1000	857	235	535	891	179	32	2.7	.00	.00
30	64	214	872	762	---	682	1010	146	25	5.1	.00	1.3
31	164	---	759	675	---	687	---	124	---	3.5	.00	---
TOTAL	2248	7323	15175	22090	20718	13595	21065	18596	2262	165.09	16.34	1.30
MEAN	72.5	244	490	713	714	439	702	600	75.4	5.33	.53	.043
MAX	208	378	1460	3020	1950	1080	1850	1110	237	20	3.9	1.3
MIN	48	101	119	183	235	193	171	124	25	.84	.00	.00
CFSM	.19	.64	1.28	1.86	1.86	1.15	1.83	1.57	.20	.01	.001	.000
IN.	.22	.71	1.47	2.15	2.01	1.32	2.05	1.81	.22	.02	.00	.00
AC-FT	4460	14530	30100	43820	41090	26970	41780	36890	4490	327	32	2.6
CAL YR 1979	TOTAL	191201.00	MEAN	524	MAX	9190	MIN	13	CFSM	1.37	IN	18.57
WTR YR 1980	TOTAL	123254.73	MEAN	337	MAX	3020	MIN	.00	CFSM	.88	IN	11.97
									AC-FT	379200		
									AC-FT	244500		

## RED RIVER BASIN

## 07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX

LOCATION.--Lat 32°42'46", long 94°20'44", Harrison-Marion County line, Hydrologic Unit 11140307, near center of channel at downstream side of bridge on U.S. Highway 59, 0.3 mi (0.5 km) downstream from Texas and Pacific Railway Co. bridge, 3.3 mi (5.3 km) downstream from Grays Creek, 3.5 mi (5.6 km) south of Jefferson, and 6.8 mi (10.9 km) upstream from mouth.

DRAINAGE AREA.--675 mi<sup>2</sup> (1,748 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 174.60 ft (53.218 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 19, 1947, nonrecording gage at upstream side of bridge at same datum.

REMARKS.--Water-discharge records good. For record of sewage effluent discharges into tributaries above this station, see station 07346050. No known diversion above station.

AVERAGE DISCHARGE.--34 years (water years 1947-80), 542 ft<sup>3</sup>/s (1535 m<sup>3</sup>/s), 10.91 in/yr (277 mm/yr), 392,700 acre-ft/yr (484 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,500 ft<sup>3</sup>/s (1,010 m<sup>3</sup>/s) Apr. 26, 1966, gage height, 22.28 ft (6.791 m); no flow at times.  
Maximum stage since May 1944, that of Apr. 26, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 21.1 ft (6.43 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,960 ft<sup>3</sup>/s (169 m<sup>3</sup>/s) Jan 27 at 1100 hours, gage height, 14.19 ft (4.325 m); no flow Sept. 6-18, 25-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1400	247	463	1560	2050	602	1230	922	357	68	.61	.03		
2	1180	278	467	1450	1640	602	1240	1020	295	55	.54	.03		
3	918	307	464	1340	1420	578	1200	1350	242	44	.45	.02		
4	705	325	444	1250	1250	564	1120	1560	205	35	.37	.02		
5	505	329	403	1150	1140	552	1060	1540	181	29	.32	.01		
6	324	328	352	1040	1050	527	1050	1440	162	25	.23	.00		
7	200	325	309	931	1000	507	1030	1270	144	22	.18	.00		
8	153	328	278	825	1050	490	975	1150	140	19	.15	.00		
9	132	358	258	716	1620	474	871	1150	171	16	.13	.00		
10	119	413	246	627	2420	458	757	1180	188	14	.10	.00		
11	109	359	238	561	2470	445	655	1140	231	13	.09	.00		
12	102	275	251	517	2320	454	709	1060	268	12	.08	.00		
13	97	222	346	485	2070	480	1020	1240	287	11	.08	.00		
14	92	209	396	463	2070	469	1570	1270	270	9.2	.08	.00		
15	88	225	421	441	2420	453	1710	1130	196	8.7	.08	.00		
16	86	251	439	433	2620	440	1710	1420	133	7.9	.07	.00		
17	85	276	452	460	2410	429	1650	1880	102	7.0	.06	.00		
18	87	301	461	456	2070	410	1610	1820	85	6.2	.06	.00		
19	109	321	469	442	1750	406	1850	1610	75	5.4	.06	.02		
20	118	339	481	460	1540	443	2090	1450	76	4.7	.05	.02		
21	107	464	505	519	1370	502	1960	1350	85	4.2	.05	.02		
22	113	776	580	1150	1220	580	1700	1240	84	3.8	.04	.01		
23	116	878	824	2190	1090	685	1500	1070	107	3.2	.04	.02		
24	117	883	1310	2560	976	895	1300	956	133	2.5	.03	.01		
25	123	837	1600	2850	877	1100	1160	944	140	1.9	.03	.00		
26	126	753	1640	4180	782	1190	1150	949	141	1.3	.02	.00		
27	123	636	1670	5830	709	1180	1040	895	134	.86	.02	.00		
28	120	531	1580	5100	647	1170	938	800	117	.89	.02	.00		
29	119	482	1500	3970	597	1180	880	681	99	.79	.03	.08		
30	123	463	1560	3110	---	1310	885	547	83	.63	.04	.33		
31	209	---	1610	2580	---	1300	---	439	---	.60	.03	---		
TOTAL	8005	12719	22017	49646	44648	20875	37620	36473	4931	432.77	4.14	.62		
MEAN	258	424	710	1601	1540	673	1254	1177	164	14.0	.13	.021		
MAX	1400	883	1670	5830	2620	1310	2090	1880	357	68	.61	.33		
MIN	85	209	238	433	597	406	655	439	75	.60	.02	.00		
CFSM	.38	.63	1.05	2.37	2.28	1.00	1.86	1.74	.24	.02	.000	.000		
IN.	.44	.70	1.21	2.74	2.46	1.15	2.07	2.01	.27	.02	.00	.00		
AC-FT	15880	25230	43670	98470	88560	41410	74620	72340	9780	858	8.2	1.2		
CAL YR 1979	TOTAL	368030.00	MEAN	1008	MAX	9190	MIN	25	CFSM	1.49	IN	20.28	AC-FT	730000
WTR YR 1980	TOTAL	237371.53	MEAN	649	MAX	5830	MIN	.00	CFSM	.96	IN	13.08	AC-FT	470800

## 07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURES: October 1967 to current year.

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, 1,350 micromhos Nov. 9, 1969; minimum daily, 39 micromhos Apr. 20, 1973. WATER TEMPERATURES: Maximum daily, 32.0°C on several days during summer months of 1977-78, and 1980; minimum daily, 1.0°C Jan. 21-23, 1978.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 308 micromhos Oct. 19; minimum daily, 80 micromhos Jan. 27.

WATER TEMPERATURES: Maximum daily, 32.0°C on several days during August and September; minimum daily, 4.0°C Feb. 6-10.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT 18...	0655	86	284	--	18.0	--	--	--	--	--	30	15
NOV 14...	1005	207	182	6.7	7.0	20	8.3	12.2	98	.7	28	18
DEC 31...	1700	1620	114	--	9.0	--	--	--	--	--	20	14
JAN 08...	1230	825	143	5.2	7.5	60	7.5	9.9	83	.7	25	21
APR 02...	0915	1240	121	6.3	16.0	40	17	8.0	81	1.0	21	12
MAY 14...	0835	1300	104	6.3	21.0	120	27	5.7	63	2.0	22	10
JUL 31...	0810	3.2	265	7.0	28.0	--	--	4.2	53	2.2	42	6
AUG 30...	1940	.02	256	--	32.0	--	--	--	--	--	38	4
SEP 11...	0740	.00	--	--	--	--	--	--	--	--	--	--
30...	1300	.28	223	--	--	--	--	--	--	--	35	5

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 18...	7.4	2.8	39	3.1	3.3	18	0	16	67	.1	24
NOV 14...	6.8	2.7	24	2.0	3.9	12	0	19	37	.1	22
DEC 31...	4.6	2.1	11	1.1	3.8	7	0	21	16	.0	15
JAN 08...	6.0	2.5	14	1.2	3.2	5	0	25	20	.1	21
APR 02...	5.1	2.1	14	1.3	2.4	12	0	14	20	.1	13
MAY 14...	5.3	2.2	9.4	.9	2.5	15	0	12	13	.1	14
JUL 31...	10	4.2	31	2.1	4.2	44	0	13	50	.2	18
AUG 30...	8.5	4.1	31	2.2	4.5	42	0	9.9	49	.2	14
SEP 11...	--	--	--	--	--	--	--	--	--	--	--
30...	7.8	3.8	27	2.0	4.1	34	0	15	43	.1	9.7

## RED RIVER BASIN

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 18...	168	--	--	--	--	--	--	--	--	--	--
NOV 14...	121	6	0	.08	.000	.08	.010	.60	.61	.070	6.6
DEC 31...	77	--	--	--	--	--	--	--	--	--	--
JAN 08...	95	15	13	.29	.010	.30	.170	1.4	1.6	.080	6.5
APR 02...	77	12	10	--	--	--	--	--	1.0	.080	10
MAY 14...	66	28	2	.20	.020	.22	.170	.93	1.1	.130	8.7
JUL 31...	154	--	--	--	--	--	--	--	--	--	--
AUG 30...	142	--	--	--	--	--	--	--	--	--	--
SEP 11...	--	--	--	--	--	--	--	--	--	--	--
30...	123	--	--	--	--	--	--	--	--	--	--

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 08...	1230	0	70	<1	0	0	610
APR 02...	0915	0	60	<1	0	0	570
MAY 14...	0835	1	60	<1	0	1	360
JUL 31...	0810	1	100	<1	10	2	300

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 08...	0	50	.1	0	0	10
APR 02...	0	60	.0	0	0	10
MAY 14...	1	130	.0	0	0	7
JUL 31...	2	1200	.0	0	0	9

07346070 LITTLE CYPRESS CREEK NR JEFFERSON, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

		PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	
DATE	TIME										
APR 02...	0915	.0	15	.00	.00	.0	.0	3	.00	1.0	
		DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	
DATE											
APR 02...	.00	1.6	.00	2.0	.00	.00	.2	.00	.00	.0	
		HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	
DATE	ETHION, TOTAL (UG/L)										
APR 02...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0	
		METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
DATE											
APR 02...	.00	.00	.00	.00	.00	0	0	.00	.00	.00	.00

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	8005	158	95	2050	28	598	16	342	24
NOV.	1979	12719	146	89	3070	24	832	16	547	24
DEC.	1979	22017	130	80	4760	21	1250	15	867	22
JAN.	1980	49646	106	66	8850	17	2240	12	1660	18
FEB.	1980	44648	109	68	8210	17	2070	13	1540	19
MAR.	1980	20875	147	90	5070	24	1370	16	903	24
APR.	1980	37620	117	72	7340	19	1880	13	1360	20
MAY	1980	36473	105	66	6480	16	1620	12	1230	18
JUNE	1980	4931	184	111	1470	32	428	19	246	28
JULY	1980	432.77	216	127	149	39	46	20	24	32
AUG.	1980	4.14	264	152	1.7	51	0.6	22	0.2	36
SEPT	1980	0.62	230	135	0.2	42	0.07	21	0.03	33
TOTAL		237371.53	**	**	47400	**	12300	**	8720	**
WTD. AVG.		649	120	74	**	19	**	14	**	20



## RED RIVER BASIN

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	165	159	117	99	156	123	116	164	185	265	252
2	94	154	160	120	102	155	121	107	170	190	264	253
3	105	160	159	124	105	151	127	96	175	195	265	254
4	120	170	162	127	107	153	130	92	181	198	266	252
5	131	178	165	131	106	165	129	99	186	200	265	251
6	150	165	168	135	108	166	132	106	189	207	264	---
7	179	150	170	139	110	163	141	115	198	215	265	---
8	190	160	172	143	112	165	148	110	189	237	265	---
9	220	170	173	151	115	166	166	107	180	240	264	---
10	242	173	175	159	90	166	170	102	185	244	264	---
11	255	172	178	164	88	167	164	106	189	246	263	---
12	276	176	173	168	92	165	168	110	187	249	262	---
13	285	175	160	175	98	161	109	100	152	254	262	---
14	294	182	153	178	110	160	93	105	153	257	261	---
15	300	175	151	182	99	159	90	106	160	259	260	---
16	303	169	150	185	101	160	94	88	176	260	260	---
17	290	160	145	170	103	168	102	83	184	262	260	---
18	284	155	140	165	108	163	107	86	185	267	260	---
19	308	151	135	161	113	162	101	98	190	268	260	235
20	275	145	130	155	118	171	95	106	194	267	261	238
21	248	125	135	145	124	157	93	103	190	266	260	232
22	254	116	130	110	129	147	100	107	195	268	258	233
23	252	110	128	95	135	149	105	112	225	268	259	233
24	245	115	122	92	139	151	121	111	250	268	267	234
25	235	130	115	90	143	139	118	113	279	269	257	---
26	230	140	112	87	146	130	120	117	192	267	258	---
27	222	145	110	80	150	130	125	122	206	266	257	---
28	230	148	112	84	153	131	131	131	195	265	256	---
29	235	145	112	88	157	129	135	142	185	264	255	219
30	238	148	113	92	---	122	123	145	180	264	256	223
31	181	---	114	95	---	124	---	156	---	263	257	---
MEAN	225	154	145	132	116	153	123	110	189	246	261	239

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	15.0	6.0	9.0	5.0	---	---	19.0	25.0	---	31.0	32.0
2	21.0	14.0	5.0	8.5	5.0	8.0	---	19.5	26.0	29.0	31.0	32.0
3	---	---	4.5	8.5	5.0	6.0	18.0	19.0	---	30.0	31.0	32.0
4	19.5	13.0	5.0	9.0	5.0	10.0	18.0	19.0	26.0	30.0	31.0	32.0
5	19.5	12.0	6.5	9.0	5.0	11.0	17.0	20.0	26.0	30.0	31.0	27.0
6	20.0	11.0	7.0	9.0	4.0	11.0	18.0	20.5	26.0	31.0	31.0	---
7	21.0	11.0	7.0	9.0	4.0	14.0	20.0	21.0	27.0	31.0	31.0	---
8	20.0	11.0	8.0	9.0	4.0	14.0	20.0	20.0	26.0	31.0	31.0	---
9	20.0	---	9.5	9.0	4.0	14.0	19.0	19.5	25.0	---	---	---
10	19.0	11.0	10.0	9.0	4.0	15.0	19.0	19.0	---	31.0	31.0	---
11	18.0	11.0	10.0	8.5	5.0	14.0	19.0	---	24.0	31.0	31.0	---
12	16.0	10.0	10.0	8.5	5.0	16.0	17.0	21.0	24.0	31.0	31.0	---
13	17.0	9.0	9.5	9.0	6.0	16.0	12.5	21.5	24.0	31.0	31.0	---
14	17.0	9.0	9.0	9.5	6.5	15.0	12.0	21.0	25.0	31.0	31.0	---
15	19.0	8.0	8.0	9.5	7.0	14.0	13.0	20.0	26.0	31.0	31.0	---
16	18.0	8.0	8.0	10.0	7.0	15.0	15.0	20.0	27.0	31.0	---	---
17	18.0	11.0	8.0	11.0	6.0	15.0	16.0	21.0	27.0	31.0	31.0	---
18	18.0	11.0	8.0	11.0	6.0	14.0	16.0	22.0	27.5	31.0	31.0	---
19	18.0	12.0	8.0	11.0	6.0	13.0	16.0	22.0	27.0	31.0	31.0	25.0
20	---	12.0	7.0	11.0	6.0	15.0	17.0	22.0	27.0	31.0	31.0	25.0
21	13.0	11.0	8.0	11.0	6.0	15.0	19.0	22.0	28.0	31.0	32.0	25.0
22	15.0	11.0	9.0	11.0	6.0	15.0	---	22.0	27.0	31.0	32.0	25.0
23	17.0	11.0	9.0	10.0	6.0	---	20.0	22.0	28.0	31.0	32.0	25.0
24	17.0	10.5	10.0	10.0	6.0	15.0	20.5	22.0	28.0	31.0	32.0	25.0
25	17.0	11.0	11.0	10.0	6.0	15.0	20.0	23.0	28.0	31.0	32.0	---
26	17.0	11.0	11.0	9.0	6.0	14.0	18.0	24.0	28.0	---	32.0	---
27	16.0	11.0	11.0	10.0	6.0	14.0	17.0	24.0	28.0	---	32.0	---
28	17.0	---	10.0	8.0	6.0	13.5	17.0	24.0	28.0	31.0	---	---
29	17.0	10.0	10.0	7.0	6.0	---	18.0	24.0	29.0	31.0	---	---
30	17.0	7.0	10.0	6.0	---	---	18.0	24.5	29.0	31.0	32.0	---
31	17.0	---	9.0	5.0	---	15.5	---	25.0	---	31.0	---	---
MEAN	18.0	11.0	8.5	9.0	5.5	13.5	17.5	21.5	26.5	31.0	31.5	27.5

## RED RIVER BASIN

253

## 07346085 BIG CYPRESS CREEK NEAR KARNACK, TX

LOCATION.--Lat 32°41'48", long 94°11'15", Harrison County, Hydrologic Unit 11140304, near right bank at downstream side of bridge on State Highway 43, 0.6 mi (1.0 km) upstream from Mill Pond, 1.1 mi (1.8 km) downstream from Gum Slough (Haggerty Creek flows into Gum Slough), and 2.2 mi (3.5 km) north of Karnack.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--October 1979 to September 1980. Records for the period Nov. 1, 1975, to Sept. 30, 1979, published by the Corps of Engineers, New Orleans District as "Cypress Creek (Cypress Bayou) near Karnack, Tex."

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

REMARKS.--Elevation records fair. This is a stage-only station used to aid in the operation of Lake O' the Pines and Caddo Lake and located in the upper end of Caddo Lake 15 mi (24 km) above the dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 172.37 ft (52.538 m) Jan. 28, 1980; minimum, 167.08 ft (50.926 m) Sept. 29, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation, 174.20 ft (53.096 m) May 9, 1979; minimum, 166.72 ft (50.816 m) Oct. 23, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 172.37 ft (52.538 m) Jan. 28 at 2100 hours; minimum, 167.08 ft (50.926 m) Sept. 29.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170.92	168.87	169.34	170.60	171.23	169.99	170.54	171.30	169.74	168.69	167.91	167.68
2	170.85	168.88	169.35	170.48	171.08	169.90	170.48	171.34	169.51	168.63	167.89	167.65
3	170.76	168.93	169.34	170.37	171.01	169.76	170.48	171.34	169.35	168.61	167.87	167.61
4	170.67	169.00	169.26	170.25	171.01	169.66	170.46	171.33	169.22	168.57	167.87	167.57
5	170.59	169.05	169.21	170.15	171.02	169.54	170.44	171.22	169.11	168.53	167.87	167.53
6	170.50	169.08	169.19	170.05	171.01	169.47	170.39	171.06	169.03	168.49	167.87	167.48
7	170.40	169.12	169.16	169.94	171.03	169.40	170.33	170.91	168.95	168.47	167.85	167.42
8	170.19	169.14	169.16	169.85	171.36	169.33	170.24	170.77	169.16	168.44	167.83	167.37
9	169.97	169.31	169.16	169.75	171.80	169.30	170.17	170.64	169.18	168.42	167.80	167.30
10	169.70	169.30	169.16	169.67	171.87	169.26	170.09	170.50	169.14	168.39	167.77	167.30
11	169.43	169.24	169.19	169.60	171.90	169.31	170.14	170.54	169.07	168.36	167.75	167.28
12	169.25	169.22	169.34	169.59	171.90	169.30	170.20	170.66	169.03	168.34	167.74	167.24
13	169.16	169.21	169.52	169.55	171.94	169.25	170.77	170.51	168.99	168.32	167.74	167.22
14	169.04	169.20	169.70	169.50	171.98	169.31	170.90	170.41	168.98	168.29	167.74	167.21
15	168.95	169.19	169.68	169.47	171.95	169.33	170.89	170.64	168.95	168.12	167.73	167.19
16	168.88	169.18	169.64	169.45	171.92	169.38	170.94	171.14	168.90	168.11	167.72	167.15
17	168.86	169.17	169.60	169.45	171.85	169.39	171.20	171.13	168.85	168.08	167.70	167.21
18	168.81	169.16	169.59	169.43	171.75	169.52	171.45	170.99	168.81	168.04	167.78	167.24
19	168.77	169.15	169.57	169.43	171.62	169.66	171.59	170.82	168.84	168.01	167.66	167.21
20	168.74	169.15	169.57	169.51	171.48	169.80	171.68	170.66	168.93	167.98	167.64	167.19
21	168.72	169.45	169.57	169.64	171.34	170.02	171.67	170.58	168.91	168.06	167.61	167.18
22	168.74	169.57	169.65	170.78	171.24	170.21	171.58	170.53	168.97	168.04	167.60	167.15
23	168.72	169.53	169.85	171.03	171.14	170.43	171.47	170.46	168.95	168.01	167.60	167.16
24	168.70	169.49	170.40	171.10	171.04	170.52	171.31	170.41	168.91	168.00	167.59	167.13
25	168.68	169.46	170.89	171.30	170.92	170.56	171.38	170.35	168.87	167.98	167.59	167.14
26	168.67	169.45	171.30	171.69	170.71	170.59	171.14	170.29	168.86	167.97	167.60	167.14
27	168.65	169.45	171.42	172.22	170.42	170.67	170.93	170.22	168.84	168.04	167.61	167.13
28	168.65	169.45	171.27	172.36	170.16	170.61	170.79	170.19	168.81	168.17	167.66	167.09
29	168.68	169.44	171.07	172.10	170.07	170.72	170.81	170.15	168.76	168.09	167.70	167.27
30	168.80	169.40	170.90	171.73	---	170.70	171.10	170.04	168.72	168.02	167.70	167.28
31	168.83	---	170.74	171.44	---	170.62	---	169.92	---	167.95	167.70	---
MAX	170.92	169.57	171.42	172.36	171.98	170.72	171.68	171.34	169.74	168.69	167.91	167.68
MIN	168.65	168.87	169.16	169.43	170.07	169.25	170.09	169.92	168.72	167.95	167.59	167.09
CAL YR 1979	MAX	-	MIN	-								
WTR YR 1980	MAX	172.36	MIN	167.09								

## RED RIVER BASIN

07346140 FRAZIER CREEK NEAR LINDEN, TX

LOCATION.--Lat 33°03'14", long 94°17'24", Cass County, Hydrologic Unit 11140306, on right bank at downstream side of bridge on U.S. Highway 59, 1.6 mi (2.6 km) upstream from Colley Creek, 3.7 mi (6.0 km) upstream from Johns Creek, and 5.3 mi (8.5 km) northeast of Linden.

DRAINAGE AREA.--48.0 mi<sup>2</sup> (124.3 km<sup>2</sup>).

PERIOD OF RECORD.--August 1958 to June 1961 (low-flow partial record only), November 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is 228.7 ft (69.71 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bridge plans).

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

AVERAGE DISCHARGE.--15 years (water years 1966-80), 43.8 ft<sup>3</sup>/s (1.240 m<sup>3</sup>/s), 12.39 in/yr (315 mm/yr), 31,730 acre-ft/yr (39.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,010 ft<sup>3</sup>/s (142 m<sup>3</sup>/s) Apr. 22, 1974, gage height, 12.51 ft (3.813 m); no flow at times for most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1945, 15.6 ft (4.75 m) Apr. 26, 27, 1958, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft<sup>3</sup>/s (19.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Jan. 23	0100	*1,280 36.2	9.73 2.966
Apr. 14	0330	916 25.9	9.28 2.829

Minimum discharge, no flow Aug. 6 to Sept. 18, Sept. 22-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	96	20	60	90	51	88	62	17	3.5	.60	.00
2	8.8	40	20	53	74	56	72	71	15	3.0	.43	.00
3	8.2	26	19	61	69	44	65	99	13	2.8	.32	.00
4	7.8	21	19	72	64	44	59	75	11	2.5	.21	.00
5	7.5	19	20	57	67	45	52	53	9.7	2.2	.04	.00
6	7.4	17	22	50	75	40	50	45	8.5	2.0	.00	.00
7	7.2	14	20	49	62	40	50	41	7.4	1.8	.00	.00
8	7.1	10	17	43	114	41	48	39	20	1.5	.00	.00
9	6.9	82	16	40	376	39	42	38	41	1.2	.00	.00
10	6.8	135	15	39	338	38	39	34	21	1.1	.00	.00
11	6.7	105	17	42	211	37	41	32	13	.92	.00	.00
12	8.2	42	27	39	153	124	122	58	9.6	.78	.00	.00
13	8.1	29	103	35	117	128	404	130	8.2	.65	.00	.00
14	7.2	23	111	35	99	58	752	65	6.7	.52	.00	.00
15	6.7	22	55	35	88	46	320	55	5.8	.40	.00	.00
16	6.9	20	41	43	80	138	182	186	5.3	.34	.00	.00
17	8.9	19	33	61	68	509	123	241	5.0	.23	.00	.00
18	28	18	28	44	64	273	105	121	4.8	.20	.00	.00
19	24	24	28	38	64	140	85	64	5.3	.17	.00	.06
20	11	25	28	101	63	98	70	67	18	.14	.00	.05
21	8.5	31	28	178	58	78	60	47	38	.11	.00	.02
22	8.6	93	88	620	54	64	54	41	18	.17	.00	.00
23	12	100	176	811	51	69	48	38	24	.18	.00	.00
24	8.7	57	423	290	47	117	45	34	15	.14	.00	.00
25	7.6	43	314	186	45	112	125	31	9.1	.11	.00	.00
26	7.2	36	166	138	42	71	396	30	6.8	.10	.00	.00
27	6.8	32	104	106	41	68	280	27	5.8	.49	.00	.00
28	6.7	27	76	86	42	117	150	23	5.1	1.3	.00	.29
29	7.0	22	73	95	42	147	87	22	4.5	2.2	.00	2.4
30	10	21	92	115	---	170	67	23	3.9	1.2	.00	13
31	68	---	74	118	---	146	---	19	---	.84	.00	---
TOTAL	343.8	1249	2273	3740	2758	3148	4081	1911	375.5	32.79	1.60	15.82
MEAN	11.1	41.6	73.3	121	95.1	102	136	61.6	12.5	1.06	.052	.53
MAX	68	135	423	811	376	509	752	241	41	3.5	.60	13
MIN	6.7	10	15	35	41	37	39	19	3.9	.10	.00	.00
AC-FT	682	2480	4510	7420	5470	6240	8090	3790	745	65	3.2	31
CAL YR 1979	TOTAL	21060.80	MEAN	57.7	MAX	821	MIN	5.8	AC-FT	41770		
WTR YR 1980	TOTAL	19929.51	MEAN	54.5	MAX	811	MIN	.00	AC-FT	39530		

## SABINE RIVER BASIN

08017200 COWLEECH FORK SABINE RIVER AT GREENVILLE, TX

LOCATION.--Lat 33°07'58", long 96°04'36", Hunt County, Hydrologic Unit 12010001, on left bank 103 ft (31 m) downstream from centerline of downstream bridge on Interstate Highway 30 (U.S. Highway 67), 0.3 mi (0.5 km) downstream from Horse Creek, 0.9 mi (1.4 km) downstream from Louisiana and Arkansas Railroad Co. bridge, 1.8 mi (2.9 km) east of Greenville, and at mile 558.3 (898.3 km).

DRAINAGE AREA.--77.7 mi<sup>2</sup> (201.2 km<sup>2</sup>).

PERIOD OF RECORD.--February 1959 to current year. Prior to October 1963, published as Sabine River at Greenville.

REVISED RECORDS.--WSP 1732: Drainage area. WSP 2122: 1960, 1963-65.

GAGE.--Water-stage recorder. Datum of gage is 485.07 ft (147.849 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. During the current water year, the city of Greenville reported that 5,280 acre-ft (6.51 hm<sup>3</sup>) was diverted from city lakes upstream from station and 1,330 acre-ft (1.64 hm<sup>3</sup>) was diverted from Lake Tawakoni for municipal uses; 4,220 acre-ft (5.20 hm<sup>3</sup>) of sewage effluent was returned to a tributary downstream. Extreme low flow is largely sustained by returned water from water treatment plant upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--21 years (water years 1960-80), 62.0 ft<sup>3</sup>/s (1.756 m<sup>3</sup>/s), 10.84 in/yr (275 mm/yr), 44,920 acre-ft/yr (55.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft<sup>3</sup>/s (306 m<sup>3</sup>/s) May 7, 1969, gage height, 17.95 ft (5.471 m); no flow at 1964, 1969-70, 1972-73, and 1977-80.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1895, 22 ft (6.7 m) in May 1935, from information by local resident and city engineer of Greenville. Flood of July 3, 1913, reached a stage of 20 ft (6.1 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,030 ft<sup>3</sup>/s (85.8 m<sup>3</sup>/s) Jan. 22 at 2000 hours, gage height, 15.61 ft (4.758 m), no other peak above base of 3,000 ft<sup>3</sup>/s (85.0 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.47	.00	.43	4.7	.39	.28	.09	.02	.37	.00	.37
2	.02	.07	.07	.31	2.9	.32	.25	154	.02	.36	.00	.29
3	.00	.00	.12	.16	2.1	.28	.23	55	.02	.31	.00	.01
4	.00	.00	.16	.09	1.6	.43	.20	11	.01	.35	.00	.00
5	.00	.00	.18	.06	1.4	.39	.20	1.8	.01	.30	.00	.00
6	.00	.00	.18	.05	1.4	.39	.16	.39	.02	.28	.00	.00
7	.00	.00	.41	.02	1.3	.43	.18	.25	.06	.16	.00	.00
8	.00	.00	.49	.02	298	.47	.20	2.1	.04	.17	.00	.00
9	.00	1.0	.44	.02	748	.39	.18	.25	.04	.27	.00	.01
10	.00	.24	.77	.03	139	.43	.16	.09	.02	.39	.00	.01
11	.00	.02	.86	.27	151	.39	1.7	.06	.02	.37	.00	.00
12	.00	.00	15	.44	112	2.5	4.0	.20	.02	.35	.00	.00
13	.00	.04	7.9	.21	63	.83	106	.09	.02	.35	.00	.00
14	.00	.09	1.2	.13	30	.39	102	.06	1.1	.26	.00	.00
15	.00	.11	.43	.11	18	.39	11	41	1.3	.39	.00	.00
16	1.7	.11	.16	.37	11	.28	1.8	957	1.2	.45	.00	.00
17	1.3	.11	.04	.33	7.1	.25	.84	108	.42	.44	.00	.00
18	2.0	.11	.01	.31	5.1	.20	.28	29	.04	.40	.00	.00
19	.81	.11	.01	3.2	3.8	.23	.25	10	.02	.15	.00	.78
20	.53	.49	.02	29	3.1	.25	.23	4.2	32	.02	.00	.00
21	.45	1.2	.07	683	2.4	.23	.16	2.1	3.1	.00	.00	.00
22	3.4	.68	13	1710	1.8	.20	.11	1.9	6.6	.00	.00	.00
23	1.4	.17	116	877	1.4	.28	.11	.93	39	.00	.00	.00
24	.77	.04	496	63	.94	.48	.09	.42	11	.00	.00	.00
25	.70	.00	83	22	.69	.28	26	.23	2.7	.00	.00	.00
26	.73	.00	32	9.3	.51	.25	20	.12	1.2	.00	.00	.00
27	.59	.00	12	4.4	.43	.69	2.3	.06	.76	.00	.00	1.9
28	.36	.00	5.3	3.1	.47	12	.47	.04	.62	.00	.88	7.2
29	.25	.00	3.4	5.6	.47	3.1	.20	.09	.47	.00	.55	369
30	11	.00	1.6	14	---	1.1	.13	.04	.31	.00	.13	169
31	3.1	---	.70	12	---	.38	---	.04	---	.00	.41	---
TOTAL	29.20	5.06	791.52	3438.96	1613.61	28.62	279.71	1380.55	102.16	6.14	1.97	548.57
MEAN	.94	.17	25.5	111	55.6	.92	9.32	44.5	3.41	.20	.064	18.3
MAX	11	1.2	496	1710	748	12	106	957	39	.45	.88	369
MIN	.00	.00	.00	.02	.43	.20	.09	.04	.01	.00	.00	.00
CFSM	.01	.002	.33	1.43	.72	.01	.12	.57	.04	.003	.001	.24
IN.	.01	.00	.38	1.65	.77	.01	.13	.66	.05	.00	.00	.26
AC-FT	58	10	1570	6820	3200	57	555	2740	203	12	3.9	1090
CAL YR 1979	TOTAL	38202.63	MEAN	105	MAX	5000	MIN	.00	CFSM	1.35	IN	18.29
WTR YR 1980	TOTAL	8226.07	MEAN	22.5	MAX	1710	MIN	.00	CFSM	.29	IN	3.94
									AC-FT	75770		
									AC-FT	16320		

## SABINE RIVER BASIN

08017300 SOUTH FORK SABINE RIVER NEAR QUINLAN, TX

LOCATION.--Lat 32°53'52", long 96°15'11", Hunt County, Hydrologic Unit 12010001, on right bank at downstream side of bridge on Farm Road 1565, 2.4 mi (3.9 km) upstream from Dry Creek, 6.2 mi (10.0 km) upstream from Bearpen Creek, 7 mi (11 km) southwest of Quinlan, and 25 mi (40 km) upstream from mouth.

DRAINAGE AREA.--78.7 mi<sup>2</sup> (203.8 km<sup>2</sup>).

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 461.40 ft (140.635 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Records furnished by the city of Royse City show that 141 acre-ft (174,000 m<sup>3</sup>) of sewage effluent was returned to the stream above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--21 years (water years 1960-80), 69.2 ft<sup>3</sup>/s (1.960 m<sup>3</sup>/s), 11.94 in/yr (303 mm/yr), 50,140 acre-ft/yr (61.8 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft<sup>3</sup>/s (535 m<sup>3</sup>/s) May 3, 1979, gage height, 17.72 ft (5.401 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 21 ft (6.4 m) July 29, 1902, from information by local resident. Flood of Apr. 27, 1957, reached a stage of 17.76 ft (5.413 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft<sup>3</sup>/s (85.0 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Dec. 23	2400	4,510	128	15.74	4.798
Jan. 22	1500	*8,140	231	16.28	4.962
May 16	0645	3,580	101	15.57	4.746

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
1	.02	5.5	.00	2.4	11	.32	.50	.49	.01	.00	.00	.00	
2	.01	2.4	.00	2.4	6.4	.21	.31	.23	.00	.00	.00	.00	
3	.03	.93	.00	2.3	5.0	.10	.18	.22	.00	.00	.00	.00	
4	.04	.49	.00	2.0	3.9	.09	.09	1.1	.00	.00	.00	.00	
5	.00	.24	.00	1.4	3.4	.15	.06	.44	.00	.00	.00	.00	
6	.00	.12	.00	1.6	2.8	.21	.05	.16	.00	.00	.00	.00	
7	.00	.06	.00	1.9	2.2	.21	.03	.07	.00	.00	.00	.00	
8	.00	.04	.00	1.8	623	.21	.01	.04	.00	.00	.00	.00	
9	.00	1.8	.00	1.7	1210	.21	.02	.02	.00	.00	.00	.00	
10	.00	1.2	.00	1.7	183	.18	.02	.00	.00	.00	.00	.00	
11	.00	.59	.00	1.8	306	.12	.01	.00	.00	.00	.00	.00	
12	.00	.49	.03	1.7	117	.13	.00	.00	.00	.00	.00	.00	
13	.00	.40	18	2.0	40	.11	266	.00	.00	.00	.00	.00	
14	.00	.21	13	1.9	18	.09	336	.00	.00	.00	.00	.00	
15	.00	.09	3.6	1.8	12	.08	28	356	.00	.00	.00	.00	
16	.00	.06	1.0	1.9	7.3	.06	6.8	2470	.00	.00	.00	.00	
17	.00	.06	.32	2.0	5.3	.07	3.1	203	.00	.00	.00	.00	
18	.00	.08	.12	2.0	5.2	.08	1.6	17	.00	.00	.00	.00	
19	.00	.06	.10	2.6	5.6	.10	.96	5.7	.00	.00	.00	.00	
20	.00	.05	.09	27	5.5	.09	.59	2.7	.00	.00	.00	.00	
21	.00	.15	.08	165	3.0	.07	.30	1.4	.00	.00	.00	.00	
22	.00	.28	7.1	4930	2.1	.07	.14	.70	1.2	.00	.00	.00	
23	.00	.12	916	2380	1.7	.06	.09	.39	.16	.00	.00	.00	
24	.00	.06	2190	98	1.1	.07	.05	.28	.00	.00	.00	.00	
25	.00	.05	125	28	.81	.16	2.9	.33	.00	.00	.00	.00	
26	.00	.03	20	14	.59	.17	71	.27	.00	.00	.00	.00	
27	.00	.01	8.8	8.1	.44	.24	13	.16	.00	.00	.00	.00	
28	.00	.00	5.3	5.3	.40	2.4	4.0	.09	.00	.00	.00	.00	
29	.00	.00	3.8	20	.40	3.5	1.8	.07	.00	.00	.00	335	
30	.00	.00	2.8	39	---	1.9	.95	.06	.00	.00	.00	355	
31	.00	---	2.4	28	---	.96	---	.05	---	.00	.00	---	
TOTAL	.10	15.57	3317.54	7779.3	2583.14	12.42	738.56	3060.97	1.37	.00	.00	690.00	
MEAN	.003	.52	107	251	89.1	.40	24.6	98.7	.046	.000	.000	23.0	
MAX	.04	5.5	2190	4930	1210	3.5	336	2470	1.2	.00	.00	355	
MIN	.00	.00	.00	1.4	.40	.06	.00	.00	.00	.00	.00	.00	
CFSM	.000	.007	1.36	3.19	1.13	.005	.31	1.25	.001	.000	.000	.29	
IN.	.00	.01	1.57	3.68	1.22	.01	.35	1.45	.00	.00	.00	.33	
AC-FT	.2	31	6580	15430	5120	25	1460	6070	2.7	.00	.00	1370	
CAL YR 1979 TOTAL	52217.31	MEAN	143	MAX	8430	MIN	.00	CFSM	1.82	IN	24.68	AC-FT	103600
WTR YR 1980 TOTAL	18198.97	MEAN	49.7	MAX	4930	MIN	.00	CFSM	.63	IN	8.60	AC-FT	36100



## 08017400 LAKE TAWAKONI NEAR WILLS POINT, TX

LOCATION.--Lat 32°48'40", long 95°54'56", Rains-Van Zandt County line, Hydrologic Unit 12010001, in stairwell at left end of spillway of Iron Bridge Dam on Sabine River, 750 ft (229 m) upstream from bridge on Farm Road 47, 3 mi (5 km) upstream from McBee Creek, 9.0 mi (14.5 km) northeast of Wills Point, and at mile 514.5 (827.8 km).

DRAINAGE AREA.--756 mi<sup>2</sup> (1,958 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--Lake is formed by a rolled earthfill dam 29,560 ft (9,010 m) long, including a 480-foot (146 m) uncontrolled concrete ogee spillway. Outlet works consist of two 4- by 6-foot (1.2 by 1.8 m) sluice gates and two 20-inch (508 mm) steel pipes controlled by service valves. Closure of earthen dam began July 1, 1960, and deliberate impoundment of water began Oct. 7, 1960. Capacity table is based on a 1956 survey. Records furnished by Sabine River Authority show that during year the city of Dallas diverted 43,560 acre-ft (53.7 hm<sup>3</sup>) of water for municipal use in the Trinity River basin and that various other users in the Sabine River basin diverted 7,480 acre-ft (9.22 hm<sup>3</sup>). Lake was built for water conservation. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	454.0	-
Design flood.....	446.2	1,290,000
Crest of spillway.....	437.5	936,200
Lowest intake to wet well (invert).....	416.5	342,700
Lowest gated outlet (invert).....	378.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,130,000 acre-ft (1.39 km<sup>3</sup>) May 1, 1966, elevation, 442.58 ft (134.900 m); minimum since lake first filled in May 1965, 802,700 acre-ft (990 hm<sup>3</sup>) Oct. 21, 1972, elevation, 433.65 ft (132.177 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 964,300 acre-ft (1.19 km<sup>3</sup>) Feb. 11, elevation, 438.27 ft (133.585 m); minimum, 850,600 acre-ft (1.05 km<sup>3</sup>) Sept. 24, elevation, 435.07 ft (132.609 m).

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

435.0	848,200	438.0	954,300
436.0	882,800	439.0	991,200
437.0	918,200		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	922500	905100	890600	917500	953200	947100	933000	940200	942400	926100	897600	864100
2	920700	904000	888100	917500	952500	940900	933400	940900	941700	925400	896200	864100
3	920700	903000	888100	917800	951800	939500	933700	940900	940900	924700	894100	863100
4	918500	901500	888100	917800	951400	942800	931900	940900	939900	924000	893800	862400
5	917100	901500	888100	916000	950700	939900	931200	940600	938800	922900	892300	860600
6	916400	901200	886700	919300	949300	938800	930800	940900	938400	922100	892000	859600
7	914600	899800	886300	916400	949300	939100	931500	940200	938400	921100	890600	858900
8	914300	898700	885600	915300	956200	938800	930500	940200	937300	920000	889900	859900
9	914600	903300	885300	914600	962400	938800	929400	938100	936600	919300	888400	859600
10	912200	901200	884600	915300	963200	938800	927600	937700	935500	918500	887400	858900
11	911800	899400	886300	915300	964300	939100	933000	937700	934400	917500	886300	857900
12	911100	899400	892000	913900	962800	940600	930500	940900	933400	916400	885300	856800
13	909300	898700	890900	914300	961700	938100	937000	941300	932300	915300	884600	856100
14	908300	898400	889900	913600	960600	937300	940900	941300	930800	913900	882400	855800
15	909000	897600	889500	914600	962400	937000	941300	951400	930100	912500	881400	855100
16	909000	897300	891600	915000	958800	937700	940900	957300	929400	911100	879700	853400
17	909000	896600	888100	915000	955400	936600	941300	961000	928700	909700	879300	853700
18	908600	895900	887000	914600	953200	935500	940200	960200	927900	908600	877900	853400
19	906800	896600	887000	916800	953600	935500	939500	959100	927200	907200	876900	853700
20	907200	895500	886700	918200	952500	935200	939100	956900	929700	906100	876200	852300
21	906100	900500	891300	925400	951800	934100	939100	955400	930100	904000	875500	851600
22	909300	898000	896600	947100	951100	933000	938800	952900	932600	905800	874500	851600
23	906800	895200	908300	959900	950700	938400	938100	951400	933000	904400	873100	852000
24	906100	895200	915000	963600	950000	933000	938100	950300	932300	903300	871700	850600
25	905400	894800	918200	962800	948500	932300	943800	948900	931500	902200	871000	852000
26	904000	892700	918500	963200	947100	931500	943100	948200	930800	900800	869600	851300
27	904000	895200	918900	959100	946000	934100	941300	947100	930100	903000	869300	851300
28	904000	893400	918900	959100	946000	934800	940600	946400	928700	902600	868600	852000
29	903000	892000	919600	957300	948200	935200	940200	945300	927900	901900	867900	861000
30	906500	890600	919300	959100	---	934100	939900	944600	926800	900100	866500	862700
31	906800	---	918900	956200	---	932300	---	942800	---	899100	865500	---
MAX	922500	905100	919600	963600	964300	947100	943800	961000	942400	926100	897600	864100
MIN	903000	890600	884600	913600	946000	931500	927600	937700	926800	899100	865500	850600
(†)	436.68	436.22	437.02	438.05	437.83	437.39	437.60	437.68	437.24	436.46	435.50	435.42
(+)	-16400	-16200	+28300	+37300	-8000	-15900	+7600	+2900	-16000	-27700	-33600	-2800
(††)	6160	6970	5400	260	685	1060	1100	1900	5460	7060	9280	5700
CAL YR 1979	MAX	1035000	MIN	825800	+	+92400	††	61390				
WTR YR 1980	MAX	964300	MIN	850600	+	-60500	††	51040				

† Elevation, in feet, at end of month.

± Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use.



## SABINE RIVER BASIN

08017400 LAKE TAWAKONI NEAR WILLS POINT, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
APR 17...	1155	195	10.0	74	0	25	2.7	10	.5

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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)
APR 17...	3.3	92	0	14	6.0	.2	1.2	108

## SABINE RIVER BASIN

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## 08017410 SABINE RIVER NEAR WILLS POINT, TX

LOCATION.--Lat 32°48'34", long 95°54'46", Van Zandt County, Hydrologic Unit 12010001, on right bank at downstream side of bridge on Farm Road 47, 750 ft (229 m) downstream from Iron Bridge Dam which forms Lake Tawakoni, 3.0 mi (4.8 km) upstream from McBee Creek, 9.0 mi (14.5 km) northeast of Wills Point, and at mile 514.3 (827.5 km).

DRAINAGE AREA.--756 mi<sup>2</sup> (1,958 km<sup>2</sup>).

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 370.00 ft (112.776 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for Nov. 23 to Dec. 20, Jan. 7-30, and May 10-22, which are fair. Flow regulated by Lake Tawakoni (see station 08017400).

AVERAGE DISCHARGE.--10 years, 424 ft<sup>3</sup>/s (12.01 m<sup>3</sup>/s), 307,200 acre-ft/yr (379 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft<sup>3</sup>/s (385 m<sup>3</sup>/s) Dec. 11, 1971, gage height, 18.5 ft (5.64 m), from graph based on gage readings; no flow most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since construction of Iron Bridge Dam in 1960, about 21,000 ft<sup>3</sup>/s (595 m<sup>3</sup>/s) May 1, 1966, from theoretical rating curve of flow over dam 750 ft (229 m) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,530 ft<sup>3</sup>/s (43.3 m<sup>3</sup>/s) Feb. 16 at 1230 hours, gage height, 13.10 ft (3.993 m); no flow Oct. 24-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	7.6	.50	7.2	650	909	4.0	106	181	2.4	16	11
2	30	1.5	.44	.40	532	374	7.5	188	163	5.0	10	15
3	58	.72	.40	181	494	40	148	184	155	1.2	11	18
4	56	.96	.40	6.2	438	85	127	138	129	.83	12	9.6
5	1.0	1.3	2.5	3.4	456	368	7.4	123	91	.94	15	10
6	1.0	35	.62	7.4	409	35	6.0	127	57	.94	23	13
7	.71	1.0	.50	200	333	17	13	118	34	.94	23	13
8	.84	.63	.50	150	578	121	263	180	138	1.0	22	12
9	111	26	.44	100	1080	21	105	109	52	4.1	12	17
10	18	13	.40	10	1030	16	8.5	100	21	1.0	12	13
11	.69	2.4	.40	4.0	1030	23	56	105	5.2	1.1	24	12
12	.52	.55	2.6	2.0	1040	49	352	150	2.2	1.0	29	18
13	.71	3.1	.62	.70	978	322	461	500	2.5	1.0	24	12
14	.58	.33	.50	.50	930	5.9	400	180	1.7	1.1	24	12
15	.62	.50	.50	1.5	1010	3.1	141	250	2.0	18	23	12
16	3.3	.47	.44	2.0	1270	3.5	116	550	2.8	57	22	20
17	.79	.56	.40	1.0	793	466	160	750	7.4	40	25	17
18	.42	.62	2.6	.70	633	23	244	800	1.5	19	13	9.6
19	.42	.62	.50	.50	596	4.1	95	750	4.8	18	22	12
20	.54	.53	.40	.40	564	216	74	650	30	20	13	12
21	.58	14	.61	10	530	42	58	600	4.0	23	11	12
22	116	70	160	150	474	1.2	46	550	16	25	11	14
23	11	.56	230	500	465	34	44	515	1.7	21	15	15
24	.00	.50	451	900	495	288	56	449	2.5	19	13	11
25	.00	.40	17	1000	580	15	169	413	1.9	21	16	11
26	.00	.30	.31	1000	351	.36	382	382	5.3	22	10	12
27	.52	.30	.27	900	270	1.5	299	347	.99	20	14	12
28	.31	2.6	3.7	840	247	8.3	203	319	1.3	20	11	13
29	.42	.62	21	760	273	132	125	285	2.5	26	11	19
30	8.2	.50	44	800	---	226	90	255	2.1	20	12	49
31	20	---	65	901	---	7.7	---	226	---	11	11	---
TOTAL	443.37	187.17	1008.55	8439.90	18529	3857.66	4260.4	10399	1119.39	422.55	510	436.2
MEAN	14.3	6.24	32.5	272	639	124	142	335	37.3	13.6	16.5	14.5
MAX	116	70	451	1000	1270	909	461	800	181	57	29	49
MIN	.00	.30	.27	.40	247	.36	4.0	100	.99	.83	10	9.6
AC-FT	879	371	2000	16740	36750	7650	8450	20630	2220	838	1010	865
CAL YR 1979	TOTAL	179937.29	MEAN 493	MAX 7350	MIN .00	AC-FT 356900						
WTR YR 1980	TOTAL	49613.19	MEAN 136	MAX 1270	MIN .00	AC-FT 98410						

## 08018500 SABINE RIVER NEAR MINEOLA, TX

LOCATION.--Lat 32°46'49", long 95°29'08", Wood County, Hydrologic Unit 12010001, on left bank 5 ft (2 m) downstream from bridge on U.S. Highway 69, 3.5 mi (5.6 km) south of Mineola, 4.5 mi (7.2 km) upstream from Missouri Pacific Railway Lines bridge, 16.2 mi (26.1 km) upstream from Lake Fork Creek, and at mile 461.1 (741.9 km).

DRAINAGE AREA.--1,357 mi<sup>2</sup> (3,515 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 304.16 ft (92.708 m) National Geodetic Vertical Datum of 1929. May 12, 1939, to Dec. 11, 1955, at site 55 ft (17 m) upstream from downstream side of bridge; Dec. 12, 1955, to Dec. 12, 1959, at downstream side of bridge; Oct. 1, 1967, to Sept. 12, 1968, nonrecording gage at downstream side of bridge; Sept. 13, 1968, to Oct. 23, 1974, water-stage recorder at downstream side of bridge; Oct. 24, 1974, to Oct. 16, 1975, at site on right bank 75 ft (23 m) downstream from bridge. All gages at present datum.

REMARKS.--Water-discharge records good. Flow partly regulated since October 1960 by Lake Tawakoni (station 08017400) located 53 mi (85 km) upstream and since September 1962 by Lake Holbrook, capacity 7,990 acre-ft (9.85 hm<sup>3</sup>), located on Keys Creek, tributary to Sabine River 8.0 mi (12.9 km) upstream. Flow is affected at times by discharge from the flood-detention pool of a floodwater-retarding structure with a detention capacity of 5,530 acre-ft (6.82 hm<sup>3</sup>). This structure controls runoff from 9.70 mi<sup>2</sup> (25.1 km<sup>2</sup>) in the Mill Creek drainage basin.

AVERAGE DISCHARGE.--20 years (water years 1940-59) prior to regulation by Lake Tawakoni, 1,054 ft<sup>3</sup>/s (29.85 m<sup>3</sup>/s), 763,600 acre-ft/yr (942 hm<sup>3</sup>/yr); 13 years (water years 1968-80) regulated, 960 ft<sup>3</sup>/s (27.19 m<sup>3</sup>/s) 695,500 acre-ft/yr (858 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,000 ft<sup>3</sup>/s (2,150 m<sup>3</sup>/s) Apr. 1, 1945, gage height, 24.00 ft (7.315 m); maximum gage height, 24.37 ft (7.428 m) June 8, 1943; no flow at times. Maximum stage since at least 1890, that of June 8, 1943.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,870 ft<sup>3</sup>/s (166 m<sup>3</sup>/s) Jan. 25 at 1400 hours, gage height, 17.50 ft (5.334 m); minimum, 0.71 ft<sup>3</sup>/s (0.020 m<sup>3</sup>/s) July 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	102	64	132	1390	297	909	272	235	6.5	23	34
2	54	87	93	152	1300	310	603	194	205	5.5	22	20
3	53	85	102	143	1220	531	296	179	169	4.8	21	13
4	51	88	85	102	1070	656	190	228	139	4.3	19	9.9
5	51	81	74	105	763	378	174	261	122	3.6	15	8.4
6	57	71	67	156	630	193	224	202	109	3.0	14	7.6
7	92	65	63	104	539	305	173	157	88	2.4	16	7.7
8	78	62	60	76	617	231	121	167	70	2.0	10	9.6
9	63	64	58	75	1290	136	96	313	56	1.8	8.9	11
10	56	71	58	108	1850	138	175	354	55	1.5	9.3	10
11	54	86	61	82	2410	156	218	259	94	1.2	14	12
12	67	136	82	62	2820	129	229	146	62	1.0	18	12
13	94	132	131	53	2840	186	581	112	37	.90	14	9.7
14	72	100	111	79	2470	221	1960	262	25	.82	10	8.7
15	60	79	207	84	1980	309	2970	551	19	.74	9.5	8.6
16	56	70	269	92	1600	291	3910	1090	15	.80	8.9	7.5
17	55	65	168	100	1380	1090	4300	1500	12	.98	18	7.0
18	54	62	113	89	1250	1350	3020	2020	11	1.2	17	7.6
19	53	62	95	83	1220	1240	1520	3320	9.1	1.4	18	7.7
20	52	64	102	268	1160	1100	789	4480	13	6.6	16	7.7
21	52	67	92	563	982	645	347	3900	19	29	12	8.8
22	53	82	154	1700	777	304	179	2760	17	24	12	11
23	54	78	410	3210	638	276	135	1810	18	21	13	9.9
24	54	73	903	4120	547	182	111	1320	25	22	13	8.2
25	79	82	1220	5550	500	132	406	994	19	25	11	11
26	98	102	1450	5160	487	246	1420	703	20	24	7.0	11
27	76	87	1660	3770	531	240	1510	518	20	22	5.3	11
28	65	76	1480	2840	484	373	1300	424	15	24	5.3	11
29	59	70	871	2100	352	737	947	362	11	23	7.7	27
30	66	66	311	1700	---	1070	533	316	8.3	24	21	282
31	128	---	153	1500	---	1060	---	276	---	24	47	---
TOTAL	2012	2415	10767	34358	35097	14512	29346	29450	1717.4	313.04	455.9	610.6
MEAN	64.9	80.5	347	1108	1210	468	978	950	57.2	10.1	14.7	20.4
MAX	128	136	1660	5550	2840	1350	4300	4480	235	29	47	282
MIN	51	62	58	53	352	129	96	112	8.3	.74	5.3	7.0
AC-FT	3990	4790	21360	68150	69610	28780	58210	58410	3410	621	904	1210
CAL YR 1979	TOTAL	370768.00	MEAN	1016	MAX	12300	MIN	11	AC-FT	735400		
WTR YR 1980	TOTAL	161053.94	MEAN	440	MAX	5550	MIN	.74	AC-FT	319500		

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURES: October 1967 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 11,400 micromhos June 3, 1971; minimum daily, 70 micromhos Dec. 12, 1971.

WATER TEMPERATURES: Maximum daily, 30.0°C on several days during July 1980; minimum daily, 0.0°C Jan. 15, Feb. 1, 1979.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 10,900 micromhos Sept. 17; minimum daily, 114 micromhos May 20.

WATER TEMPERATURES: Maximum daily, 30.0°C on several days during July; minimum daily, 4.0°C Feb. 10.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	
DATE	TIME										
OCT 18...	1020	54	300	6.6	20.5	6.7	74	1.3	64	36	
DEC 06...	1340	66	610	6.9	9.5	9.8	86	1.0	81	48	
JAN 27...	0700	4010	140	--	9.0	--	--	--	33	13	
FEB 12...	1405	3110	198	6.9	4.0	11.2	85	2.6	45	22	
MAR 31...	1200	1070	466	7.1	15.0	8.1	80	2.3	98	65	
JUN 28...	0700	15	2600	--	29.0	--	--	--	180	100	
JUL 28...	1030	13	740	7.6	27.0	4.2	52	2.8	91	9	
AUG 27...	0855	5.1	1010	--	27.0	--	--	--	140	45	
SEP 08...	1100	9.7	3400	7.8	26.5	5.1	65	7.3	140	78	
		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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
DATE											
OCT 18...	17	5.3	29	1.6	4.6	35	0	40	42	.2	
DEC 06...	21	6.9	84	4.1	4.8	40	0	59	120	.1	
JAN 27...	9.2	2.4	13	1.0	4.1	24	0	20	22	.1	
FEB 12...	12	3.6	19	1.2	3.5	28	0	30	24	.1	
MAR 31...	24	9.3	46	2.0	4.6	41	0	84	70	.1	
JUN 28...	54	12	450	14	5.5	100	0	80	750	.3	
JUL 28...	27	5.7	100	4.6	4.3	100	0	37	150	.4	
AUG 27...	41	7.9	160	6.0	5.4	110	0	41	260	.3	
SEP 08...	44	7.8	650	24	6.4	78	0	73	1000	.3	
		SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, 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)	
DATE											
OCT 18...	9.9	165	.15	.030	.18	.120	.79	.91	.050		
DEC 06...	11	327	.22	.020	.24	.050	1.9	1.9	--		
JAN 27...	5.9	89	--	--	--	--	--	--	--		
FEB 12...	5.6	112	.17	.010	.18	.000	.85	.85	.110		
MAR 31...	8.5	267	--	--	--	--	--	1.3	.130		
JUN 28...	4.9	1410	--	--	--	--	--	--	--		
JUL 28...	2.8	377	.00	.000	.00	.110	1.2	1.3	.110		
AUG 27...	3.6	573	--	--	--	--	--	--	--		
SEP 08...	3.5	1820	.00	.010	.00	.010	2.1	2.1	.160		

## SABINE RIVER BASIN

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG/L)
OCT.	1979	2012	374	204	1110	70	380	38	204	79
NOV.	1979	2415	774	418	2730	160	1020	59	388	100
DEC.	1979	10767	390	212	6150	75	2170	38	1120	80
JAN.	1980	34358	273	148	13800	52	4840	32	2970	73
FEB.	1980	35097	284	155	14700	52	4940	33	3090	74
MAR.	1980	14512	485	263	10300	93	3630	44	1710	86
APR.	1980	29346	314	171	13600	58	4620	34	2710	76
MAY	1980	29450	219	120	9510	40	3180	29	2310	70
JUNE	1980	1717.4	495	264	1220	110	509	44	205	86
JULY	1980	313.04	1550	812	687	400	341	100	86	150
AUG.	1980	455.9	605	328	403	120	146	50	62	93
SEPT	1980	610.6	2350	1170	1930	810	1340	150	241	200
TOTAL		161053.94	**	**	76000	**	27100	**	15100	**
WTD. AVG.		440	322	175	**	62	**	35	**	76

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	416	480	544	1010	315	400	435	356	309	1780	791	2500
2	396	650	582	1040	308	411	430	375	336	1660	893	10600
3	370	700	750	730	291	337	425	426	324	1570	828	8060
4	350	750	568	770	305	288	501	500	322	1540	632	6390
5	340	768	578	1000	331	418	669	422	342	1550	550	5560
6	328	602	604	1160	343	451	623	400	335	1540	488	4780
7	340	584	590	930	339	453	522	375	333	1530	444	4170
8	352	580	650	884	287	334	528	416	343	1540	384	3350
9	340	634	656	964	414	421	579	456	364	1550	365	2360
10	336	644	780	1170	377	479	692	392	386	1560	364	1670
11	306	770	1000	656	265	503	621	376	423	1560	368	1660
12	294	900	1330	776	210	587	600	378	319	1570	436	1640
13	350	832	1210	854	216	575	418	364	345	1590	736	1280
14	296	974	622	880	217	750	378	462	353	1630	602	1210
15	300	1080	980	1000	224	926	310	225	393	1680	500	2590
16	312	1160	858	738	244	565	226	386	422	1710	474	8080
17	300	744	694	630	258	401	195	325	448	1720	436	10900
18	296	740	600	884	270	570	204	173	466	1740	453	7730
19	292	642	554	1330	278	508	270	125	484	1750	990	5640
20	294	560	520	1760	321	364	330	114	483	1760	919	3000
21	298	542	510	1290	358	371	400	147	411	3270	724	2810
22	302	528	440	314	355	444	399	196	573	5050	704	2110
23	308	546	500	232	359	507	400	219	531	1700	620	1770
24	332	700	468	274	331	381	524	236	775	1100	528	1440
25	394	758	342	173	323	471	482	250	1150	972	478	1550
26	546	1250	202	123	319	632	350	272	5660	885	539	2620
27	565	1340	182	140	283	389	338	328	2380	1080	750	2800
28	584	942	236	187	292	374	385	324	2600	721	1020	2270
29	556	694	330	252	350	823	371	312	2940	604	867	1580
30	520	624	406	216	---	539	372	335	2250	557	592	750
31	370	---	674	322	---	479	---	304	---	532	422	---
MEAN	367	757	612	732	303	489	433	322	893	1580	610	3760

## SABINE RIVER BASIN

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08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	16.0	7.0	12.0	6.0	9.0	16.0	17.0	25.0	29.0	29.0	28.0
2	22.0	15.0	7.0	10.0	---	9.0	---	19.0	25.0	29.0	29.0	27.0
3	21.0	15.0	7.0	10.0	5.0	8.0	17.0	20.0	25.0	29.0	29.0	27.0
4	21.0	15.0	7.0	9.0	7.0	9.0	17.0	20.0	25.0	29.0	28.0	27.0
5	19.0	15.0	8.0	8.0	8.0	10.0	18.0	20.0	26.0	30.0	28.0	27.0
6	19.0	15.0	10.0	8.0	8.0	9.0	17.0	20.0	26.0	28.0	29.0	26.0
7	20.0	14.0	10.0	8.0	8.0	13.0	18.0	21.0	27.0	30.0	29.0	27.0
8	20.0	14.0	10.0	8.0	7.0	13.0	13.0	22.0	27.0	30.0	29.0	27.0
9	21.0	17.0	10.0	8.0	6.0	12.0	14.0	20.0	25.0	30.0	28.0	26.0
10	20.0	15.0	9.0	10.0	4.0	13.0	18.0	20.0	24.0	30.0	29.0	26.0
11	20.0	14.0	12.0	11.0	5.0	15.0	18.0	22.0	25.0	30.0	28.0	27.0
12	22.0	12.0	11.0	9.0	7.0	15.0	---	22.0	26.0	30.0	27.0	25.0
13	20.0	11.0	11.0	9.0	8.0	15.0	14.0	22.0	25.0	29.0	29.0	26.0
14	19.0	10.0	10.0	8.0	9.0	15.0	10.0	22.0	25.0	29.0	29.0	25.0
15	21.0	10.0	8.0	10.0	10.0	15.0	11.0	21.0	25.0	28.0	29.0	27.0
16	21.0	10.0	7.0	11.0	9.0	16.0	12.0	21.0	27.0	30.0	28.0	27.0
17	21.0	13.0	7.0	11.0	5.0	16.0	15.0	20.0	27.0	30.0	28.0	26.0
18	22.0	13.0	8.0	10.0	8.0	14.0	15.0	21.0	27.0	30.0	29.0	27.0
19	22.0	20.0	10.0	12.0	8.0	14.0	17.0	22.0	28.0	29.0	28.0	25.0
20	22.0	17.0	12.0	12.0	9.0	15.0	18.0	22.0	27.0	28.0	29.0	27.0
21	23.0	20.0	11.0	12.0	11.0	14.0	19.0	22.0	25.0	29.0	28.0	26.0
22	22.0	14.0	12.0	12.0	11.0	14.0	18.0	22.0	26.0	28.0	28.0	27.0
23	19.0	11.0	13.0	10.0	12.0	16.0	20.0	22.0	26.0	29.0	28.0	26.0
24	18.0	11.0	12.0	10.0	12.0	14.0	21.0	22.0	28.0	---	27.0	27.0
25	18.0	12.0	12.0	11.0	10.0	15.0	20.0	23.0	28.0	29.0	27.0	27.0
26	17.0	12.0	12.0	10.0	8.0	15.0	18.0	23.0	28.0	29.0	29.0	25.0
27	18.0	13.0	11.0	9.0	10.0	13.0	17.0	24.0	29.0	29.0	27.0	22.0
28	19.0	12.0	12.0	10.0	10.0	13.0	16.0	24.0	29.0	28.0	28.0	20.0
29	20.0	11.0	11.0	---	12.0	15.0	17.0	25.0	29.0	29.0	27.0	20.0
30	20.0	9.0	11.0	---	---	16.0	19.0	25.0	29.0	29.0	27.0	20.0
31	18.0	---	10.0	6.0	---	15.0	---	25.0	---	29.0	26.0	---
MEAN	20.0	13.5	10.0	10.0	8.5	13.5	16.5	21.5	26.5	29.0	28.0	25.5



## SABINE RIVER BASIN

08018730 BURKE CREEK NEAR YANTIS, TX

LOCATION.--Lat 32°59'26", long 95°37'18", Hopkins County, Hydrologic Unit 12010003, on the downstream side of highway embankment, 7 ft (2.1 m) to left of left end of main bridge on Farm Road 1567, 100 ft (30 m) upstream from Cane Branch, 1.2 mi (1.9 km) upstream from Brushy Branch, and 5.0 mi (8.0 km) northwest of Yantis.

DRAINAGE AREA.--33.1 mi<sup>2</sup> (85.7 km<sup>2</sup>).

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 400.00 ft (121.920 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. There are no known diversions or return effluents in the basin above gage. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,750 ft<sup>3</sup>/s (77.9 m<sup>3</sup>/s) Mar. 30, 1979, gage height, 10.74 ft (3.274 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1943, 17.5 ft (5.334 m) June 6, 1943, from information by State Department of Highways and Public Transportation.

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Jan. 22	1700	1,560 44.2	9.98 3.042	May 2	0515	1,080 30.6	9.53 2.905
Apr. 13	2345	1,440 40.8	9.88 3.011	May 16	0530	*2,470 70.0	10.59 3.228

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	5.0	1.6	9.2	18	6.9	18	26	2.5	.21	.00	.00
2	.00	2.5	1.8	9.0	16	6.9	15	605	2.2	.17	.00	.00
3	.00	1.6	2.0	10	14	6.8	13	88	1.7	.10	.00	.00
4	.00	1.2	2.1	9.5	13	6.8	10	20	1.4	.07	.00	.00
5	.00	1.2	2.4	8.4	13	6.7	8.2	12	1.2	.10	.00	.00
6	.00	1.0	2.7	8.4	12	6.7	7.9	10	1.0	.09	.00	.00
7	.00	1.1	2.7	8.4	11	6.7	13	8.7	.81	.08	.00	.00
8	.00	1.0	2.4	7.6	177	6.7	36	8.9	.75	.01	.00	.00
9	.00	40	2.1	7.4	500	6.6	10	12	.74	.00	.00	.00
10	.00	15	2.2	8.0	162	6.6	8.1	8.1	.77	.00	.00	.00
11	.00	4.5	2.6	11	92	6.6	7.7	6.8	.71	.00	.00	.00
12	.00	2.9	52	9.0	46	33	11	112	.53	.00	.00	.00
13	.00	2.1	259	8.0	28	18	582	100	.37	.00	.00	.00
14	.00	2.0	34	8.2	22	9.4	761	15	.53	.00	.00	.00
15	.00	1.8	11	8.4	53	8.1	107	181	.48	.00	.00	.00
16	.05	1.6	8.2	14	16	9.9	37	1440	.42	.00	.00	.00
17	5.6	1.5	6.6	13	12	14	18	186	.48	.00	.00	.00
18	8.1	1.5	6.1	10	12	8.7	13	41	.37	.00	.00	.00
19	2.9	2.0	6.4	9.0	12	7.9	11	15	.33	.00	.00	.00
20	1.4	2.1	6.4	292	12	9.5	10	11	2.3	.00	.00	.00
21	.80	9.4	8.1	323	11	8.4	9.0	8.6	8.2	.00	.00	.00
22	1.3	15	571	991	9.7	7.1	8.1	8.0	55	4.7	.00	.00
23	1.8	4.8	273	295	8.4	8.2	7.6	8.0	155	2.4	.00	.00
24	1.1	3.2	517	52	7.8	12	7.5	7.1	16	.47	.00	.00
25	1.0	2.9	62	29	7.6	8.4	29	6.4	3.9	.27	.00	.00
26	.73	2.7	25	20	7.4	7.7	200	5.9	1.8	.17	.00	.00
27	.53	2.4	17	15	7.2	18	44	4.8	.95	.10	.00	.50
28	.53	2.1	13	14	7.2	125	13	4.1	.58	.06	.00	5.0
29	.53	1.8	12	95	7.1	118	10	3.8	.35	.04	.00	15
30	8.2	1.6	11	90	---	99	8.5	3.5	.25	.02	.00	8.0
31	37	---	10	51	---	28	---	3.0	---	.01	.00	---
TOTAL	71.58	137.5	1933.4	2443.5	1314.4	632.3	2033.6	2969.7	261.62	9.07	.00	28.50
MEAN	2.31	4.58	62.4	78.8	45.3	20.4	67.8	95.8	8.72	.29	.000	.95
MAX	37	40	571	991	500	125	761	1440	155	4.7	.00	15
MIN	.00	1.0	1.6	7.4	7.1	6.6	7.5	3.0	.25	.00	.00	.00
CFSM	.07	.14	1.89	2.38	1.37	.62	2.05	2.89	.26	.009	.000	.03
IN.	.08	.15	2.17	2.75	1.48	.71	2.29	3.34	.29	.01	.00	.03
AC-FT	142	273	3830	4850	2610	1250	4030	5890	519	18	.00	57

CAL YR 1979	TOTAL	10231.33	MEAN 28.0	MAX 1190	MIN .00	CFSM .85	IN 11.50	AC-FT 20290
WTR YR 1980	TOTAL	11835.17	MEAN 32.3	MAX 1440	MIN .00	CFSM .98	IN 13.30	AC-FT 23480

## 08018800 LAKE FORK RESERVOIR NEAR QUITMAN, TX

LOCATION.--Lat 32°48'40", long 94°31'38", Wood County, Hydrologic Unit 12010003, in room at left end of gated concrete spillway structure of Lake Fork Dam on Lake Fork Creek, 0.2 mi (0.3 km) upstream from bridge on State Highway 182, 0.8 mi (1.3 km) downstream from Caney Creek, 2.1 mi (3.4 km) upstream from Alum Branch, and 4.4 mi (7.1 km) west-northwest of the County Courthouse in Quitman.

DRAINAGE AREA.--490 mi<sup>2</sup> (1,269 km<sup>2</sup>).

PERIOD OF RECORD.--October 1979 to September 1980.

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

REMARKS.--The lake is formed by a rolled earthfill dam 12,660 ft (3,859 m) long, including a 260-foot (79 m) gated concrete spillway. The outlet works consist of two 5- by 8-foot (1.5 by 2.4 m) low-flow sluice gates, five 40- by 20-foot (12 by 6 m) tainter gates, and two 5- by 6-foot (1.5 by 1.8 m) sluice gates that open into a set-well where there are two 36-inch (914 mm) and one 10-inch (254 mm) valve-controlled and metered-outlet pipes. Deliberate impoundment began June 29, 1979, and closure of the dam was completed in January 1980. The lake was built for water conservation and is owned by the Sabine River Authority. No known diversions were made from the lake this year. Flow is affected at times by discharge from the flood-detention pools of 21 floodwater-retarding structures with a combined detention capacity of 20,270 acre-ft (25.0 hm<sup>3</sup>). These structures control runoff from 60.0 mi<sup>2</sup> (155.4 km<sup>2</sup>) above the lake. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	419.5	1,270,000
Top of tainter gates.....	405.0	732,900
Crest of gated spillway.....	385.0	291,900
Invert of upper sluice gate.....	383.0	260,400
Invert of lower sluice gate.....	360.5	43,120
Invert of sluice gate in two center pieces.....	360.0	40,620

COOPERATION.--Area and capacity tables were prepared and furnished by URS/Forrest and Cotton, Inc., Consulting Engineers, for the Sabine River Authority. Observed elevations for the period Oct. 31, 1979, to Jan. 31, 1980, were furnished by the Sabine River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 126,400 acre-ft (156 hm<sup>3</sup>) Apr. 16, 1980, elevation, 372.29 ft (113.474 m); minimum observed, 46,140 acre-ft (56.9 hm<sup>3</sup>) Dec. 11-14, 1979, elevation, 361.10 ft (110.063 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 126,400 acre-ft (156 hm<sup>3</sup>) Apr. 16 at 0700 hours, elevation, 372.29 ft (113.474 m); minimum observed, 46,140 acre-ft (56.9 hm<sup>3</sup>) Dec. 11-14, elevation, 361.10 ft (110.063 m).

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

361.0	45,610	369.0	97,870
363.0	56,580	371.0	114,700
365.0	68,930	373.0	133,300
367.0	82,670		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48500	47740	47740	79500	106600	107100	108000	103300	94830	91100	87190	83710
2	48450	47740	47740	78940	106000	107000	108100	104700	93430	91020	87050	83560
3	48400	47740	47310	78800	105100	106900	108500	106900	93660	90860	86820	83490
4	48350	47740	46990	78090	105800	106800	108400	106900	93820	90710	86680	83340
5	48300	47630	46940	77600	105000	106700	108400	105200	93590	90550	86530	83190
6	48250	47530	47210	77250	104800	106700	108500	103400	93510	90400	86450	83040
7	48200	47470	46940	77030	105200	106900	108500	101700	93430	90160	86300	82970
8	48150	47470	46940	75550	106900	106900	108400	100100	93350	90010	86160	82970
9	48100	48430	46940	74550	112200	106900	108500	98520	93270	89860	86010	82820
10	48050	48800	46460	73350	118000	107000	108400	97010	93200	89710	85930	82750
11	48000	48800	46140	72550	119400	107100	108900	95380	93120	89490	85860	82530
12	47950	48800	46140	71610	118700	107100	109200	96390	92890	89340	85710	82530
13	47900	48530	48850	71610	117400	106300	113400	95450	92810	89190	85560	82320
14	47800	48800	47580	71610	115700	106100	121400	95140	92650	88970	85420	82250
15	47850	48800	47740	71610	114200	106100	126100	96850	92420	88820	85340	82180
16	47850	48800	47740	71610	112200	107100	125900	96930	92420	88680	85120	82040
17	47850	48800	49010	71610	110100	105900	124100	117200	92260	88530	85050	81900
18	47800	48800	47470	71610	108600	105800	121700	119900	92180	88310	84900	82110
19	47750	48800	51150	71610	108500	105900	119400	119500	92650	88230	84750	81970
20	47700	48530	50920	71610	108700	106100	117200	117600	92730	88080	84600	81760
21	47700	48270	51550	76050	108900	106000	115100	115700	92340	88310	84530	81690
22	47900	48270	55220	91250	109000	105900	113200	113500	92340	88080	84300	81620
23	47800	48270	60180	96700	109200	106500	111200	111500	92260	88010	84230	81550
24	47700	48270	65310	111200	109300	106100	109900	109400	92030	87860	84010	81830
25	47650	48270	70940	111900	108500	106100	110100	107300	91950	87640	83860	81760
26	47600	48270	80560	111600	107700	106100	109600	105200	91870	87490	83790	81620
27	47600	47740	82040	109800	107500	105600	109800	103300	91640	87940	84160	81550
28	47600	47740	81690	108700	107100	106100	108500	101200	91560	87790	84010	81830
29	47550	47740	81690	108100	107200	107200	106600	99420	91330	87640	84080	83560
30	47700	47740	81410	107800	---	107200	104700	97790	91170	87490	83860	83560
31	47740	---	80840	107300	---	107700	---	96310	---	87340	83790	---
MAX	48500	48800	82040	111900	119400	107700	126100	119900	94830	91100	87190	83710
MIN	47550	47470	46140	71610	104800	105600	104700	95140	91170	87340	83790	81550
(†)	361.40	361.40	366.74	370.14	370.13	370.19	369.83	368.70	368.14	367.63	367.15	367.12
(‡)	-760	0	+33100	+26460	-100	+500	-3000	-8390	-5140	-3830	-3550	-230

CAL YR 1979 MAX - MIN - ‡  
WTR YR 1980 MAX 126100 MIN 46140 ‡ +35060

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

## SABINE RIVER BASIN

## 08019000 LAKE FORK CREEK NEAR QUITMAN, TX

LOCATION.--Lat 32°45'47", long 95°27'46", Wood County, Hydrologic Unit 12010003, at downstream side of highway embankment near left end of bridge on State Highway 37, 0.3 mi (0.5 km) downstream from Dry Creek, 2.4 mi (3.9 km) south of Quitman, and 23.4 mi (37.7 km) upstream upstream from mouth.

DRAINAGE AREA.--585 mi<sup>2</sup> (1,515 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1924 to April 1926, February 1939 to current year. Discharge for some high-water periods in 1925-26 published in WSP 1342. Monthly discharge only for some periods, published in WSP 1312. Prior to October 1961, published as Lake Fork Sabine River near Quitman.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 317.42 ft (96.750 m) National Geodetic Vertical Datum of 1929. June 27, 1924, to Apr. 30, 1926, nonrecording gage at site 1,000 ft (305 m) downstream at same datum. Prior to Sept. 5, 1978, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Since May 1962, flow from 31.0 mi<sup>2</sup> (80.3 km<sup>2</sup>) controlled by Lake Quitman, capacity 7,440 acre-ft (9.17 hm<sup>3</sup>), on Dry Creek, a tributary above this station and below Lake Fork Reservoir. Construction of Lake Fork Dam and Reservoir, capacity 675,800 acre-ft (883 hm<sup>3</sup>), located about 5 mi (8 km) upstream from station, was begun in 1975. Deliberate impoundment began June 29, 1979, and the dam was completed in January 1980. Lake Fork Reservoir controls runoff from 490 mi<sup>2</sup> (1,269 km<sup>2</sup>). Records furnished by the city of Quitman indicate that during the current year 197 acre-ft (243,000 m<sup>3</sup>) of sewage effluent was returned to a tributary above this station.

AVERAGE DISCHARGE.--41 years (water years 1925, 1940-79) prior to regulation by Lake Fork Reservoir, 432 ft<sup>3</sup>/s (12.23 m<sup>3</sup>/s), 10.03 in/yr (255 mm/yr), 313,000 acre-ft/yr (386 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,600 ft<sup>3</sup>/s (2,140 m<sup>3</sup>/s) Mar. 30, 1945, gage height, 29.85 ft (9.098 m), from floodmark, from rating curve extended above 49,000 ft<sup>3</sup>/s (1,390 m<sup>3</sup>/s); no flow at times most years.

Maximum stage since at least 1890, that of Mar. 30, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in July 1895 reached a stage of about 25.9 ft (7.89 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,710 ft<sup>3</sup>/s (76.7 m<sup>3</sup>/s) Jan. 23 at 0200 hours, gage height, 15.15 ft (4.618 m); no flow Aug. 23-29 and Sept. 13-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	212	87	567	1300	51	248	1310	910	4.4	.46	.21
2	70	119	83	548	1130	52	112	1500	854	3.4	.41	.10
3	64	85	81	539	1120	40	87	2060	800	3.3	.30	.07
4	60	73	82	525	1090	38	76	1790	267	2.5	.28	.06
5	55	66	82	511	351	40	64	1600	31	1.9	.27	.06
6	50	61	82	496	89	41	57	1450	18	1.6	.23	.08
7	47	58	82	486	66	38	54	1320	13	1.3	.17	.06
8	45	55	78	465	204	37	49	1260	13	1.2	.13	.03
9	43	130	75	451	1040	37	46	1210	11	1.0	.14	.04
10	42	325	73	442	1760	35	40	1160	9.1	2.5	.14	.06
11	40	333	71	433	1830	34	36	1110	7.7	2.2	.09	.05
12	39	196	74	428	1700	126	38	1040	6.4	1.9	.06	.01
13	37	150	138	412	1610	527	327	492	5.7	2.1	.08	.00
14	36	135	165	399	1520	544	1310	746	5.1	1.8	.08	.00
15	35	126	143	390	1460	190	1600	1010	4.5	1.4	.08	.00
16	39	117	156	390	1400	197	1680	1820	4.1	1.1	.08	.00
17	46	112	166	195	1360	1110	1680	2070	2.9	.93	.07	.00
18	67	107	160	76	1320	1180	1610	1840	2.8	.84	.07	.00
19	53	107	157	58	1220	541	1550	1750	6.2	.83	.05	.00
20	47	109	154	86	746	167	1500	1670	24	.75	.03	.00
21	46	124	152	185	173	106	1420	1590	275	.53	.02	.00
22	48	198	239	1240	88	78	1280	1490	258	.58	.01	.00
23	51	157	390	2340	72	67	1210	1420	319	.78	.00	.00
24	47	127	585	1840	64	64	1170	1370	223	.75	.00	.00
25	44	117	714	1650	81	57	1440	1320	158	.62	.00	.00
26	41	110	737	1560	404	47	2230	1270	50	.56	.00	.00
27	40	105	726	1090	492	52	1860	1230	14	.60	.00	.07
28	39	102	673	456	181	612	1620	1190	9.2	.94	.00	.50
29	37	99	654	396	61	623	1480	1150	8.9	1.0	.00	6.2
30	45	94	633	533	---	610	1370	1110	7.1	.97	.31	42
31	168	---	593	1360	---	617	---	1020	---	.63	.58	---
TOTAL	1602	3909	8285	20547	23932	7958	27244	42368	4317.7	44.91	4.14	49.60
MEAN	51.7	130	267	663	825	257	908	1367	144	1.45	.13	1.65
MAX	168	333	737	2340	1830	1180	2230	2070	910	4.4	.58	.42
MIN	35	55	71	58	61	34	36	492	2.8	.53	.00	.00
CFSM	.09	.22	.46	1.13	1.41	.44	1.55	2.34	.25	.002	.000	.003
IN.	.10	.25	.53	1.31	1.52	.51	1.73	2.69	.27	.00	.00	.00
AC-FT	3180	7750	16430	40750	47470	15780	54040	84040	8560	89	8.2	.98

CAL YR 1979	TOTAL	165753.91	MEAN	454	MAX	6250	MIN	.43	CFSM	.78	IN	10.54	AC-FT	328800
WTR YR 1980	TOTAL	140261.35	MEAN	383	MAX	2340	MIN	.00	CFSM	.66	IN	8.92	AC-FT	278200

## SABINE RIVER BASIN

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08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1961 to June 1965, November 1967 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1967 to current year.

WATER TEMPERATURES: December 1967 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,800 micromhos Oct. 5, 1972; minimum daily, 37 micromhos Dec. 11, 1971.  
 WATER TEMPERATURES (1976-1979): Maximum daily, 29.0°C July 3, 4, 6, 1969, July 29, 1972, July 1, 1977; minimum daily, 2.0°C Jan. 10, 1970.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 805 micromhos Mar. 11; minimum daily, 160 micromhos Apr. 26.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV										
07...	0800	60	246	--	16.0	56	17	14	5.1	22
DEC										
23...	0800	350	414	--	9.0	70	55	17	6.6	45
JAN										
20...	0800	81	772	--	9.0	140	140	32	15	89
FEB										
05...	1230	278	339	--	7.0	68	48	16	6.7	33
APR										
30...	0800	1350	235	--	17.0	61	32	15	5.8	20
MAY										
21...	1730	1510	210	--	22.0	53	22	13	5.0	16
JUN										
30...	0800	14	380	7.8	21.0	73	27	20	5.7	37
AUG										
31...	0800	.60	469	--	20.0	78	7	19	7.3	54
SEP										
30...	0800	50	361	--	23.0	74	25	18	7.0	40

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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									
07...	1.3	6.0	48	0	22	39	.1	8.8	141
DEC									
23...	2.3	6.1	18	0	41	82	.1	8.0	215
JAN									
20...	3.3	5.7	5	0	110	160	.2	16	430
FEB									
05...	1.7	5.9	24	0	47	56	.1	11	188
APR									
30...	1.1	5.5	36	0	33	34	.1	4.2	135
MAY									
21...	1.0	5.5	38	0	30	21	.1	2.4	112
JUN									
30...	1.9	5.7	56	0	42	62	.3	7.8	208
AUG									
31...	2.7	9.1	86	0	69	46	.3	13	260
SEP									
30...	2.0	5.2	54	0	41	54	.2	7.7	189

## 08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG (MG/L)
OCT.	1979	1602	211	117	505	26	114	30	130	50
NOV.	1979	3909	318	176	1860	45	470	44	459	72
DEC.	1979	8285	320	177	3960	46	1020	44	974	73
JAN.	1980	20547	276	153	8470	38	2120	38	2110	63
FEB.	1980	23932	266	147	9490	35	2290	37	2390	62
MAR.	1980	7958	416	230	4930	65	1410	54	1170	90
APR.	1980	27244	237	131	9660	31	2270	33	2450	56
MAY	1980	42368	230	127	14600	29	3340	33	3720	54
JUNE	1980	4317.7	259	143	1670	34	401	36	420	60
JULY	1980	44.91	480	265	32	78	9.4	62	7.5	100
AUG.	1980	4.14	423	234	2.6	65	0.7	56	0.6	93
SEPT	1980	49.60	368	203	27	54	7.2	49	6.6	82
TOTAL		140261.35	**	**	55200	**	13400	**	13800	**
WTD. AVG.		383	264	146	**	36	**	37	**	61

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	185	344	294	242	256	675	368	233	211	420	414	465
2	183	294	292	230	245	700	432	235	213	472	415	460
3	174	286	290	235	236	725	472	239	250	502	420	455
4	173	288	285	250	242	747	503	241	310	498	419	450
5	171	258	278	260	350	632	534	244	380	510	418	464
6	172	250	300	245	492	700	565	242	435	530	412	452
7	174	246	314	243	568	761	582	239	481	549	411	445
8	172	275	280	240	334	770	600	235	537	545	417	443
9	175	320	320	228	243	780	607	231	503	540	408	440
10	169	358	370	230	264	788	595	226	552	500	410	436
11	174	330	402	232	232	805	587	229	576	505	406	444
12	179	300	504	244	250	600	518	231	587	515	413	446
13	171	278	610	239	240	434	400	307	594	480	418	---
14	172	270	500	232	228	400	318	298	596	475	420	---
15	174	260	402	234	234	387	260	262	606	469	423	---
16	173	280	274	278	233	380	239	241	608	470	421	---
17	174	300	280	610	237	317	230	235	612	466	418	---
18	300	302	265	670	300	315	224	230	632	468	417	---
19	280	300	256	720	329	390	220	226	549	470	418	---
20	242	298	275	750	328	410	225	230	513	472	412	---
21	225	310	290	772	442	450	221	210	336	473	414	---
22	206	380	380	500	500	509	230	216	253	472	423	---
23	260	432	390	208	583	570	235	214	284	460	---	---
24	245	390	400	246	550	606	245	215	291	455	---	---
25	215	338	414	272	520	670	210	213	246	450	---	---
26	200	330	342	264	274	669	160	212	280	449	---	---
27	195	322	274	248	325	676	200	217	300	440	---	443
28	194	310	255	250	400	500	220	213	315	430	---	415
29	196	298	242	256	567	489	238	212	340	423	---	400
30	242	284	250	302	---	356	235	210	380	417	420	361
31	300	---	256	286	---	352	---	214	---	415	469	---
MEAN	202	308	332	330	345	567	356	232	426	475	418	439



## 08019300 LAKE WINNSBORO NEAR WINNSBORO, TX

LOCATION.--Lat 32°53'10", long 95°20'40", Wood County, Hydrologic Unit 12010002, near left end of dam on Big Sandy Creek, 0.8 mi (1.3 km) upstream from bridge on State Highway 37, 2.5 mi (4.0 km) upstream from Indian Creek, and 5.8 mi (9.3 km) southwest of Winnsboro.

DRAINAGE AREA.--27.1 mi<sup>2</sup> (70.2 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1963, nonrecording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 2,500 ft (762 m) long. Storage began June 11, 1962, and the dam was completed in August 1962. The dam was built by Wood County for flood control and recreation. The spillway is an uncontrolled 20-foot (6 m) square drop inlet at crest elevation of 419.0 ft (127.71 m). The crest was raised in April 1966 from elevation 417 to 419 ft (127.1 to 127.7 m). The other spillway is a 300-foot-wide (91 m) cut channel through natural ground near right end of dam. The capacity curve is based on 1960 Geological Survey topographic maps. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	437.0	-
Design flood.....	433.0	22,500
Crest of spillway.....	427.0	16,270
Crest of drop inlet (top of conservation pool).....	419.0	8,110
Lowest gated outlet (invert).....	392.2	0

COOPERATION.--Capacity curve was furnished by Wisenbaker, Fix, and Associates, Consulting Engineers for Wood County.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 11,640 acre-ft (14.4 hm<sup>3</sup>) Feb. 5, 1975, elevation, 422.92 ft (128.906 m); minimum since first appreciable storage, 2,430 acre-ft (3.00 hm<sup>3</sup>) Jan. 19, 20, 1965, elevation, 409.79 ft (124.904 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,490 acre-ft (11.7 hm<sup>3</sup>) May 2 at 1200 hours, elevation, 420.63 ft (128.208 m); minimum, 6,400 acre-ft (7.89 hm<sup>3</sup>) Sept. 24, elevation, 416.74 ft (127.022 m).

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

415.0	5,230	419.0	8,110
417.0	6,590	421.0	9,820

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8130	8120	8050	8160	8300	8090	8350	8870	8130	7830	7180	6730
2	8090	8110	8050	8160	8270	8090	8320	9320	8120	7760	7160	6710
3	8070	8090	8030	8160	8260	8090	8280	8910	8110	7750	7140	6700
4	8030	8090	8050	8150	8240	8130	8240	8670	8090	7730	7110	6680
5	8040	8080	8070	8150	8230	8100	8220	8520	8090	7710	7090	6660
6	8040	8050	8030	8170	8210	8120	8200	8510	8070	7690	7080	6640
7	8040	8050	8030	8140	8210	8130	8220	8430	8070	7670	7060	6620
8	8040	8050	8030	8130	8620	8120	8170	8430	8050	7640	7040	6600
9	8030	8220	8030	8130	8830	8130	8140	8410	8030	7630	7020	6600
10	8030	8230	8040	8140	8730	8140	8130	8370	8030	7600	7000	6590
11	8030	8190	8050	8120	8620	8130	8130	8310	8010	7580	7000	6570
12	8030	8160	8130	8110	8510	8230	8170	8380	8000	7550	6990	6540
13	8000	8130	8160	8110	8440	8200	8740	8430	7980	7530	6990	6530
14	7980	8130	8170	8120	8400	8190	8820	8390	7960	7500	6970	6520
15	7970	8120	8160	8140	8360	8180	8640	8870	7940	7460	6940	6510
16	7970	8120	8140	8150	8300	8370	8530	9160	7900	7430	6930	6490
17	8020	8120	8100	8170	8260	8360	8430	8850	7890	7410	6910	6480
18	8010	8130	8120	8160	8250	8340	8350	8630	7860	7390	6890	6460
19	8000	8140	8100	8170	8250	8300	8300	8500	7840	7370	6870	6460
20	7990	8130	8110	8190	8250	8250	8260	8420	7910	7360	6860	6440
21	7980	8200	8140	8390	8230	8230	8230	8380	7900	7350	6840	6430
22	7970	8180	8260	9450	8220	8210	8200	8330	7970	7340	6830	6420
23	7940	8150	8380	9020	8200	8210	8180	8300	7970	7310	6800	6410
24	7930	8150	8430	8730	8180	8170	8190	8270	7960	7310	6770	6490
25	7920	8130	8370	8560	8150	8170	9020	8250	7950	7270	6760	6490
26	7900	8130	8320	8440	8150	8170	8910	8230	7930	7260	6730	6470
27	7890	8120	8290	8350	8150	8250	8680	8210	7910	7260	6720	6450
28	7890	8080	8240	8320	8160	8390	8530	8200	7890	7250	6700	6490
29	7880	8060	8230	8350	8160	8470	8430	8170	7870	7230	6770	6620
30	8050	8050	8210	8380	---	8440	8370	8160	7850	7220	6760	6630
31	8130	---	8180	8330	---	8390	---	8140	---	7210	6750	---
MAX	8130	8230	8430	9450	8830	8470	9020	9320	8130	7830	7180	6730
MIN	7880	8050	8030	8110	8150	8090	8130	8140	7840	7210	6700	6410
(†)	419.03	418.93	419.08	419.27	419.06	419.35	419.32	419.04	418.67	417.84	417.22	417.06
(‡)	-10	-80	+130	+150	-170	+230	-20	-230	-290	-640	-460	-120

CAL YR 1979 MAX 9640 MIN 5670 † +2530  
WTR YR 1980 MAX 9450 MIN 6410 ‡ -1510

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



## SABINE RIVER BASIN

08019500 BIG SANDY CREEK NEAR BIG SANDY, TX

LOCATION.--Lat 32°36'12", long 95°05'32", Upshur County, Hydrologic Unit 12010002, on left bank at downstream side of bridge on State Highway 155, 0.5 mi (0.8 km) upstream from St. Louis Southwestern Railway Lines bridge, 1.6 mi (2.6 km) northeast of Big Sandy, and 6.5 mi (10.5 km) upstream from mouth.

DRAINAGE AREA.--231 mi<sup>2</sup> (598 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1732: 1941(M), 1945-46, 1956, drainage area. WSP 1922: 1944(M), 1945-46.

GAGE.--Water-stage recorder. Datum of gage is 278.38 ft (84.850 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1940, nonrecording gage, and Oct. 5, 1940, to Nov. 26, 1951, water-stage recorder at site 1.3 mi (2.1 km) upstream at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge records good. Since June 1962, flow is affected somewhat by the flood-detention pool of Lake Winnsboro (station 08019300). Records furnished by the city of Winnsboro show that 485 acre-ft (598,000 m<sup>3</sup>) of sewage effluent was discharged into a tributary above station.

AVERAGE DISCHARGE.--41 years, 184 ft<sup>3</sup>/s (5.211 m<sup>3</sup>/s), 133,300 acre-ft/yr (164 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 ft<sup>3</sup>/s (680 m<sup>3</sup>/s) Mar. 31, 1945, gage height, 24.1 ft (7.35 m), present site and datum, from floodmark, from rating curve extended above 13,000 ft<sup>3</sup>/s (368 m<sup>3</sup>/s); minimum, 5.0 ft<sup>3</sup>/s (0.14 m<sup>3</sup>/s) Aug. 15, 1956.  
Maximum stage since at least 1875, that of Mar. 31, 1945, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,440 ft<sup>3</sup>/s (69.1 m<sup>3</sup>/s) Jan. 25 at 0700 hours, gage height, 14.54 ft (4.432 m), no other peak above base of 1,500 ft<sup>3</sup>/s (42.5 m<sup>3</sup>/s); minimum, 5.6 ft<sup>3</sup>/s (0.16 m<sup>3</sup>/s) Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	161	145	315	452	176	411	702	112	25	11	15
2	140	149	136	267	405	173	472	904	102	21	10	15
3	119	147	128	246	394	162	440	865	94	20	9.9	15
4	104	156	124	231	375	158	358	905	86	23	8.7	14
5	93	171	122	224	345	156	277	1260	79	18	7.9	15
6	83	165	119	216	312	153	234	1210	72	14	7.1	17
7	75	137	115	209	281	152	209	885	66	12	6.9	14
8	68	114	112	202	306	150	189	670	60	11	6.8	13
9	62	113	111	197	526	145	172	489	68	10	7.1	20
10	57	131	111	191	592	142	161	356	63	9.7	6.8	19
11	57	130	113	187	790	140	153	284	53	8.7	8.6	16
12	55	131	134	179	1150	141	181	260	46	8.5	18	14
13	53	143	245	176	1080	140	328	296	40	8.1	16	14
14	50	186	230	170	878	139	664	285	37	7.4	18	13
15	48	247	222	164	687	154	631	262	31	7.2	19	11
16	48	254	222	173	531	200	745	356	27	7.0	20	11
17	53	209	231	180	429	405	985	414	25	6.9	19	12
18	71	167	246	191	356	368	895	470	23	6.7	17	13
19	79	146	238	217	303	338	682	830	22	7.4	15	13
20	84	131	211	252	267	972	497	1170	44	8.1	13	18
21	77	143	188	296	248	886	348	884	70	8.3	11	19
22	102	202	293	695	232	594	266	699	92	9.2	9.3	16
23	102	176	437	1260	218	365	226	528	96	9.8	9.4	15
24	88	172	437	1710	208	264	200	373	87	9.5	8.0	14
25	81	174	391	2320	198	222	204	275	81	9.0	6.8	17
26	72	181	363	1660	187	198	245	230	73	8.7	6.2	18
27	66	190	469	1150	177	190	266	197	70	9.4	6.2	20
28	64	186	578	890	170	226	797	174	62	15	7.0	20
29	62	171	575	728	165	236	1250	157	46	18	10	38
30	89	156	490	614	---	276	965	142	32	17	21	96
31	225	---	388	526	---	286	---	127	---	14	17	---
TOTAL	2598	4939	7924	16036	12262	8307	13451	16659	1859	367.6	357.7	565
MEAN	83.8	165	256	517	423	268	448	537	62.0	11.9	11.5	18.8
MAX	225	254	578	2320	1150	972	1250	1260	112	25	21	96
MIN	48	113	111	164	165	139	153	127	22	6.7	6.2	11
AC-FT	5150	9800	15720	31810	24320	16480	26680	33040	3690	729	709	1120
CAL YR 1979	TOTAL	97570.0	MEAN	267	MAX	3600	MIN	22	AC-FT	193500		
WTR YR 1980	TOTAL	85325.3	MEAN	233	MAX	2320	MIN	6.2	AC-FT	169200		

## SABINE RIVER BASIN

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08019500 BIG SANDY CREEK NEAR BIG SANDY, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH  (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 09...	1355	57	108	--	21.0	22	9	5.5	2.1	10
NOV 16...	1145	267	157	--	9.0	29	23	6.8	2.9	12
JAN 07...	1340	209	183	--	8.5	35	29	8.2	3.6	17
FEB 11...	1350	793	156	--	5.0	28	24	6.2	3.1	15
MAR 31...	1645	288	174	--	15.0	35	27	7.8	3.8	18
MAY 12...	1500	262	148	--	22.5	32	19	7.5	3.3	13
JUN 16...	1350	26	124	7.0	25.0	24	10	5.8	2.4	12
JUL 28...	1445	16	101	--	26.5	18	5	4.2	1.9	11
SEP 08...	1620	11	84	--	25.5	16	4	3.7	1.6	8.2

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 09...	.9	2.9	16	0	14	17	.1	15	74
NOV 16...	1.0	4.9	7	0	27	22	.1	13	92
JAN 07...	1.2	5.7	8	0	30	27	.1	15	111
FEB 11...	1.2	2.7	5	0	25	24	.1	11	90
MAR 31...	1.3	2.8	10	0	26	27	.1	9.7	100
MAY 12...	1.0	3.6	16	0	22	19	.1	11	87
JUN 16...	1.1	2.2	18	0	7.8	22	.1	15	76
JUL 28...	1.1	2.2	16	0	5.3	20	.1	12	65
SEP 08...	.9	2.0	14	0	4.2	15	.1	12	54

## SABINE RIVER BASIN

08020000 SABINE RIVER NEAR GLADEWATER, TX

LOCATION.--Lat 32°31'37", long 94°57'36", Gregg County, Hydrologic Unit 12010002, on right bank 46 ft (14 m) downstream from bridge on U.S. Highway 271, 0.4 mi (0.6 km) downstream from Glade Creek, 1.2 mi (1.9 km) southwest of Gladewater, and at mile 397.5 (639.6 km).

DRAINAGE AREA.--2,791 mi<sup>2</sup> (7,229 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1732: Drainage area. WRD TX-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 243.85 ft (74.325 m) National Geodetic Vertical Datum of 1929 (Texas Reclamation Department bench mark based on Geological Survey datum). Prior to Oct. 13, 1933, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Flow is partially regulated by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft (1,150 hm<sup>3</sup>), Lake Fork Creek Reservoir (station 08018800), capacity 675,800 acre-ft (833 hm<sup>3</sup>), and six tributary reservoirs with a combined capacity at 44,830 acre-ft (55.3 hm<sup>3</sup>). There are many diversions above station for oilfield operations and municipal supply. A National Weather Service rain gage and gage-height telemeter are operated at this station.

AVERAGE DISCHARGE.--28 years (water years 1933-60) prior to regulation by Lake Tawakoni, 2,012 ft<sup>3</sup>/s (56.98 m<sup>3</sup>/s), 1,458,000 acre-ft/yr (1.80 km<sup>3</sup>/yr); 20 years (water years 1961-80) regulated, 1,760 ft<sup>3</sup>/s (49.84 m<sup>3</sup>/s), 1,275,000 acre-ft/yr (1.57 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft<sup>3</sup>/s (3,910 m<sup>3</sup>/s) Apr. 2, 1945, gage height, 44.16 ft (13.460 m), from floodmark, from rating curve extended above 91,000 ft<sup>3</sup>/s (2,580 m<sup>3</sup>/s); minimum, 5.6 ft<sup>3</sup>/s (0.16 m<sup>3</sup>/s) Aug. 16, 1939.

Maximum stage since at least 1892, that of Apr. 2, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1914 reached a stage of about 41.7 ft (12.71 m), discharge, 85,900 ft<sup>3</sup>/s (2,430 m<sup>3</sup>/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,520 ft<sup>3</sup>/s (156 m<sup>3</sup>/s) Feb. 5 at 0300 hours, gage height, 25.44 ft (7.754 m); minimum, 28 ft<sup>3</sup>/s (0.79 m<sup>3</sup>/s) Aug. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	563	839	441	2580	5240	1430	2580	3840	1900	141	58	46
2	490	820	425	1980	5140	1260	2620	4330	1660	119	52	51
3	437	715	412	1520	4940	1030	2590	4460	1500	104	49	50
4	398	618	406	1310	5110	946	2330	4160	1360	92	49	64
5	360	550	418	1240	5420	1050	1740	3710	1220	88	48	62
6	334	516	433	1140	4800	1120	1200	3450	1060	77	45	52
7	316	477	424	1060	4490	1000	948	3310	774	67	42	46
8	301	437	409	1030	3980	814	869	3080	545	60	40	42
9	300	416	396	980	3960	790	784	2800	464	54	38	44
10	309	419	389	923	4080	760	690	2510	397	50	35	54
11	296	431	389	895	4100	673	630	2280	326	48	37	62
12	283	483	448	882	4110	649	685	2190	277	45	41	62
13	272	575	665	857	4250	681	1640	2420	261	42	45	58
14	260	628	959	823	4450	682	2980	2360	257	40	43	52
15	265	627	1030	794	4630	795	3540	2250	218	37	42	47
16	275	602	942	793	4790	1020	3680	2730	180	35	47	43
17	282	562	852	829	4940	1530	3760	3010	152	33	53	41
18	287	499	846	875	5020	1850	3960	3220	135	35	53	43
19	292	460	801	873	5000	2070	4180	3350	122	33	50	62
20	295	438	730	1010	4850	2400	4390	3640	157	32	44	53
21	304	465	674	1630	4600	2860	4550	3980	284	33	40	51
22	330	575	874	2940	4270	3030	4570	4190	335	35	39	51
23	379	651	1590	4470	3890	2710	4370	4390	481	38	39	46
24	354	648	2240	5070	3320	1970	3880	4560	497	41	35	41
25	326	622	2430	5240	2490	1320	3230	4680	489	44	34	38
26	307	578	2490	5290	1730	986	2940	4690	478	46	31	37
27	296	538	2490	5290	1320	836	2850	4530	427	48	28	41
28	309	522	2550	5280	1240	1080	2950	4180	354	50	28	43
29	319	500	2700	5260	1370	1490	3280	3620	269	54	43	70
30	347	466	2850	5270	---	2000	3680	2940	189	65	55	190
31	685	---	2880	5270	---	2390	---	2320	---	65	40	---
TOTAL	10571	16677	35583	73404	117530	43222	82096	107180	16768	1751	1323	1642
MEAN	341	556	1148	2368	4053	1394	2737	3457	559	56.5	42.7	54.7
MAX	685	839	2880	5290	5420	3030	4570	4690	1900	141	58	190
MIN	260	416	389	793	1240	649	630	2190	122	32	28	37
AC-FT	20970	33080	70580	145600	233100	85730	162800	212600	33260	3470	2620	3260
CAL YR 1979	TOTAL	843721	MEAN	2312	MAX	12800	MIN	63	AC-FT	1674000		
WTR YR 1980	TOTAL	507747	MEAN	1387	MAX	5420	MIN	28	AC-FT	1007000		

## SABINE RIVER BASIN

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08020000 SABINE RIVER NEAR GLADEWATER, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
NOV 14...	1530	637	245	7.0	11.0	10.0	90	1.6	45	23
JAN 08...	1700	1020	255	6.9	7.0	10.9	90	1.3	49	26
APR 01...	0930	2620	344	7.0	14.5	9.0	88	1.5	68	43
MAY 15...	1550	2190	186	6.6	21.0	6.8	76	2.5	45	22
JUL 29...	0920	53	470	7.2	28.5	5.2	67	2.2	68	27
SEP 09...	0920	43	370	7.2	28.0	5.2	66	2.9	67	13

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
NOV 14...	11	4.2	28	1.8	4.7	27	0	26	44	.1
JAN 08...	12	4.7	26	1.6	5.1	29	0	29	44	.2
APR 01...	17	6.2	39	2.1	3.8	30	0	47	58	.1
MAY 15...	11	4.2	16	1.0	3.8	28	0	26	24	.2
JUL 29...	18	5.7	57	3.0	3.7	50	0	24	97	.2
SEP 09...	18	5.4	46	2.4	4.1	66	0	35	59	.2

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
NOV 14...	13	144	.11	.00	.11	.10	.79	.89	.100
JAN 08...	13	148	.20	.01	.21	.11	1.1	1.2	.100
APR 01...	10	196	--	--	--	--	--	1.1	.110
MAY 15...	9.1	108	.21	.02	.23	.15	2.5	2.6	.050
JUL 29...	11	241	.00	.00	.00	.06	.94	1.0	.070
SEP 09...	5.4	206	.00	.01	.00	.00	1.2	1.2	.090

## SABINE RIVER BASIN

08020960 MILL CREEK NEAR HENDERSON, TX

LOCATION.--Lat 32°14'00", long 94°46'58", Rusk County, Hydrologic Unit 12010002, at left side of concrete flume located near left end of concrete overflow structure built across Mill Creek at end of a dirt access road, 0.5 mi (0.8 km) downstream from Beaver Run, 0.7 mi (1.1 km) southeast of intersection of access road with State Highway 322, 1.1 mi (1.8 km) upstream from Dogwood Creek, and 5.5 mi (8.8 km) north of the highway traffic circle located on the northeast edge of Henderson.

DRAINAGE AREA.--20.3 mi<sup>2</sup> (52.6 km<sup>2</sup>).

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorders, crest-stage gages, and concrete flume with overflow. Datum of gage is 336.20 ft (102.474 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those above 50 ft<sup>3</sup>/s (1.42 m<sup>3</sup>/s), which are fair. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 801 ft<sup>3</sup>/s (22.7 m<sup>3</sup>/s) Mar. 31, 1979, from rating extended above 365 ft<sup>3</sup>/s (10.3 m<sup>3</sup>/s) by flow over broad-crested dam formula, gage height, 4.50 ft (1.372 m); minimum, 0.36 ft<sup>3</sup>/s (0.010 m<sup>3</sup>/s) July 25, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 662 ft<sup>3</sup>/s (18.7 m<sup>3</sup>/s) Jan. 22 at 1045 hours, from rating extended above 365 ft<sup>3</sup>/s (10.3 m<sup>3</sup>/s) by flow over broad-crested dam formula, gage height, 4.43 ft (1.350 m), no other peak above base of 600 ft<sup>3</sup>/s (17.0 m<sup>3</sup>/s); minimum, 1.5 ft<sup>3</sup>/s (0.042 m<sup>3</sup>/s) Aug. 24-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	14	6.9	14	16	34	12	9.9	4.9	2.7	2.4	1.9
2	4.0	8.1	6.9	13	15	19	11	35	4.6	2.6	2.3	1.9
3	3.7	6.4	6.9	16	14	16	11	18	4.3	2.6	2.3	1.9
4	3.6	5.8	6.9	14	13	16	11	12	3.8	2.6	2.2	1.9
5	3.4	5.5	7.2	12	14	16	9.7	10	3.7	2.4	2.1	1.8
6	3.4	5.4	7.7	12	13	14	9.4	8.8	3.9	2.4	2.1	1.7
7	3.4	5.3	7.2	12	12	15	9.8	8.4	3.4	2.4	2.0	3.8
8	3.4	5.4	6.9	11	89	15	8.9	7.7	3.2	2.4	1.9	7.8
9	3.4	9.0	6.8	11	222	14	8.1	7.7	3.2	2.4	1.9	5.5
10	3.4	9.5	7.0	10	68	14	8.0	7.2	3.4	2.4	1.7	4.2
11	3.4	6.1	7.6	11	32	14	17	6.9	3.0	2.2	1.7	3.3
12	3.2	5.2	18	9.9	23	36	144	71	2.9	2.1	1.7	2.7
13	3.2	5.1	62	9.5	20	20	452	124	2.8	2.1	1.8	2.5
14	3.2	5.1	17	9.4	20	14	139	46	2.7	2.0	1.9	2.5
15	3.0	5.1	12	9.5	20	13	39	40	2.4	1.9	1.7	2.5
16	3.1	5.3	11	16	18	17	22	271	2.4	1.7	1.9	2.5
17	3.6	5.3	9.4	14	17	17	18	54	2.3	1.7	2.1	2.2
18	3.7	5.4	8.9	11	17	14	16	21	2.6	1.7	1.9	2.1
19	3.3	5.3	9.5	12	17	13	14	14	2.4	1.7	1.9	2.1
20	3.2	5.5	9.7	17	16	16	13	12	5.3	1.7	1.9	2.1
21	3.0	44	9.9	40	16	14	12	10	30	2.1	1.9	1.9
22	25	67	65	476	15	13	11	9.2	12	9.7	1.8	1.9
23	11	20	143	137	14	13	10	8.9	21	3.2	1.7	1.9
24	5.2	12	211	40	14	18	11	7.9	7.6	2.3	1.7	2.3
25	4.5	10	34	25	13	13	30	7.6	4.8	1.9	1.5	2.3
26	4.0	9.0	19	20	13	13	27	7.6	3.8	1.6	1.5	2.2
27	3.8	8.5	15	17	13	26	14	6.6	3.4	1.7	1.6	2.3
28	3.8	7.7	14	15	14	52	11	5.7	3.0	8.7	1.7	2.3
29	4.0	7.0	29	28	14	21	10	5.4	2.7	4.2	2.2	2.4
30	14	6.9	21	30	---	17	9.7	5.1	2.7	3.0	2.4	2.5
31	90	---	15	22	---	13	---	5.0	---	2.7	2.0	---
TOTAL	236.8	319.9	811.4	1094.3	802	560	1118.6	863.6	158.2	84.8	59.4	83.9
MEAN	7.64	10.7	26.2	35.3	27.7	18.1	37.3	27.9	5.27	2.74	1.92	2.80
MAX	90	67	211	476	222	52	452	271	30	9.7	2.4	7.8
MIN	3.0	5.1	6.8	9.4	12	13	8.0	5.0	2.3	1.6	1.5	1.7
AC-FT	470	635	1610	2170	1590	1110	2220	1710	314	168	118	166
CAL YR 1979	TOTAL	7783.7	MEAN	21.3	MAX	359	MIN	1.8	AC-FT	15440		
WTR YR 1980	TOTAL	6192.9	MEAN	16.9	MAX	476	MIN	1.5	AC-FT	12280		

## SABINE RIVER BASIN

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## 08020980 MILL CREEK NEAR LONGVIEW, TX

LOCATION.--Lat 32°18'18", long 94°43'41", Rusk County, Hydrologic Unit 12010002, at left side of concrete flume located near left end of concrete embankment across Mill Creek at end of dirt access road, 0.7 mi (1.1 km) east of intersection of access road with State Highway 322, 1.3 mi (2.1 km) downstream from Boggy Creek, 10.4 mi (16.7 km) upstream from Cherokee Dam on Cherokee Bayou, and 13.5 mi (21.7 km) south of intersection of U.S. Highway 80 and State Highway 149 in Longview.

DRAINAGE AREA.--47.9 mi<sup>2</sup> (124.1 km<sup>2</sup>).

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorders, crest-stage gages, and concrete flume with concrete overflow. Datum of gage is 284.00 ft (86.653 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,270 ft<sup>3</sup>/s (36.0 m<sup>3</sup>/s) Mar. 31, 1979, from rating extended above 539 ft<sup>3</sup>/s (15.3 m<sup>3</sup>/s) by flow over broad-crested dam formula, gage height, 5.28 ft (1.609 m); minimum, 0.07 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s), Aug. 23-27, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 773 ft<sup>3</sup>/s (21.9 m<sup>3</sup>/s) Jan. 22 at 2115 hours, from rating extended above 539 ft<sup>3</sup>/s (15.3 m<sup>3</sup>/s) by flow over broad-crested dam formula, gage height, 5.12 ft (1.561 m), no peak above base of 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s); minimum, 0.07 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s) Aug. 23-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	96	20	49	65	56	41	34	20	5.1	2.2	.93
2	11	64	20	42	54	65	37	79	18	4.1	1.7	.79
3	9.3	33	19	45	49	52	35	66	18	3.6	1.4	.67
4	8.4	24	19	46	47	42	34	58	17	3.2	1.0	.55
5	7.8	19	20	43	46	40	32	43	17	2.9	.91	.64
6	7.1	18	20	39	44	38	30	35	16	2.7	.78	.55
7	7.3	16	20	37	43	36	29	32	13	2.5	.67	.55
8	7.6	16	20	35	60			30	13	2.3	.60	.88
9	8.1	21	19	33	196			28	12	2.1	.52	4.8
10	8.0	21	19	33	220	33		28	12	1.7	.46	7.3
11	7.1	23	19	33	153	34	27	27	11	1.5	.51	7.1
12	6.8	22	25	32	97	41	88	50	10	1.4	.42	5.5
13	6.8	19	52	32	72	54	406	132	9.4	1.1	.54	4.1
14	7.0	17	84	30	64	50	393	217	8.4	1.0	.46	3.3
15	7.2	16	59	30	60	38	188	134	7.9	.91	.49	2.8
16	7.4	16	38	34	56	36	117	186	7.3	.80	.61	2.4
17	7.7	16	31	38	54	38	77	276	7.0	.69	.55	2.0
18	8.0	16	28	39	51	38	60	166	6.6	.54	.46	1.4
19	8.4	16	26	35	49	35	52	85	5.9	.50	.54	1.4
20	9.3	16	26	34	48	35	47	57	9.2	.42	.45	1.2
21	9.8	32	26	44	46	34	42	47	29	.24	.32	1.2
22	23	72	50	295	44	34	39	42	39	.35	.20	1.1
23	30	106	123	379	42	32	36	38	52	.42	.07	1.1
24	35	67	234	180	40	35	34	35	41	.50	.07	.85
25	22	41	198	111	38	36	44	34	25	.74	.07	.93
26	15	32	109	78	36	35	66	32	15	.99	.07	1.0
27	13	28	66	64	35	36	70	31	11	1.1	.07	1.1
28	12	24	52	56	35	60	49	29	8.9	1.3	.49	1.1
29	11	22	52	56	34	83	39	26	7.1	1.1	2.3	1.3
30	17	21	62	67	---	61	35	23	6.0	1.4	2.0	3.7
31	66	---	60	74	---	48	---	22	---	2.1	1.2	---
TOTAL	416.1	950	1616	2143	1878	1328	2226	2122	472.7	49.30	22.13	62.24
MEAN	13.4	31.7	52.1	69.1	64.8	42.8	74.2	68.5	15.8	1.59	.71	2.07
MAX	66	106	234	379	220	83	406	276	52	5.1	2.3	7.3
MIN	6.8	16	19	30	34	32	25	22	5.9	.24	.07	.55
CFSM	.28	.66	1.09	1.44	1.35	.89	1.55	1.43	.33	.03	.02	.04
IN.	.32	.74	1.25	1.66	1.46	1.03	1.73	1.65	.37	.04	.02	.05
AC-FT	825	1880	3210	4250	3730	2630	4420	4210	938	98	44	123

CAL YR 1979	TOTAL	17786.10	MEAN	48.7	MAX	709	MIN	3.6	CFSM	1.02	IN	13.81	AC-FT	35280
WTR YR 1980	TOTAL	13285.47	MEAN	36.3	MAX	406	MIN	.07	CFSM	.76	IN	10.32	AC-FT	26350





## 08021500 LAKE CHEROKEE NEAR LONGVIEW, TX

LOCATION.--Lat 32°22'36", long 94°38'30", Gregg-Rusk County line, Hydrologic Unit 12010002, on left wingwall of intake structure of electric generating plant of Southwestern Electric Power Co., 2.3 mi (3.7 km) upstream from dam on Cherokee Bayou, 10 mi (16 km) upstream from Sabine River, and 10.3 mi (16.6 km) southeast of Longview.

DRAINAGE AREA.--158 mi<sup>2</sup> (409 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1951 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Nonrecording gage, Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam 4,000 ft (1,220 m) long. An uncontrolled concrete spillway 828 ft (252 m) long is located at left end of dam. An emergency spillway, 160 ft (49 m) wide, is cut in natural ground at right end of dam. Storage began in October 1948 and dam was completed Nov. 19, 1948. Lake was built for recreational purposes, to supply cooling water for generating plant of Southwestern Electric Power Co., and for municipal use by city of Longview. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	295.0	-
Design flood .....	291.0	-
Crest of spillway.....	287.7	-
Crest of spillway (top of conservation pool).....	280.0	46,710
Lowest gated outlet (invert).....	260.0	4,510

COOPERATION.--Elevation record was furnished by Southwestern Electric Power Co. Record of diversions were furnished by city of Longview. Capacity curve data from "Report of Sedimentation of Lake Cherokee, Gregg & Rusk Counties, Apr. 4 to May 13, 1960", by Soil Conservation Service.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 71,170 acre-ft (87.8 hm<sup>3</sup>) May 3, 1959, elevation, 285.5 ft (87.02 m); minimum observed, 30,500 acre-ft (37.6 hm<sup>3</sup>) Nov. 12-14, 1978, elevation, 275.20 ft (83.881 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents observed, 50,700 acre-ft (62.5 hm<sup>3</sup>) Apr. 14, elevation, 281.00 ft (85.649 m); minimum observed, 34,940 acre-ft (43.1 hm<sup>3</sup>) Sept. 28-30, elevation, 276.70 ft (84.338 m).

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

276.0	32,790	280.0	46,700
278.0	39,300	282.0	54,900

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47100	46710	47100	47490	47490	47490	47880	47490	46710	46710	42160	37570
2	47100	46710	47100	47490	47490	47490	47880	48270	46710	46710	42160	37570
3	47100	46710	47100	47490	47490	47490	47880	48270	46710	46320	42160	37230
4	46710	46710	47100	47490	47490	47490	47880	48270	46710	46320	42160	37570
5	46710	46710	47100	47490	47880	47490	47880	48270	46710	46320	41790	37570
6	46710	46710	47100	47490	47880	47490	47880	48270	46710	45930	41430	37230
7	46710	46710	47100	47490	47880	47490	47880	47290	46710	45930	41430	37230
8	46710	46710	47100	47490	47880	47490	47490	47490	46710	45930	41430	37230
9	46710	46710	47100	47490	48670	47490	47490	47100	46320	45930	40350	37230
10	46710	46710	47100	47490	48670	47490	47490	47100	46320	45930	40350	37230
11	46710	46710	47100	47490	48670	47490	47490	47100	45930	45930	40350	37230
12	46710	46710	47490	47490	48670	47490	47880	47100	45930	45930	40350	36890
13	45930	46710	47490	47490	48270	47490	50290	48270	45930	45930	40000	36560
14	45930	46710	47490	47490	48270	47490	50700	48270	45930	44390	40000	36560
15	45930	46710	47490	47490	47490	47490	49070	48670	45930	44390	40000	36230
16	45930	46710	47880	47490	47490	47490	48270	49070	45930	44390	39650	36230
17	45930	46710	47880	47490	47490	47490	47880	49070	45930	44390	39300	36230
18	45930	46710	47880	47490	47880	47490	47880	49070	45930	44010	39300	35900
19	45930	46710	47100	47490	47880	47490	48270	48870	45930	44010	39300	35900
20	46320	46710	47100	47490	47880	47490	47880	48270	46320	44010	39300	35580
21	45930	46710	47490	47880	47880	47490	47490	48270	46320	43640	38950	35580
22	46320	46710	47490	48270	47880	47490	47490	48270	46320	43270	38600	35580
23	46320	46710	48270	48270	47490	47880	47490	47880	46320	42900	38600	35580
24	45930	46710	48270	48270	47490	47490	47490	47880	46710	42530	38600	35260
25	45930	47490	48670	48270	47490	47100	47880	47880	47100	42530	38250	35260
26	45930	47490	48670	48270	47490	47490	47880	47880	47100	42530	38250	35260
27	45930	47490	48670	48270	47490	47490	47880	47880	47100	42530	38250	35260
28	45930	47100	48670	48270	47490	47490	47490	47490	47100	42530	37910	34940
29	45930	47100	48670	48270	47490	47880	47490	47490	47100	42530	37910	34940
30	45930	47100	48670	48670	---	47880	47490	47490	47100	42530	37910	34940
31	46710	---	48670	48670	---	47490	---	47490	---	42160	37570	---
MAX	47100	47490	48670	48670	48670	47880	50700	49070	47100	46710	42160	37570
MIN	45930	46710	47100	47490	47490	47100	47490	47100	45930	42160	37570	34940
(†)	280.00	280.10	280.50	280.50	280.20	280.20	280.20	280.20	280.10	278.80	277.50	276.70
(‡)	-780	+390	+1570	0	-1180	0	0	0	-390	-4940	-4590	-2630
(††)	1300	1050	1100	1060	969	901	919	805	1110	1840	1880	1410
CAL YR 1979	MAX	49880	MIN	35260	‡	+14670	††	15850				
WTR YR 1980	MAX	50700	MIN	34940	‡	-12550	††	14340				

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Longview.

## SABINE RIVER BASIN

08021500 LAKE CHEROKEE NEAR LONGVIEW, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
FEB 14...	0730	145	10.0	26	21	6.3	2.6	14	1.2

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
FEB 14...	2.2	7	0	15	25	.2	13	82

## SABINE RIVER BASIN

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## 08022040 SABINE RIVER NEAR BECKVILLE, TX

LOCATION.--Lat 32°19'38", long 94°21'12", Panola County, Hydrologic Unit 12010002, on downstream side of highway embankment near right end of downstream bridge on U.S. Highway 59, 0.9 mi (1.4 km) upstream from Eightmile Creek, 6.0 mi (9.7 km) upstream from Farm Road 1794, 8.4 mi (13.5 km) northeast of Beckville, 12.4 mi (20.0 km) downstream from State Highway 43, and at mile 327.0 (526.3 km).

DRAINAGE AREA.--3,589 mi<sup>2</sup> (9,296 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Prior to October 1978, published as "near Tatum".

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 190.00 ft (57.912 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1978, at site 12.4 mi (20.0 km) upstream at datum 14.18 ft (4.322 m) higher. Prior to Sept. 21, 1945, nonrecording gage.

REMARKS.--Water-discharge records fair except those for period July 15 to Sept. 30, which are good. Flow is partly regulated by Lake Tawakoni (station 08017400) located 187 mi (301 km) upstream and by six reservoirs on tributary streams, combined capacity, 1,022,000 acre-ft (1.26 km<sup>3</sup>). Several diversions above station and below Lake Tawakoni for oilfield operation, municipal, and industrial uses. Low flows are sustained by sewage effluents returned to the river above the station. During the current year, the city of Longview reported that 8,530 acre-ft (10.5 hm<sup>3</sup>) of sewage effluent was returned to the river above this station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08020000.

AVERAGE DISCHARGE.--22 years (water years 1939-60) prior to regulation by Lake Tawakoni, 2,663 ft<sup>3</sup>/s (75.42 m<sup>3</sup>/s), 1,929,000 acre-ft/yr (2.38 km<sup>3</sup>/yr); 20 years (water years 1961-80) regulated, 2,328 ft<sup>3</sup>/s (65.93 m<sup>3</sup>/s), 1,687,000 acre-ft/yr (2.08 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft<sup>3</sup>/s (3,480 m<sup>3</sup>/s) Apr. 4, 1945, gage height, 33.80 ft (10.302 m), site and datum then in use, from graph based on gage readings, from rating curve extended above 66,000 ft<sup>3</sup>/s (1,870 m<sup>3</sup>/s) on basis of partly estimated measurement of 88,900 ft<sup>3</sup>/s (2,520 m<sup>3</sup>/s); minimum observed, 2.4 ft<sup>3</sup>/s (0.068 m<sup>3</sup>/s) Aug. 11, 12, 1964.

Maximum stage since at least 1884, that of Apr. 4, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of about 2 ft (0.61 m) lower than flood of Apr. 4, 1945. These dates and gage heights are based on information for stations near Tatum (08022000) and at Logansport, La. (08022500).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,760 ft<sup>3</sup>/s (276 m<sup>3</sup>/s) Feb. 11, gage height, 24.51 ft (7.471 m); minimum, 38 ft<sup>3</sup>/s (1.08 m<sup>3</sup>/s) Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1700	1420	792	3710	6790	2020	4100	3640	3380	361	61	47
2	1150	1340	739	3560	6840	2520	3750	4430	2400	275	60	54
3	935	1190	703	3240	6900	2540	3580	6190	2100	214	64	53
4	810	1080	676	3130	6970	2000	3480	6440	1940	170	56	52
5	641	931	689	2820	6990	1730	3300	6120	1730	141	57	48
6	563	810	674	2350	6960	1610	2740	5470	1590	112	61	51
7	508	723	673	2080	6850	1730	2100	4850	1470	95	55	50
8	458	660	659	1910	6800	1750	1650	4340	1310	86	53	52
9	432	627	626	1770	7990	1590	1470	3920	1130	81	55	51
10	409	838	599	1680	9340	1410	1260	3610	956	77	59	52
11	390	929	581	1610	9510	1260	1140	3350	791	76	57	79
12	368	735	607	1560	8730	1260	2960	3040	634	74	54	76
13	350	651	1080	1480	8040	1670	6000	4090	518	70	47	55
14	308	669	1760	1420	7260	1510	8440	5210	455	66	42	53
15	305	741	1760	1410	6600	1310	8930	5110	417	64	45	56
16	295	781	1690	1390	6100	1240	7910	6000	372	57	50	53
17	305	787	1600	1480	5780	1360	6700	8090	325	48	52	52
18	308	773	1430	1550	5670	1780	5840	8140	288	46	53	50
19	325	731	1290	1500	5760	2160	5170	7140	256	49	52	48
20	318	671	1240	1590	5800	2490	4740	5950	240	48	52	79
21	322	716	1170	2520	5860	2750	4650	5110	405	47	51	110
22	386	2150	1260	4690	5800	3120	4930	4670	783	44	51	82
23	563	3190	2480	8190	5680	3480	5010	4770	802	48	49	65
24	495	2710	5060	9050	5480	3780	4620	4610	834	52	50	52
25	440	1970	6460	8660	5130	3590	4850	4520	745	52	46	52
26	383	1520	6100	8160	4470	2780	5340	4570	696	51	39	52
27	312	1310	5330	7560	3440	1970	5290	4650	641	50	42	51
28	318	1130	4510	7090	2700	1960	4500	4670	587	53	43	50
29	372	983	3960	6790	1980	2690	3940	4660	522	76	45	49
30	386	868	3780	6720	---	3660	3620	4520	444	82	48	52
31	802	---	3770	6740	---	4180	---	4160	---	74	50	---
TOTAL	15657	33634	63748	117410	182220	68900	132010	156040	28761	2839	1599	1726
MEAN	505	1121	2056	3787	6283	2223	4400	5034	959	91.6	51.6	57.5
MAX	1700	3190	6460	9050	9510	4180	8930	8140	3380	361	64	110
MIN	295	627	581	1390	1980	1240	1140	3040	240	44	39	47
AC-FT	31060	66710	126400	232900	361400	136700	261800	309500	57050	5630	3170	3420
CAL YR 1979	TOTAL	1432477	MEAN	3925	MAX	13100	MIN	92	AC-FT	2841000		
WTR YR 1980	TOTAL	804544	MEAN	2198	MAX	9510	MIN	39	AC-FT	1596000		

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1952 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: March 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1952 to current year.  
WATER TEMPERATURES: February 1952 to current year.

REMARKS.--Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request. Formerly published as 08022000 Sabine River near Tatum.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 3,040 micromhos Jan. 13, 1966; minimum, 53 micromhos Mar. 31, 1979.  
WATER TEMPERATURES (water years 1952-62, 1964-79): Maximum, 38.0°C July 8, 1969; minimum, 2.0°C Jan. 12, 13, 1962, Feb. 9, 1979.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,270 micromhos Sept. 11; minimum daily, 64 micromhos Jan. 24.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT 01...	2200	1480	234	--	30.0	--	--	--	--	--	42	23
NOV 14...	1210	674	585	6.9	10.5	15	6.0	10.3	90	1.6	64	40
JAN 08...	1430	1890	310	6.6	8.0	50	18	10.8	91	1.6	51	33
FEB 12...	1115	8770	177	--	6.0	--	--	--	--	--	40	25
APR 02...	1240	3780	281	6.9	16.0	55	34	9.8	99	1.7	51	33
MAY 14...	1420	5330	210	6.8	22.0	80	74	5.4	61	3.8	42	21
JUL 31...	1150	78	860	8.0	31.0	30	10	8.4	112	3.5	160	95
SEP 11...	1025	79	1270	7.6	28.0	60	14	5.9	75	5.8	120	44

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 01...	12	2.9	26	1.7	3.9	23	0	27	42	.1	14
NOV 14...	17	5.3	88	4.8	5.2	30	0	28	140	.1	16
JAN 08...	13	4.5	34	2.1	4.2	22	0	31	58	.1	15
FEB 12...	11	3.0	17	1.2	2.9	18	0	22	31	.1	10
APR 02...	13	4.6	32	1.9	2.8	22	0	31	48	.1	13
MAY 14...	11	3.6	23	1.5	3.7	26	0	23	35	.1	8.8
JUL 31...	53	7.2	93	3.2	5.4	82	0	80	160	.5	6.6
SEP 11...	33	9.9	200	7.8	8.0	96	0	100	280	.7	.8

DATE	SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 01...	139	--	--	--	--	--	--	--	--	--	--
NOV 14...	314	4	0	.46	.02	.48	.05	.83	.88	.190	8.6
JAN 08...	171	53	33	.30	.01	.31	.18	1.1	1.3	.110	7.3
FEB 12...	106	--	--	--	--	--	--	--	--	--	--
APR 02...	156	67	11	--	--	--	--	--	1.3	.120	11
MAY 14...	121	78	0	.24	.02	.26	.17	2.2	2.4	.270	9.6
JUL 31...	447	20	19	.00	.00	.00	.06	1.3	1.4	.080	15
SEP 11...	681	30	4	.04	.01	.05	.00	1.5	1.5	.100	15

## SABINE RIVER BASIN

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08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 08...	1430	0	80	<1	0	2	440
APR 02...	1240	1	80	.2	0	0	420
MAY 14...	1420	1	60	<1	0	2	210
JUL 31...	1150	1	100	<1	0	0	30
SEP 11...	1025	1	100	3	0	4	10

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 08...	3	120	.1	0	0	9
APR 02...	0	70	.0	0	0	6
MAY 14...	0	8	.0	0	0	8
JUL 31...	2	680	.0	1	0	8
SEP 11...	1	700	.0	0	0	20

DATE	TIME	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
APR 02...	1240	.0	0	.00	.00	.00
JUL 31...	1150	.0	2	.00	.00	.00

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
APR 02...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
JUL 31...	.00	.0	.00	.0	.01	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
APR 02...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0
JUL 31...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
APR 02...	.00	.00	.00	.00	0	0	.00	.02	.00	.00
JUL 31...	.00	.00	.00	.00	0	0	.00	.00	.00	.00



## SABINE RIVER BASIN

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	15657	364	203	8580	65	2740	39	1650	65
NOV.	1979	33634	331	184	16700	58	5260	36	3240	59
DEC.	1979	63748	349	194	33400	62	10600	37	6440	62
JAN.	1980	117410	204	114	36100	34	10700	23	7210	37
FEB.	1980	182220	209	117	57500	34	16800	23	11500	39
MAR.	1980	68900	287	160	29800	49	9070	32	5870	52
APR.	1980	132010	237	132	47100	39	14000	26	9370	43
MAY	1980	156040	206	115	48600	34	14200	23	9750	38
JUNE	1980	28761	310	173	13400	53	4150	34	2620	56
JULY	1980	2839	528	292	2240	100	785	53	409	89
AUG.	1980	1599	870	479	2070	190	819	81	348	140
SEPT	1980	1726	1060	582	2710	250	1160	93	432	160
TOTAL		804544	**	**	298000	**	90300	**	58900	**
WTD. AVG.		2198	246	137	**	42	**	27	**	45

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	280	362	232	184	267	266	260	252	365	740	920
2	244	272	412	242	177	268	281	210	256	393	754	910
3	266	280	428	256	185	270	394	186	265	398	735	915
4	304	216	444	272	191	303	372	170	266	403	755	930
5	308	274	484	270	204	256	355	197	269	410	749	995
6	315	288	536	274	223	268	340	205	267	413	740	1010
7	322	295	580	314	237	282	325	216	272	415	753	1030
8	332	298	620	316	191	300	310	207	278	432	757	1100
9	402	286	666	344	200	326	292	222	290	449	771	1160
10	450	300	530	306	187	297	298	245	305	465	815	1220
11	446	284	486	304	183	294	306	264	315	482	859	1270
12	420	384	454	302	177	293	260	266	330	499	920	1240
13	402	374	440	340	182	299	240	225	360	518	1000	1190
14	392	688	420	312	190	303	200	197	390	529	1060	1110
15	398	628	432	326	200	304	188	199	420	535	1070	1080
16	410	410	372	320	210	304	187	181	400	556	1050	1070
17	428	284	336	312	217	275	163	173	390	582	995	1060
18	438	402	286	300	220	244	200	170	389	600	963	1030
19	488	448	320	296	222	325	228	200	393	630	930	1040
20	500	466	364	282	225	330	225	217	392	651	898	1070
21	510	450	394	252	228	331	227	230	410	695	906	1040
22	524	350	390	136	230	311	220	247	412	760	900	1010
23	464	232	528	100	228	290	215	220	406	820	910	1050
24	394	300	450	64	236	281	224	199	430	790	907	1090
25	408	320	250	166	250	278	226	195	425	785	915	1120
26	476	322	255	172	256	265	209	190	420	810	922	1040
27	486	328	265	176	284	293	217	191	418	825	911	1080
28	468	354	266	181	276	281	219	200	281	813	902	1120
29	452	394	342	197	271	259	230	210	300	963	890	1070
30	366	328	304	200	---	276	243	217	340	900	885	814
31	342	---	265	192	---	270	---	230	---	860	880	---
MEAN	400	351	409	250	216	288	255	211	345	605	879	1060

## SABINE RIVER BASIN

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08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.0	15.0	13.0	7.0	7.0	5.0	9.0	15.0			33.0	---
2	30.0	15.0	12.0	7.0	7.0	5.0	9.0	15.0			33.0	---
3	29.0	15.0	12.0	7.0	7.0	5.0	9.0	15.0			---	---
4	30.0	15.0	12.0	7.0	8.0	6.0	9.0	---			---	---
5	30.0	15.0	13.0	7.0	8.0	6.0	---	---			---	---
6	30.0	14.0	13.0	8.0	8.0	6.0	---	---			---	---
7	30.0	14.0	---	8.0	7.0	10.0	---	---			---	32.0
8	30.0	13.0	---	8.0	6.0	10.0	---	---			33.0	---
9	30.0	13.0	14.0	8.0	5.0	10.0	9.0	---			33.0	29.0
10	26.0	13.0	13.0	10.0	5.0	10.0	15.0	---			---	---
11	21.0	13.0	13.0	10.0	7.0	9.0	---	---			33.0	33.0
12	22.0	13.0	12.0	8.0	7.0	9.0	---	---			---	31.0
13	21.0	13.0	11.0	9.0	7.0	9.0	---	---			---	27.0
14	21.0	13.0	---	9.0	7.0	9.0	---	---			33.0	32.0
15	21.0	13.0	8.0	9.0	---	9.0	15.0	---			---	32.0
16	21.0	13.0	9.0	9.0	---	9.0	15.0	---			33.0	32.0
17	21.0	14.0	8.0	9.0	5.0	---	15.0	---			---	31.0
18	21.0	14.0	8.0	9.0	---	9.0	15.0	---			---	31.0
19	21.0	14.0	9.0	9.0	---	9.0	15.0	---			---	31.0
20	---	14.0	10.0	12.0	---	9.0	---	---			33.0	25.0
21	---	---	9.0	12.0	---	9.0	18.0	---			33.0	25.5
22	20.0	12.0	9.0	12.0	9.0	9.0	---	---			---	30.0
23	20.0	12.0	9.0	12.0	9.0	---	15.0	---			---	31.0
24	20.0	12.0	---	12.0	10.0	9.0	15.0	---			---	31.0
25	21.0	---	---	12.0	---	9.0	15.0	---			---	30.0
26	21.0	14.0	---	12.0	---	9.0	15.0	---			---	28.0
27	21.0	14.0	---	10.0	10.0	9.0	15.0	---			---	24.0
28	21.0	12.0	3.0	9.0	10.0	9.0	15.0	---			---	23.0
29	19.0	13.0	5.0	7.0	10.0	9.0	---	---			---	23.0
30	16.0	13.0	9.0	7.0	---	9.0	15.0	---			---	23.0
31	15.0	---	---	7.0	---	9.0	---	---			---	---
MEAN	23.5	13.5	10.0	9.0	7.5	8.5	13.5	15.0			33.0	29.0

## SABINE RIVER BASIN

08022060 MARTIN LAKE NEAR TATUM, TX

LOCATION.--Lat 32°15'42", long 94°34'23", Rusk County, Hydrologic Unit 12010002, on retaining wall, 30 ft (9 m) to right of intake to generating plant No. 1, 1.9 mi (3.1 km) upstream from Martin Dam on Martin Creek, 5.8 mi (9.3 km) southwest of Tatum, and 21.9 mi (35.2 km) upstream from mouth.

DRAINAGE AREA.--130 mi<sup>2</sup> (337 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 15, 1976, nonrecording gage near left end of dam 1.9 mi (3.1 km) downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 8,675 ft (2,644 m) long, including a 1,000-foot (305 m) uncontrolled emergency spillway. Deliberate impoundment began in April 1974. The uncontrolled emergency spillway is an excavated channel cut through natural ground and located at the left end of the dam. The controlled spillway is a concrete ogee design with four 14.0- by 40.0-foot-wide (4.3 by 12.2 m) tainter gates located near the left end of the dam. The low-flow outlet works consist of a 3.0- by 5.0-foot (0.9 by 1.5 m) conduit with a sluice gate located in one of the gate piers. In addition, there is an 8-inch (203 mm) pipe with sluice gate. The area and capacity tables are based on an aerial survey made in October 1971. There are no known diversions. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	321.5	-
Crest of uncontrolled spillway.....	312.0	111,500
Top of gates.....	308.0	87,960
Top of conservation pool.....	306.0	77,500
Crest of gated spillway.....	294.0	31,040
Lowest gated outlet (invert).....	284.0	10,320

COOPERATION.--Area and capacity tables furnished by Forrest and Cotton, Consulting Engineers, for Texas Utilities Services, Inc.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 93,250 acre-ft (115 hm<sup>3</sup>) Mar. 31, 1979, elevation, 308.95 ft (94.168 m); minimum since first appreciable storage, 62,990 acre-ft (77.7 hm<sup>3</sup>) Sept. 29, 1980, elevation, 302.92 ft (92.330 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 86,390 acre-ft (107 hm<sup>3</sup>) Apr. 14 at 0100 hours, elevation, 307.71 ft (93.790 m); minimum, 62,990 acre-ft (77.7 hm<sup>3</sup>) Sept. 29, elevation, 302.92 ft (92.330 m).

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

302.0	59,020	306.0	77,470
304.0	67,880	308.0	87,970

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76100	76550	78200	77550	77000	78200	78000	78100	78360	77150	72110	66730
2	75900	76550	78200	77250	77150	78510	78100	78660	78260	77000	71910	66590
3	75710	76500	78200	77400	77250	78610	78100	78200	78100	76850	71630	66500
4	75560	76450	78260	77450	77400	78610	78050	77800	78000	76650	71370	66320
5	75460	76450	78260	77500	77550	78660	78100	77850	77950	76450	71200	66050
6	75310	76350	78200	77600	77600	78710	78150	77850	77750	76300	71060	65870
7	75260	76300	78150	77550	77650	78860	78260	77900	77600	76100	70870	65770
8	75160	76300	78150	77600	79680	78960	78100	77800	77450	75900	70720	65770
9	74920	76400	78150	77600	81890	79020	78050	77750	77250	75710	70540	65730
10	74820	76300	78200	77600	81790	79120	78050	77750	77150	75560	70350	65590
11	74670	76250	78200	77700	81010	79170	80390	77750	77050	75360	70300	65500
12	74570	76200	78710	77750	79580	78810	82420	78610	76900	75160	70110	65370
13	74430	76100	78860	77800	78360	78100	86340	79120	76750	74970	69970	65190
14	74330	76100	78910	77900	77150	77450	84790	78610	76600	74770	69830	65050
15	74180	76050	78760	77950	76500	77100	81530	78610	76400	74570	69640	64960
16	74130	76050	77900	78150	76700	77400	78510	79020	76250	74330	69450	64780
17	74090	76050	77700	78260	76800	77300	77800	78810	76050	74180	69220	64610
18	74040	76050	77750	78360	77000	77400	77950	78710	75900	73990	69030	64470
19	73990	76100	77750	78360	77100	77500	78050	78760	75760	73790	68850	64290
20	73940	76150	77800	78560	77300	77550	78200	78810	76200	73600	68660	64160
21	73890	77250	78000	79370	77400	77650	78260	78810	78200	73550	68520	64030
22	74380	77950	79120	83620	77500	77700	78310	78810	78310	73410	68340	63850
23	74330	78200	80910	82360	77550	78000	78360	78810	78260	73210	68110	63710
24	74280	78260	80810	81840	77600	77500	78410	78810	78150	73070	67920	63630
25	74180	78360	80090	81070	77550	77600	79070	78810	78000	72870	67830	63490
26	74130	78410	78200	79930	77600	77750	79420	78810	77900	72540	67640	63320
27	74040	78360	78360	78860	77650	78360	78910	78760	77800	72870	67460	63140
28	74040	78260	78560	77800	77650	78860	78200	78710	77650	72780	67420	63050
29	73990	78150	78610	77050	78100	79020	78000	78610	77450	72590	67230	63140
30	75460	78200	78310	76550	---	78560	78100	78510	77300	72440	67090	63050
31	76300	---	77900	76850	---	78150	---	78460	---	72300	66910	---
MAX	76300	78410	80910	83620	81890	79170	86340	79120	78360	77150	72110	66730
MIN	73890	76050	77700	76550	76500	77100	77800	77750	75760	72300	66910	63050
(†)	305.76	306.14	306.08	305.87	306.12	306.13	306.12	306.19	305.96	304.94	303.79	302.93
(‡)	+150	+1900	-300	-1050	+1250	+50	-50	+360	-1160	-5000	-5390	-3860

CAL YR 1979 MAX 90190 MIN 71910 ‡ +4690

WTR YR 1980 MAX 86340 MIN 63050 ‡ -13100

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## SABINE RIVER BASIN

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08022060 MARTIN LAKE NEAR TATUM, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
FEB 14...	1140	250	11.0	70	44	17	6.8	17	.9
JUL 30...	1300	270	32.5	78	46	19	7.3	18	.9

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 14...	3.0	32	0	56	17	.2	6.7	139
JUL 30...	3.4	38	0	57	23	.2	6.9	154

## SABINE RIVER BASIN

## 08022070 MARTIN CREEK NEAR TATUM, TX

LOCATION.--Lat 32°17'44", long 94°29'29", Panola County, Hydrologic Unit 12010002, on right bank 35 ft (11 m) downstream from right abutment and 360 ft (110 m) to right of bridge on State Highway 149, 50 ft (15 m) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.7 mi (2.7 km) upstream from Hogan Creek, 2.0 mi (3.2 km) southeast of Tatum, 5.0 mi (8.0 km) downstream from Martin Lake, and 15.0 mi (24.1 km) upstream from mouth.

DRAINAGE AREA.--148 mi<sup>2</sup> (383 km<sup>2</sup>).

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

REVISED RECORDS.--WDR TX-76-1: 1975.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 240.26 ft (73.231 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1978, at site 50 ft (15 m) upstream at same datum.

REMARKS.--Records good. Flow is largely regulated by Martin Lake located 5 mi (8 km) upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--6 years (water years 1975-80), 95.0 ft<sup>3</sup>/s (2.690 m<sup>3</sup>/s), 68,830 acre-ft/yr (84.9 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,540 ft<sup>3</sup>/s (71.9 m<sup>3</sup>/s) Apr. 30, 1976, gage height, 13.76 ft (4.194 m); minimum, 0.25 ft<sup>3</sup>/s (0.007 m<sup>3</sup>/s) Oct. 17, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1948, 18.15 ft (5.532 m) April 1969. The flood in April 1957 reached a stage of 13.95 ft (4.252 m), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,950 ft<sup>3</sup>/s (55.2 m<sup>3</sup>/s) Apr. 13, gage height, 13.06 ft (3.981 m); minimum, 0.93 ft<sup>3</sup>/s (0.026 m<sup>3</sup>/s) Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	45	8.4	279	60	59	205	19	10	4.5	2.7	1.5
2	5.7	15	8.4	278	26	81	769	9.7	4.5	2.6	1.5	1.5
3	5.9	9.6	8.2	200	22	17	18	421	9.3	4.3	2.5	1.5
4	5.7	7.7	8.2	47	20	16	14	447	9.0	4.1	2.4	1.4
5	5.1	7.2	8.6	21	19	15	13	241	8.6	3.7	2.4	1.3
6	5.3	6.8	8.8	17	19	14	12	35	8.0	3.4	2.4	1.3
7	5.0	5.6	8.2	16	18	14	12	19	7.6	3.5	2.4	1.2
8	4.6	5.1	7.5	15	79	14	12	17	7.3	3.3	2.3	1.3
9	4.2	11	6.9	14	388	14	11	16	7.1	3.1	2.2	1.4
10	4.6	13	6.5	13	756	14	10	16	7.5	2.7	2.1	1.5
11	4.4	8.5	6.8	14	817	13	19	15	7.0	2.5	2.1	1.5
12	5.2	6.9	12	13	802	71	191	29	6.6	2.4	2.2	1.5
13	4.4	6.2	45	12	802	288	1690	89	6.5	2.3	2.2	1.4
14	4.4	5.5	24	12	798	322	1680	125	7.1	2.4	2.0	1.4
15	4.1	4.9	15	12	762	320	1780	641	6.0	2.7	1.9	1.4
16	4.2	4.5	130	15	246	150	1730	1030	5.6	2.8	2.0	1.4
17	5.1	4.9	390	16	29	26	1310	837	5.1	2.7	1.9	1.3
18	6.0	5.0	173	14	19	15	201	538	5.1	2.6	1.9	1.1
19	5.8	4.7	28	13	17	14	28	167	5.1	2.6	1.9	1.2
20	5.9	5.2	13	21	16	16	18	33	13	2.5	1.8	1.3
21	5.1	23	11	44	16	15	16	21	159	2.8	1.8	1.2
22	27	103	59	509	15	13	15	18	64	4.0	1.8	1.2
23	20	57	106	1460	14	17	14	16	17	2.7	1.7	1.0
24	11	26	769	1110	14	140	14	16	12	2.4	1.7	1.1
25	8.9	15	1590	634	13	207	26	16	9.0	2.3	1.6	1.2
26	7.4	12	699	650	13	30	38	15	7.7	2.2	1.5	1.4
27	6.9	11	819	635	13	20	129	14	7.0	2.5	1.5	1.5
28	6.9	9.3	99	630	13	44	347	13	6.1	11	1.5	1.5
29	6.3	8.6	44	634	13	26	367	12	5.8	4.2	1.8	1.7
30	14	8.4	172	647	---	133	112	12	5.0	3.4	1.8	2.0
31	153	---	274	396	---	202	---	11	---	2.9	1.7	---
TOTAL	368.0	455.6	5558.5	8391	5839	2285	10113	5668	443.8	103.0	62.3	41.2
MEAN	11.9	15.2	179	271	201	73.7	337	183	14.8	3.32	2.01	1.37
MAX	153	103	1590	1460	817	322	1780	1030	159	11	2.7	2.0
MIN	4.1	4.5	6.5	12	13	13	10	11	5.0	2.2	1.5	1.0
AC-FT	730	904	11030	16640	11580	4530	20060	11240	880	204	124	82
CAL YR 1979	TOTAL	48053.1	MEAN 132	MAX 2380	MIN 2.1	AC-FT 95310						
WTR YR 1980	TOTAL	39328.4	MEAN 107	MAX 1780	MIN 1.0	AC-FT 78010						

## SABINE RIVER BASIN

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## 08022300 MURVAUL BAYOU NEAR GARY, TX

LOCATION.--Lat 32°02'54", long 94°22'31", Panola County, Hydrologic Unit 12010002, near center of main channel on downstream side of bridge on Farm Road 10, 0.3 mi (0.5 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.0 mi (1.6 km) downstream from Indian Creek, 1.5 mi (2.4 km) north of Gary, and 3 mi (5 km) downstream from Murvaul Lake.

DRAINAGE AREA.--134 mi<sup>2</sup> (347 km<sup>2</sup>).

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 217.82 ft (66.392 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Discharge largely regulated by Murvaul Lake 3 mi (5 km) upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years (water years 1959-80), 87.1 ft<sup>3</sup>/s (2.467 m<sup>3</sup>/s), 63,100 acre-ft/yr (77.8 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,590 ft<sup>3</sup>/s (102 m<sup>3</sup>/s) Mar. 18, 1969, gage height, 11.57 ft (3.527 m); no flow at times in 1967-80.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1928, about 14.5 ft (4.42 m) in July 1933, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,810 ft<sup>3</sup>/s (79.6 m<sup>3</sup>/s) Apr. 13 at 1200 hours, gage height, 11.35 ft (3.459 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	.00	58	111	397	29	100	47	14	.06	.00	.00
2	3.3	.00	48	85	314	35	81	71	9.6	.06	.00	.00
3	1.1	.06	39	77	239	25	75	94	6.8	.03	.00	.00
4	.65	.09	35	71	182	23	66	71	5.2	.02	.00	.00
5	.37	.08	31	58	145	27	52	56	3.9	.02	.00	.00
6	.14	.08	30	50	125	23	43	46	2.7	.02	.00	.00
7	.07	.07	26	48	96	22	38	36	1.8	.01	.00	.00
8	.05	.06	22	41	224	25	42	28	1.5	.12	.00	.00
9	.03	.06	20	35	1050	23	34	20	1.1	.04	.00	.00
10	.02	.06	19	31	1280	22	22	14	.68	.02	.00	.00
11	.00	.05	18	35	1090	21	124	12	.54	.02	.00	.00
12	.00	.05	29	31	758	25	1680	15	.48	.01	.00	.00
13	.00	.05	109	26	524	39	2600	77	.42	.01	.00	.00
14	.00	.04	143	25	399	30	2170	143	.31	.00	.00	.00
15	.00	.03	133	23	297	22	1370	245	.23	.00	.00	.00
16	.00	.02	111	32	232	26	889	1850	.26	.00	.00	.00
17	.00	.01	91	73	170	43	580	1830	.29	.00	.00	.00
18	.00	.00	68	83	124	41	443	1290	.15	.00	.00	.00
19	.00	.00	57	77	103	29	329	840	.12	.00	.00	.00
20	.00	.00	50	78	90	50	223	564	.14	.00	.00	.00
21	.00	146	46	148	80	69	191	446	120	.00	.00	.00
22	.00	441	49	872	69	42	106	370	39	.00	.00	.00
23	.00	461	126	1570	58	35	76	241	4.1	.00	.00	.00
24	.00	454	357	1310	51	61	58	154	1.1	.00	.00	.00
25	.00	369	518	956	50	54	90	109	.54	.00	.00	.00
26	.00	264	496	626	39	47	164	81	.36	.00	.00	.00
27	.00	187	383	454	29	67	145	59	.28	.00	.00	.00
28	.00	145	269	333	27	178	104	44	.23	.00	.00	.00
29	.00	109	203	267	23	190	78	35	.16	.00	.00	.00
30	.00	75	177	387	---	197	58	26	.10	.00	.00	.00
31	.00	---	149	432	---	140	---	19	---	.00	.00	---
TOTAL	10.03	2651.81	3910	8445	8265	1660	12031	8933	216.09	.44	.00	.00
MEAN	.32	88.4	126	272	285	53.5	401	288	7.20	.014	.000	.000
MAX	4.3	461	518	1570	1280	197	2600	1850	120	.12	.00	.00
MIN	.00	.00	18	23	23	21	22	12	.10	.00	.00	.00
AC-FT	20	5260	7760	16750	16390	3290	23860	17720	429	.9	.00	.00
CAL YR 1979	TOTAL	63275.81	MEAN 173	MAX 2320	MIN .00	AC-FT 125500						
WTR YR 1980	TOTAL	46122.37	MEAN 126	MAX 2600	MIN .00	AC-FT 91480						



## SABINE RIVER BASIN

## 08022500 SABINE RIVER AT LOGANSPOUT, LA

LOCATION.--Lat 31°58'20", long 94°00'22", De Soto Parish, Louisiana-Shelby County, Texas State line at Logansport, Hydrologic Unit 12010004, just upstream from bridge on U.S. Highway 84, 3 mi (5 km) upstream from Bayou Castor, 111 mi (179 km) upstream from Toledo Bend Dam, and at mile 267.1 (429.8 km).

DRAINAGE AREA.--4,842 mi<sup>2</sup> (12,541 km<sup>2</sup>).

PERIOD OF RECORD.--Gage-height record March 1968 to current year. Discharge record July 1903 to February 1968.

REVISED RECORDS.--WSP 1312: 1903-6 (monthly and annual means). WSP 1732: 1929(M), 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 147.72 ft (45.025 m) National Geodetic Vertical Datum of 1929. July 1, 1903, to Sept. 30, 1956, nonrecording gage. Oct. 1, 1956, to Jan. 16, 1964, water-stage recorder 4,600 ft (1,400 m) upstream. Jan. 16, 1964, to Dec. 10, 1968, water-stage recorder 4,700 ft (1,430 m) upstream. All gages to present datum except prior to Dec. 31, 1906, when datum was 2.00 ft (0.610 m) lower.

REMARKS.--Station discontinued as daily streamflow station Mar. 1, 1968, due to backwater from storage in Toledo Bend Reservoir (station 08025350). Eight major reservoirs, with a combined capacity of 1,068,000 acre-ft (1.32 km<sup>3</sup>), largely regulated the flow. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08020000. Numerous diversions above station for oilfield operations, municipal, and industrial uses.

AVERAGE DISCHARGE.--64 years (water years 1904-67), 3,208 ft<sup>3</sup>/s (90.85 m<sup>3</sup>/s), 2,324,000 acre-ft/yr (2.87 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (1968-80), 32.50 ft (9.906 m) Apr. 20, 1969; minimum since initial filling of Toledo Bend Reservoir in June 1968, 17.97 ft (5.477 m) Nov. 29, 1977. Maximum discharge (1903-67), 92,000 ft<sup>3</sup>/s (2,610 m<sup>3</sup>/s) Apr. 8, 1945, gage height, 44.07 ft (13.433 m), from floodmark; minimum, 16 ft<sup>3</sup>/s (0.453 m<sup>3</sup>/s) Sept. 26-28, Oct. 3, 4, 1939. Maximum stage since at least 1884, that of Apr. 8, 1945.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of 39.4 ft (12.01 m), present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 28.62 ft (8.723 m) Apr. 16; minimum, 19.37 ft (5.904 m) Sept. 29.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.38	21.17	21.73	21.93	24.39	22.31	24.20	24.45	24.70	23.48	22.20	20.85
2	21.22	21.22	21.63	21.89	24.27	22.85	24.28	24.44	24.57	23.40	22.20	20.87
3	21.26	21.25	21.58	21.55	24.12	23.09	24.11	24.66	24.37	23.40	22.15	20.82
4	21.22	21.34	21.52	21.59	24.10	22.80	23.98	24.85	24.29	23.34	22.09	20.82
5	21.24	21.25	21.55	21.53	23.97	22.42	24.02	25.00	24.34	23.29	21.95	20.72
6	21.15	21.20	21.36	21.61	23.88	22.48	24.06	25.15	24.30	23.28	21.82	20.76
7	21.19	21.14	21.28	21.17	23.92	22.33	23.99	25.19	24.20	23.20	21.73	20.73
8	20.87	21.13	21.20	21.13	23.91	22.12	23.54	24.85	24.04	23.15	21.73	20.58
9	20.77	21.16	21.12	21.10	24.40	22.09	23.53	24.73	23.99	23.11	21.82	20.62
10	20.65	21.17	21.13	21.17	25.10	21.95	23.72	24.69	23.98	23.02	21.71	20.57
11	20.62	21.19	21.17	20.86	25.57	21.95	26.05	24.60	23.96	22.97	21.69	20.61
12	20.80	21.20	21.33	21.02	25.90	21.90	27.03	24.63	23.94	22.96	21.50	20.58
13	20.92	21.28	21.45	20.98	26.19	21.87	27.29	24.47	23.93	22.97	21.64	20.70
14	21.03	21.22	21.55	21.02	26.21	21.97	27.81	24.62	23.98	22.90	21.85	20.58
15	20.98	21.23	21.57	21.06	26.01	22.19	28.38	25.22	24.04	22.86	21.88	20.52
16	20.94	21.25	21.21	21.05	25.55	22.13	28.59	26.20	23.88	22.74	21.73	20.67
17	20.85	21.27	21.32	21.03	25.27	21.83	28.40	26.97	23.85	22.76	21.61	20.57
18	20.77	21.36	21.35	21.13	25.03	22.21	27.90	28.07	23.80	22.93	21.44	20.32
19	20.70	21.32	21.27	21.16	24.75	22.26	27.37	28.25	23.67	22.66	21.37	20.48
20	---	21.57	21.30	21.21	24.55	22.24	26.80	27.85	23.65	22.71	21.31	20.55
21	---	22.01	21.29	21.33	24.27	22.63	26.21	27.36	23.72	22.57	21.21	20.55
22	---	22.57	21.31	22.70	24.15	22.94	25.66	26.72	23.84	22.55	21.17	20.39
23	---	22.89	21.52	23.05	23.95	22.87	25.25	26.12	23.86	22.39	21.10	20.30
24	---	22.92	21.91	23.72	23.68	22.69	25.03	25.69	23.85	22.47	21.14	20.21
25	---	22.77	22.34	24.10	23.46	22.84	24.84	25.24	23.70	22.41	21.17	20.07
26	---	22.55	22.52	24.60	23.59	22.86	24.74	24.91	23.62	22.49	21.11	19.85
27	---	22.06	22.63	24.94	23.43	22.98	24.67	24.70	23.64	22.45	21.00	19.66
28	---	21.80	22.73	25.04	23.24	23.30	24.63	24.65	23.66	22.36	21.08	19.64
29	21.03	21.74	22.64	24.94	23.09	23.59	24.58	24.67	23.56	22.26	20.85	19.37
30	21.49	21.82	22.37	24.70	---	23.97	24.56	24.59	23.53	22.24	20.99	19.54
31	21.14	---	22.04	24.51	---	24.18	---	24.70	---	22.18	20.96	---
MAX	---	22.92	22.73	25.04	26.21	24.18	28.59	28.25	24.70	23.48	22.20	20.87
MIN	---	21.13	21.12	20.86	23.09	21.83	23.53	24.44	23.53	22.18	20.85	19.37

## 08023200 TENAHA CREEK NEAR SHELBYVILLE, TX

LOCATION.--Lat 31°45'56", long 94°05'02", Shelby County, Hydrologic Unit 12010004, near center of span at downstream side of bridge on State Highway 87, 0.5 mi (0.8 km) northwest of Shelbyville, 4.2 mi (6.8 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 5.0 mi (8.0 km) upstream from Beauchamp Creek.

DRAINAGE AREA.--97.8 mi<sup>2</sup> (253.3 km<sup>2</sup>).

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Prior to May 9, 1963, nonrecording gage at same site and datum. Datum of gage is 205.71 ft (62.700 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Minor diversions for municipal supply by city of Center from Mill Creek, a tributary of Tenaha Creek which enters above gage, and from Sandy Creek, a tributary of Attoyac Bayou in the Neches River basin. Sewage effluent is returned to Prairie Creek, a tributary of Tenaha Creek that enters 1.0 mi (1.6 km) downstream from gage. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--28 years, 84.6 ft<sup>3</sup>/s (2.396 m<sup>3</sup>/s), 11.75 in/yr (298 mm/yr), 61,290 acre-ft/yr (75.6 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,900 ft<sup>3</sup>/s (620 m<sup>3</sup>/s) Sept. 14, 1978, gage height, 14.79 ft (4.508 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1884, 15.0 ft (4.57 m) Nov. 23, 1940, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Nov. 22	2300	3,160 89.5	10.49 3.197	Mar. 30	0200	2,690 76.2	10.36 3.158
Jan. 22	2200	2,690 76.2	10.36 3.158	Apr. 12	1400	*10,700 303	12.77 3.892
Feb. 9	2300	1,520 43.0	9.81 2.990	May 16	1200	4,130 117	10.85 3.307
Mar. 21	0600	1,060 30.0	9.46 2.883				

Minimum discharge, 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s) Aug. 24, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	385	47	68	211	51	191	44	29	5.0	4.2	2.7
2	9.5	119	45	59	131	57	167	53	27	4.7	3.2	2.4
3	7.8	49	43	65	107	44	211	59	26	4.7	3.4	2.2
4	7.2	33	42	91	94	42	128	44	24	4.4	3.8	2.4
5	5.6	27	42	74	89	45	87	38	22	4.1	2.5	2.5
6	6.1	22	43	62	99	40	74	33	21	4.1	1.9	2.4
7	5.9	19	41	60	87	38	70	32	21	4.1	1.4	3.0
8	6.8	18	38	55	137	42	62	30	19	4.0	1.3	3.0
9	6.9	20	35	50	1060	41	50	29	19	3.8	1.4	2.3
10	4.7	22	34	48	1210	37	43	27	18	3.3	1.8	2.2
11	4.6	19	35	53	723	33	55	31	18	3.3	1.8	1.9
12	5.6	14	55	54	270	33	6280	29	16	3.2	1.5	2.2
13	5.6	13	287	45	142	41	3740	34	15	3.6	1.7	1.9
14	4.8	13	407	43	111	32	2300	55	15	3.4	1.7	2.0
15	4.8	13	293	42	94	27	917	131	14	2.3	1.6	2.5
16	4.9	13	108	42	88	144	293	3020	13	2.3	1.4	1.9
17	5.2	14	77	68	76	234	132	2520	13	1.9	1.6	1.7
18	5.6	15	61	86	69	139	117	1160	13	1.8	1.6	1.9
19	5.6	16	55	65	67	76	96	556	12	2.2	1.3	1.9
20	5.6	15	54	142	66	291	80	606	12	3.4	1.2	3.1
21	6.1	136	53	717	62	919	71	641	16	3.7	1.2	3.4
22	61	1560	56	1460	57	551	62	172	19	24	1.1	3.1
23	171	2170	98	2040	51	159	55	91	16	18	1.1	2.2
24	62	935	413	1110	48	280	51	71	16	7.6	1.0	1.7
25	24	300	307	363	44	296	74	60	12	4.9	1.3	1.8
26	14	107	136	163	38	127	192	53	8.8	4.6	1.2	1.9
27	11	79	88	136	37	185	99	46	7.8	4.4	1.1	1.8
28	10	66	73	109	39	957	63	41	6.9	6.2	1.0	2.2
29	9.6	56	71	120	40	1280	52	38	6.2	15	2.0	2.3
30	17	50	89	211	---	1720	46	34	5.7	8.6	9.7	2.3
31	334	---	83	312	---	607	---	32	---	4.9	2.8	---
TOTAL	843.5	6318	3309	8013	5347	8568	15858	9810	481.4	171.5	63.8	68.8
MEAN	27.2	211	107	258	184	276	529	316	16.0	5.53	2.06	2.29
MAX	334	2170	413	2040	1210	1720	6280	3020	29	24	9.7	3.4
MIN	4.6	13	34	42	37	27	43	27	5.7	1.8	1.0	1.7
CFSM	.28	2.16	1.09	2.64	1.88	2.82	5.41	3.23	.16	.06	.02	.02
IN.	.32	2.40	1.26	3.05	2.03	3.26	6.03	3.73	.18	.07	.02	.03
AC-FT	1670	12530	6560	15890	10610	16990	31450	19460	955	340	127	136
CAL YR 1979	TOTAL	72240.7	MEAN 198	MAX 4300	MIN 4.6	CFSM 2.03	IN 27.48	AC-FT 143300				
WTR YR 1980	TOTAL	58852.0	MEAN 161	MAX 6280	MIN 1.0	CFSM 1.65	IN 22.39	AC-FT 116700				

## SABINE RIVER BASIN

08025350 TOLEDO BEND RESERVOIR NEAR BURKEVILLE, TX

LOCATION.--Lat 31°10'25", long 93°33'57", Newton County, Hydrologic Unit 12010004, in powerhouse at right end of Toledo Bend Dam on Sabine River, 15 mi (24 km) northeast of Burkeville, and at mile 156.5 (251.8 km).

DRAINAGE AREA.--7,178 mi<sup>2</sup> (18,591 km<sup>2</sup>).

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Sabine River Authority). Prior to July 20, 1967, nonrecording gage at same site and datum. July 20, 1967, to June 30, 1973, recording gage at south end of spillway 1.6 mi (2.6 km) north of present site and at same datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam. Closure of embankment completed and deliberate impoundment was begun Oct. 3, 1966. The reservoir is operated for hydro-electric power generation and water conservation. Releases during high inflow periods are controlled by eleven 40- by 28-foot (12 by 9 m) tainter gates. An 8.33- by 12-foot (2.54 by 4 m) gated conduit through the dam is used for low-flow releases. Two additional 20-inch-diameter (508 mm) conduits, which bypass the larger conduit, may also be used for low-flow releases. Water for turbines is admitted through four 16.75- by 29-foot (5.11 by 9 m) penstocks and controlled by vertically operated caterpillar-type gates. The capacity table is based on Geological Survey topographic maps. For statement regarding regulation by upstream reservoirs, see station 08020000. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	185.0	-
Design flood.....	175.3	5,102,000
Top of gates.....	173.0	4,660,000
Top of power drawdown storage.....	172.0	4,476,000
Top of power head storage.....	162.2	2,922,000
Crest of spillway (controlled).....	145.0	1,162,000
Lowest gated outlet (invert).....	100.0	4,090

COOPERATION.--Capacity table furnished by the Sabine River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 4,739,000 acre-ft (5.84 km<sup>3</sup>) Mar. 21, 1969, elevation, 173.42 ft (52.858 m); minimum since initial filling of reservoir in June 1968, 3,433,000 acre-ft (4.23 km<sup>3</sup>) Nov. 27, 1977, elevation, 165.74 ft (50.518 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,642,000 acre-ft (5.72 km<sup>3</sup>) May 29, elevation, 172.90 ft (52.700 m); minimum, 3,711,000 acre-ft (4.58 km<sup>3</sup>) Sept. 28, 30, elevation, 167.52 ft (51.060 m).

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

167.0	3,628,000	172.0	4,476,000
169.0	3,953,000	173.0	4,660,000
170.0	4,123,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3956000	3968000	4044000	3983000	4198000	4324000	4387000	4463000	4453000	4333000	4082000	3892000
2	3956000	3965000	4027000	3961000	4200000	4219000	4387000	4472000	4463000	4329000	4075000	3885000
3	3983000	3961000	4012000	3988000	4208000	4161000	4413000	4476000	4472000	4306000	4070000	3882000
4	3961000	3951000	3998000	3961000	4210000	4179000	4401000	4485000	4471000	4311000	4058000	3865000
5	3943000	3961000	3980000	3943000	4212000	4168000	4381000	4494000	4456000	4311000	4051000	3873000
6	3941000	3978000	3980000	3925000	4210000	4140000	4365000	4504000	4447000	4297000	4046000	3873000
7	3938000	3950000	3970000	3925000	4200000	4126000	4347000	4513000	4455000	4297000	4046000	3867000
8	3935000	3941000	3951000	3920000	4285000	4120000	4369000	4513000	4462000	4283000	4037000	3873000
9	3995000	4005000	3940000	3916000	4345000	4095000	4351000	4467000	4458000	4271000	4029000	3867000
10	3941000	3978000	3931000	3915000	4351000	4092000	4315000	4449000	4447000	4262000	4024000	3862000
11	3933000	3965000	3936000	3933000	4385000	4080000	4378000	4449000	4440000	4252000	4024000	3855000
12	3928000	3983000	4003000	3907000	4395000	4071000	4458000	4449000	4428000	4241000	4024000	3854000
13	3940000	3963000	4019000	3903000	4385000	4073000	4572000	4504000	4413000	4240000	4020000	3837000
14	3928000	3961000	4000000	3903000	4387000	4068000	4572000	4498000	4404000	4226000	3997000	3845000
15	3933000	3961000	3993000	3907000	4422000	4054000	4596000	4517000	4401000	4215000	3980000	3837000
16	3928000	3965000	4027000	3920000	4422000	4080000	4577000	4587000	4390000	4203000	3980000	3821000
17	3933000	3956000	3966000	3928000	4381000	4123000	4568000	4596000	4395000	4189000	3988000	3816000
18	3925000	3956000	3943000	3928000	4360000	4094000	4581000	4614000	4387000	4194000	3983000	3837000
19	3907000	3961000	3945000	3936000	4354000	4114000	4574000	4638000	4387000	4186000	3980000	3829000
20	3913000	3950000	3953000	3953000	4351000	4200000	4563000	4624000	4387000	4184000	3970000	3821000
21	3897000	4037000	3956000	3963000	4344000	4153000	4550000	4596000	4390000	4184000	3965000	3821000
22	3987000	4058000	3948000	4037000	4318000	4144000	4531000	4577000	4395000	4257000	3956000	3829000
23	3945000	4068000	3970000	4019000	4327000	4167000	4507000	4541000	4383000	4167000	3953000	3821000
24	3936000	4089000	3987000	4040000	4351000	4175000	4476000	4509000	4379000	4147000	3948000	3804000
25	3933000	4085000	3987000	4075000	4354000	4173000	4513000	4494000	4385000	4130000	3931000	3780000
26	3921000	4068000	3987000	4106000	4297000	4184000	4513000	4476000	4383000	4130000	3923000	3764000
27	3920000	4137000	3990000	4126000	4271000	4231000	4476000	4451000	4363000	4130000	3920000	3719000
28	3930000	4133000	3992000	4140000	4260000	4260000	4455000	4449000	4336000	4133000	3907000	3722000
29	3916000	4078000	4000000	4158000	4264000	4329000	4440000	4440000	4351000	4125000	3902000	3721000
30	3965000	4056000	4003000	4226000	---	4351000	4440000	4453000	4342000	4111000	3893000	3711000
31	3968000	---	3993000	4215000	---	4369000	---	4449000	---	4102000	3892000	---
MAX	3995000	4137000	4044000	4226000	4422000	4369000	4596000	4638000	4472000	4333000	4082000	3892000
MIN	3897000	3941000	3931000	3903000	4198000	4054000	4315000	4440000	4336000	4102000	3892000	3711000
(†)	169.09	169.61	169.24	170.53	170.81	171.40	171.80	171.85	171.25	169.88	169.83	167.52
(+)	+13000	+88000	-63000	+222000	+49000	+105000	+71000	+9000	-107000	-240000	-210000	-181000
CAL YR	1979	MAX	463800	MIN	389700	±	-72000					
WTR YR	1980	MAX	463800	MIN	371100	±	-244000					

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

± Change in contents, in acre-feet.

## SABINE RIVER BASIN

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## 08025360 SABINE RIVER AT TOLEDO BEND RESERVOIR NEAR BURKEVILLE, TX

LOCATION.--Lat 31°10'25", Long 93°33'57", Newton County, Hydrologic Unit 12010005, in powerhouse at right end of Toledo Bend Dam, 10 mi (16 km) upstream from Sabine River near Burkeville gage, and at mile 156.5 (251.8 km).

DRAINAGE AREA.--7,178 mi<sup>2</sup> (18,591 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorders. Datum of gages is National Geodetic Vertical Datum of 1929 (levels by Sabine River Authority).

REMARKS.--Water-discharge records fair. Low flows are based on operation logs and discharge measurements and include tainter gate releases, turbine leakage, and low-flow sluiceway discharges. Discharges during turbine release periods are based on scroll case differential pressure-discharge relationships. Discharges above 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) usually include tainter gate releases, which are computed using tainter gate rating.

AVERAGE DISCHARGE.--9 years, 6,021 ft<sup>3</sup>/s (170.5 m<sup>3</sup>/s), 4,362,000 acre-ft/yr (5.38 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 67,000 ft<sup>3</sup>/s (1,900 m<sup>3</sup>/s) Jan. 28, 1974; minimum daily, 30 ft<sup>3</sup>/s (0.85 m<sup>3</sup>/s) estimated Oct. 1-4, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 35,400 ft<sup>3</sup>/s (1,000 m<sup>3</sup>/s) May 19; minimum daily, 107 ft<sup>3</sup>/s (3.03 m<sup>3</sup>/s) for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	144	7120	9040	9060	10300	7370	2520	194	3440	3630	194
2	107	144	7010	9020	9000	14600	9720	2610	3590	3430	194	2570
3	107	144	7030	8420	9100	14900	7460	194	3600	3500	257	2120
4	107	144	6540	8160	5060	13400	11800	194	3850	194	4040	2090
5	107	144	6990	9380	7030	10900	11700	2500	3700	194	5760	194
6	107	144	5060	8770	9960	11100	10700	2800	3590	194	2450	194
7	107	144	7070	8710	9460	11100	6860	8130	194	3430	2180	194
8	107	144	7120	4770	6910	11000	6880	14000	194	3720	2280	3340
9	107	144	7100	4160	4360	10900	6830	14500	3330	3550	194	194
10	107	144	3050	3780	3450	9360	6800	7360	3370	3560	194	194
11	107	144	169	4090	4760	5630	5080	566	3410	3730	194	194
12	107	144	169	4380	9380	2720	9570	2630	3370	194	194	995
13	107	144	4500	3820	16500	2590	20100	2630	3370	194	194	194
14	107	144	7140	194	17300	1070	29200	7870	194	3760	1440	194
15	107	144	7220	194	16000	194	29800	14200	169	3610	4140	1760
16	107	144	7220	194	14700	194	29700	21600	3810	3500	194	194
17	107	144	11000	194	14500	1340	29700	32900	150	3520	194	1360
18	107	144	10600	194	14400	2730	29300	35000	1510	3530	2840	194
19	107	144	3190	194	14500	2670	19700	35400	6000	194	2650	1360
20	107	144	169	194	14500	2820	18500	35200	3400	194	2840	194
21	107	144	3620	194	14500	5130	18400	35300	194	3560	2510	194
22	107	144	3750	7340	14400	5030	18900	35200	2640	3710	2720	3500
23	107	2270	3510	4210	14400	5040	21200	31400	3380	3600	194	7230
24	107	3730	3890	3960	14600	7200	20900	25400	3360	3640	194	7250
25	1340	3700	3550	3850	13500	7320	19600	21800	3530	3640	2720	6630
26	140	4780	6640	3750	11100	7420	21700	21700	3250	194	2710	10400
27	107	7080	7610	4320	9630	6820	22100	14900	3440	194	2850	14200
28	107	7140	7360	7590	7190	7590	19200	3430	3560	3600	1440	194
29	120	7070	7590	7750	7400	7790	13800	3530	194	3600	4060	5460
30	144	7160	7470	7820	---	7730	194	3470	3520	3560	194	180
31	144	---	7290	9210	---	7430	---	194	---	3400	194	---
TOTAL	4671	46098	177747	147852	316650	214018	482764	439128	78063	80336	55845	73161
MEAN	151	1537	5734	4769	10920	6904	16090	14170	2602	2591	1801	2439
MAX	1340	7160	11000	9380	17300	14900	29800	35400	6000	3760	5760	14200
MIN	107	144	169	194	3450	194	194	194	150	194	194	180
AC-FT	9260	91440	352600	293300	628100	424500	957600	871000	154800	159300	110800	145100
CAL YR 1979	TOTAL	3294755	MEAN	9027	MAX	28900	MIN	58	AC-FT	6535000		
WTR YR 1980	TOTAL	2116333	MEAN	5782	MAX	35400	MIN	107	AC-FT	4198000		

## SABINE RIVER BASIN

08025360 SABINE RIVER AT TOLEDO BEND RESERVOIR NEAR BURKEVILLE, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)
OCT 24...	0945	300	7.1	19.0	7.7	82	2.3	18	0	5.1
JAN 17...	0940	156	6.6	12.0	10.6	97	.8	33	10	8.0
FEB 28...	0900	170	7.5	10.0	13.8	121	1.0	32	10	7.9
MAY 01...	0930	148	7.0	15.5	7.6	76	.9	32	10	7.9
JUN 27...	1045	164	6.8	25.0	6.5	77	.1	33	18	8.2
AUG 28...	1010	178	6.4	19.0	5.3	56	.5	32	8	8.1

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 24...	1.2	52	5.4	3.4	100	0	19	23	.3
JAN 17...	3.2	16	1.2	2.9	28	0	16	19	.1
FEB 28...	2.9	15	1.2	2.5	27	0	16	18	.1
MAY 01...	3.0	14	1.1	3.2	27	0	15	18	.2
JUN 27...	3.0	16	1.2	3.2	18	0	20	24	.1
AUG 28...	2.9	18	1.4	3.0	29	0	21	26	.1

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT 24...	50	203	.02	.00	.02	.15	.52	.67	.320
JAN 17...	6.8	86	.06	.01	.07	.02	.41	.43	.030
FEB 28...	5.7	81	.17	.01	.18	.00	.39	.39	.000
MAY 01...	7.4	82	.13	.00	.13	.08	.56	.64	.030
JUN 27...	6.7	90	.08	.00	.08	.04	.75	.79	.010
AUG 28...	8.8	102	.00	.01	.00	.37	.12	.49	.040



## SABINE RIVER BASIN

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08026000 SABINE RIVER NEAR BURKEVILLE, TX

LOCATION.--Lat 31°03'50", long 93°31'10", Newton County, Texas-Vernon Parish, Louisiana State line, Hydrologic Unit 12010005, near left edge of low-water channel at downstream side of bridge on State Highway 63, about 200 ft (61 m) downstream from Pearl Creek, 10 mi (16 km) northeast of Burkeville, 16 mi (26 km) downstream from Bayou Toro, and at mile 139.7 (224.8 km).

DRAINAGE AREA.--7,482 mi<sup>2</sup> (19,378 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1955 to current year. Published as "below Toledo Bend near Burkeville" for period 1955-75.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 70.59 ft (21.516 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1958, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records fair. Flow regulated by Toledo Bend Reservoir (station 08025350) 16.8 mi (27.0 km) upstream, capacity 4,660,000 acre-ft (5.75 km<sup>3</sup>).

AVERAGE DISCHARGE.--11 years (water years 1956-66) prior to completion of Toledo Bend Reservoir, 4,653 ft<sup>3</sup>/s (131.8 m<sup>3</sup>/s), 3,371,000 acre-ft/yr (4.16 km<sup>3</sup>/yr); 14 years (water years 1967-80) regulated, 5,272 ft<sup>3</sup>/s (149.3 m<sup>3</sup>/s), 3,820,000 acre-ft/yr (4.71 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,600 ft<sup>3</sup>/s (2,280 m<sup>3</sup>/s) Jan. 29, 1974, gage height, 34.20 ft (10.424 m); minimum daily, 38 ft<sup>3</sup>/s (1.08 m<sup>3</sup>/s) Sept. 14, 15, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, 35.9 ft (10.94 m) in May 1884, from information by local resident. Flood of Apr. 15, 1945, reached a stage of 35.8 ft (10.91 m), and flood of May 23, 1953, reached a stage of 35.3 ft (10.76 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,600 ft<sup>3</sup>/s (1,010 m<sup>3</sup>/s) May 20, gage height, 28.25 ft (8.611 m); minimum daily, 136 ft<sup>3</sup>/s (3.85 m<sup>3</sup>/s) Oct. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3760	559	7010	8440	9800	8420	9620	1480	749	3780	3710	265
2	329	527	6950	9440	9310	13900	8480	2970	3000	3720	1930	844
3	202	356	6950	9180	9030	14500	8360	2510	4000	3770	427	2440
4	188	279	6650	9450	6510	14400	10700	673	4000	1780	2370	2040
5	177	254	6790	9550	6560	10900	11100	1350	4200	430	4710	1470
6	173	243	5900	9320	7320	10500	12200	3000	4000	389	3510	293
7	155	233	6380	9380	10800	10600	7390	6000	2000	2430	2240	254
8	154	229	7050	6800	7310	10500	6760	12900	600	3480	2210	1640
9	156	272	7030	5000	10300	10400	6680	14100	2500	4110	1500	1880
10	150	385	5150	4200	8170	10100	6650	10500	3700	3780	353	292
11	147	299	748	4500	6840	5360	6420	2990	3700	3760	311	242
12	146	261	587	4500	9220	5100	9020	1610	3700	1740	297	463
13	146	252	4490	4000	14900	2360	17000	2950	3700	394	293	709
14	141	241	8480	2000	16900	2400	25600	5050	2500	2350	751	232
15	143	233	8430	800	16500	1150	28000	13100	500	3950	2760	615
16	136	231	7670	500	14900	576	28500	18300	3000	3750	2110	1390
17	141	226	8790	409	14400	1470	28500	28000	1500	3750	351	583
18	148	228	12300	389	14300	2410	28500	31800	1000	3750	1340	1020
19	148	227	5930	376	14300	3000	24600	33700	5500	1720	2740	613
20	148	224	890	363	14300	3440	19500	35300	4000	393	2710	1020
21	132	234	2310	357	14300	5740	17700	35300	2000	2470	2740	230
22	210	1160	4200	4710	14300	5730	17800	35000	2000	3800	2720	1000
23	273	2690	4100	7050	14200	5500	19300	34000	3000	3850	1530	6470
24	209	4270	5100	5100	14300	7250	20900	30800	3800	3790	303	7020
25	1020	4100	4810	4430	14300	7420	20500	26000	3800	3820	1410	6200
26	651	3930	5980	4180	11100	7500	23000	23300	3800	1780	2660	7470
27	243	6720	7840	4180	10300	7620	23400	20700	3750	408	2690	14200
28	205	6920	7930	6760	7450	12400	22200	7550	3820	2560	2010	5520
29	184	6910	7890	7610	7630	11200	17600	5000	1790	3800	2700	3690
30	202	6930	7820	7710	---	12300	5270	4560	2480	3760	2030	2180
31	622	---	7830	8530	---	11200	---	2480	---	3600	326	---
TOTAL	10839	49623	189985	159214	329550	235346	491250	452973	88089	86864	57742	72285
MEAN	350	1654	6129	5136	11360	7592	16380	14610	2936	2802	1863	2410
MAX	3760	6930	12300	9550	16900	14500	28500	35300	5500	4110	4710	14200
MIN	132	224	587	357	6510	576	5270	673	500	389	293	230
AC-FT	21500	98430	376800	315800	653700	466800	974400	898500	174700	172300	114500	143400
CAL YR 1979	TOTAL	3582795	MEAN	9816	MAX	29100	MIN	132	AC-FT	7106000		
WTR YR 1980	TOTAL	2223760	MEAN	6076	MAX	35300	MIN	132	AC-FT	4411000		



## SABINE RIVER BASIN

08026000 SABINE RIVER NEAR BURKEVILLE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: May 1968 to current year. Pesticide analyses: October 1972 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1968 to current year.

WATER TEMPERATURES: May 1968 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 352 micromhos Mar. 15, 16, 1973; minimum, 31 micromhos Dec. 7, 1975, Jan. 24, Feb. 1, 1978.

WATER TEMPERATURES: Maximum, 32.0°C Aug. 20, 1975; minimum, 4.5°C Feb. 1, 1977.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 227 micromhos Mar. 19; minimum daily, 58 micromhos Mar. 28.

WATER TEMPERATURES: Maximum daily, 30.5°C Aug. 12; minimum daily, 8.0°C Feb. 2, 9.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)
OCT 24...	1135	194	109	6.8	19.0	60	16	8.2	86	2.2	21	5
JAN 17...	1410	406	138	6.9	15.0	40	5.8	10.6	104	.9	29	9
FEB 27...	1050	9480	141	7.2	10.0	10	3.1	11.8	103	1.1	31	11
MAY 01...	1235	912	130	6.7	18.5	40	28	7.8	82	1.2	28	5
JUN 26...	1645	4780	164	6.9	26.0	10	2.3	6.7	81	.0	32	14
AUG 28...	1315	1080	160	6.7	27.0	10	32	6.6	81	.8	31	15

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 24...	5.2	2.0	12	1.1	2.8	20	0	12	14	.1	13
JAN 17...	7.3	2.7	14	1.1	2.4	25	0	16	16	.0	15
FEB 27...	7.7	2.8	15	1.2	2.5	24	0	16	18	.1	6.4
MAY 01...	6.9	2.6	13	1.1	2.5	28	0	15	15	.1	12
JUN 26...	7.8	3.0	16	1.2	2.9	22	0	19	23	.1	6.9
AUG 28...	7.8	2.9	16	1.2	2.8	20	0	20	25	.1	7.5

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 24...	71	19	0	.01	.020	.03	.010	.60	.61	.040	12
JAN 17...	86	2	2	.12	.010	.13	.060	.41	.47	.040	6.0
FEB 27...	80	0	0	.15	.020	.17	.000	.48	.48	.010	6.4
MAY 01...	81	34	13	.08	.000	.08	.170	.77	.94	.060	7.0
JUN 26...	90	0	0	.00	.000	.00	.050	.95	1.0	.020	7.1
AUG 28...	92	0	5	.00	.000	.00	.380	.02	.40	.030	5.2

## SABINE RIVER BASIN

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08026000 SABINE RIVER NEAR BURKEVILLE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY 01...	1235	1	70	<1	0	3	80

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY 01...	55	140	.6	0	0	<3

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	10839	140	78	2290	19	570	14	401	30
NOV.	1979	49623	141	78	10500	20	2620	14	1830	30
DEC.	1979	189985	143	80	41000	20	10200	14	7130	30
JAN.	1980	159214	147	82	35100	20	8800	14	6080	31
FEB.	1980	329550	138	77	68600	19	17000	14	12100	29
MAR.	1980	235346	136	76	48400	19	12000	13	8470	29
APR.	1980	491250	143	80	106000	20	26400	14	18500	30
MAY	1980	452973	154	85	104000	22	26400	15	17800	33
JUNE	1980	88089	157	87	20600	22	5260	15	3510	33
JULY	1980	86864	162	89	20900	23	5370	15	3530	35
AUG.	1980	57742	161	88	13800	23	3520	15	2330	34
SEPT	1980	72285	162	89	17400	23	4440	15	2930	34
TOTAL		2223760	**	**	489000	**	123000	**	84600	**
WTD. AVG.		6076	146	81	**	20	**	14	**	31

## SABINE RIVER BASIN

08026000 SABINE RIVER NEAR BURKEVILLE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	98	151	152	96	123	143	126	125	159	158	152
2	145	112	152	153	110	143	140	149	121	164	157	155
3	140	113	152	152	148	144	129	148	158	161	163	162
4	133	120	155	152	149	144	141	121	162	162	159	163
5	132	127	152	151	148	142	139	115	167	157	165	151
6	133	140	150	152	145	144	143	153	156	150	154	157
7	133	145	152	152	146	144	139	160	156	147	162	157
8	134	148	151	151	120	142	141	159	150	166	163	160
9	133	150	152	153	95	141	143	163	155	165	163	156
10	152	148	148	153	104	143	151	156	164	167	157	151
11	140	117	139	150	114	128	140	141	163	168	153	159
12	139	125	98	151	143	199	128	138	165	174	146	151
13	137	117	110	145	145	146	138	144	157	177	145	161
14	138	125	125	142	145	141	143	143	158	170	145	151
15	137	135	134	136	145	141	141	159	165	160	165	153
16	139	148	140	134	141	136	146	146	167	162	162	161
17	140	140	145	134	145	104	141	147	155	163	161	158
18	139	138	151	136	144	139	142	152	152	160	154	162
19	138	137	147	136	145	227	140	150	168	159	162	151
20	137	139	127	135	143	184	143	151	143	155	163	154
21	139	140	140	136	144	155	147	155	142	159	162	156
22	131	115	151	89	142	141	150	159	142	163	163	165
23	111	73	93	136	143	147	149	160	141	164	160	164
24	110	115	92	144	142	117	147	159	161	163	158	164
25	155	150	113	131	142	132	145	159	162	162	155	159
26	152	152	150	130	144	143	139	161	165	161	163	164
27	150	153	152	146	143	100	147	161	164	160	164	165
28	139	151	150	147	145	58	149	151	156	163	159	161
29	132	152	150	148	124	136	154	84	157	161	162	165
30	131	151	152	150	---	124	115	150	164	163	161	153
31	98	---	153	152	---	130	---	155	---	159	152	---
MEAN	136	132	140	143	136	140	142	148	155	162	159	158

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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

## SABINE RIVER BASIN

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## 08028500 SABINE RIVER NEAR BON WIER, TX

LOCATION.--Lat 30°44'49", long 93°36'30", Beauregard Parish, Louisiana-Newton County, Texas State line, Hydrologic Unit 12010005, near left bank at downstream side of bridge on U.S. Highway 190, 0.7 mi (1.1 km) upstream from Quicksand Creek, 0.8 mi (1.3 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.0 mi (3.2 km) east of Bon Wier, 2.4 mi (3.9 km) upstream from Caney Creek, and at mile 97.7 (157.2 km).

DRAINAGE AREA.--8,229 mi<sup>2</sup> (21,313 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1312. Gage-height records collected in this vicinity since 1913 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1342: 1953. WSP 1442: 1924, 1926-27(M), 1929(M), 1939. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 43.42 ft (13.234 m) National Geodetic Vertical Datum of 1929. Prior to July 8, 1931, nonrecording gage at site 0.8 mi (1.3 km) downstream at datum 3.00 ft (0.914 m) higher. July 8, 1931, to Oct. 15, 1958, nonrecording gage at present site at datum 3.00 ft (0.914 m) higher. Oct. 16, 1958, to Sept. 30, 1975, water-stage recorder at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge records fair. Flow regulated by Toledo Bend Reservoir (station 08025350) located 58.8 mi (94.6 km) upstream. Gage-height telemeter at station maintained by the National Weather Service.

AVERAGE DISCHARGE.--43 years (water years 1924-66) prior to completion of Toledo Bend Reservoir, 6,846 ft<sup>3</sup>/s (193.9 m<sup>3</sup>/s), 4,960,000 acre-ft/yr (6.12 km<sup>3</sup>/yr); 14 years (water years 1967-80) regulated, 6,284 ft<sup>3</sup>/s (178.0 m<sup>3</sup>/s), 4,553,000 acre-ft/yr (5.61 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 115,000 ft<sup>3</sup>/s (3,260 m<sup>3</sup>/s) May 19, 1953, gage height, 28.70 ft (8.748 m); minimum daily, 134 ft<sup>3</sup>/s (3.79 m<sup>3</sup>/s) Nov. 9, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 33.5 ft (10.21 m) Apr. 23 or 24, 1913, from information by Gulf, Colorado, and Santa Fe Railway Co. and local residents. Flood in May 1884 reached a stage of 29 ft (8.8 m). Floods occurring about 1844 and 1860 were higher than flood in May 1884, from information by local residents. All flood data referenced to current datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 37,000 ft<sup>3</sup>/s (1,050 m<sup>3</sup>/s) May 23, gage height, 24.15 ft (7.361 m); minimum daily, 418 ft<sup>3</sup>/s (11.8 m<sup>3</sup>/s) Oct. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6840	1980	7220	8090	9800	10700	18500	7240	3320	3060	3930	1140
2	3260	1600	7180	8950	10200	13600	15800	4480	1980	4040	3920	968
3	1090	1300	7090	9390	9800	16300	14100	4990	3630	4030	1790	1830
4	803	1030	7070	9380	9200	16400	12200	3730	4910	4080	859	2710
5	716	866	6710	9630	7600	14900	13500	2390	4970	2000	3160	2650
6	669	767	6950	9630	7600	12700	13800	3310	5470	1000	5460	1780
7	639	702	5790	9290	10200	12200	12600	4280	4180	870	3750	769
8	596	659	6670	9040	10200	12100	9160	8480	2750	2750	2900	614
9	570	656	7060	6480	12100	11900	8400	13800	1440	3830	2860	1960
10	544	818	6990	5120	16500	11700	8160	14600	3350	4190	1940	1750
11	527	949	4240	4840	12800	10100	8050	9490	4340	4010	1190	738
12	517	814	1550	5110	12500	7060	12000	3740	4380	3990	1100	606
13	508	726	4450	5160	15600	5590	21300	3190	4310	1920	1070	724
14	492	675	9140	5040	19800	4070	25000	4100	4300	901	1050	942
15	478	639	10800	2090	19400	3460	29100	8220	2160	2710	1420	590
16	475	611	10200	1420	18200	2340	31300	17100	1170	4030	3430	962
17	469	586	8660	1320	16800	3740	31100	24200	3220	3950	2490	1340
18	462	574	10700	1250	16100	5720	29400	28400	2300	3960	1250	932
19	464	562	10900	1210	15600	5860	28600	31400	1660	3950	2160	1110
20	457	549	5330	1160	15400	6340	25900	33900	5730	1900	3270	932
21	452	544	1940	1130	15200	7680	21900	35400	5170	909	3350	1110
22	526	1130	3410	2150	15300	9460	19700	36400	2810	2830	3430	536
23	938	3950	4810	13000	15300	8560	19200	36700	2780	4090	3460	1880
24	978	6020	6390	11700	15300	8200	20300	35700	4100	4140	2310	6450
25	778	6490	7760	9030	15000	9780	21300	33000	4530	4050	1330	7030
26	1260	5730	6850	7350	14700	9790	23500	28300	4270	4020	2140	6130
27	1080	5830	7660	6040	12200	10400	25200	25200	4210	1920	3160	9120
28	672	7380	8440	5900	10300	17800	25300	20100	4200	1020	3220	12000
29	486	7360	8340	8080	8640	21100	24000	10500	4220	3090	2630	4320
30	418	7250	8230	8440	---	22200	17900	6850	2080	4020	3450	4300
31	1160	---	8150	8200	---	20800	---	5880	---	3920	2500	---
TOTAL	29324	68747	216680	194620	387340	332550	586270	505070	107940	95180	79979	77923
MEAN	946	2292	6990	6278	13360	10730	19540	16290	3598	3070	2580	2597
MAX	6840	7380	10900	13000	19800	22200	31300	36700	5730	4190	5460	12000
MIN	418	544	1550	1130	7600	2340	8050	2390	1170	870	859	536
AC-FT	58160	136400	429800	386000	768300	659600	1163000	1002000	214100	188800	158600	154600
CAL YR 1979 TOTAL	3987454	MEAN	10920	MAX	29600	MIN	418	AC-FT	7909000			
WTR YR 1980 TOTAL	2681623	MEAN	7327	MAX	36700	MIN	418	AC-FT	5319000			

## SABINE RIVER BASIN

08028500 SABINE RIVER NEAR BON WEIR, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: January 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1970 to current year.

WATER TEMPERATURES: January 1970 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 407 micromhos Aug. 31, 1978; minimum daily, 36 micromhos May 1, 1973.

WATER TEMPERATURES: Maximum daily, 33.0°C July 17, 1978, and July 14, 26, 1980; minimum daily, 4.0°C Feb. 2, 1980.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 294 micromhos Aug. 13, 15; minimum daily, 47 micromhos Apr. 13.

WATER TEMPERATURES: Maximum daily, 33.0°C July 14, 26; minimum daily, 4.0°C Feb. 2.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT							
07...	1155	643	174	24.0	45	21	22
14...	1815	493	185	24.0	45	19	21
21...	0925	452	175	26.0	40	21	20
28...	0740	724	239	20.0	90	39	28
NOV							
07...	1500	698	251	18.0	100	41	23
14...	0900	681	180	12.0	60	24	20
21...	0815	540	174	13.0	60	23	19
28...	1615	7480	147	15.0	25	16	19
DEC							
07...	1620	5400	161	9.0	25	20	20
14...	1720	10400	102	9.0	200	14	12
21...	1430	1740	207	9.0	25	21	15
28...	1145	9380	127	8.0	40	14	17
JAN							
07...	1230	10000	152	9.0	15	16	18
14...	1635	4660	146	10.0	20	15	16
21...	1645	1120	126	16.0	40	12	10
FEB							
01...	1620	10500	140	10.0	15	14	18
07...	1730	11200	148	10.0	10	15	18
21...	1745	15200	143	13.0	20	16	17
MAR							
07...	1630	12200	150	7.0	20	16	17
14...	1645	4660	143	--	20	15	16
21...	1820	8520	99	--	50	12	11
28...	1805	20400	89	--	50	9.3	10
APR							
01...	1805	17500	93	16.0	60	14	11
07...	1545	11800	--	19.0	--	14	15
14...	1330	25500	106	19.0	40	12	12
21...	1730	21400	138	20.0	15	15	16
MAY							
07...	1730	4870	155	24.0	15	18	19
14...	1425	4420	130	22.0	15	16	15
21...	1520	35700	144	22.0	30	18	19
28...	1240	120300	154	26.0	15	19	21
JUN							
01...	1300	2940	160	28.0	--	19	20
07...	0900	3490	175	27.0	--	22	23
JUN							
14...	0835	4300	175	27.0	--	23	24
21...	1155	5430	162	25.0	--	20	22
JUL							
01...	1025	3380	168	31.0	--	21	23
07...	0815	878	182	30.0	--	22	24
14...	1800	844	175	33.0	--	22	26
21...	1700	863	173	30.0	--	23	26
AUG							
07...	1650	3750	182	29.0	--	26	25
14...	1830	1050	288	30.0	--	62	28
21...	1915	3930	179	29.0	--	27	27
28...	1820	3810	169	28.0	--	24	24
SEP							
08...	1810	598	215	28.0	--	12	16
15...	1710	566	229	30.0	--	35	34
22...	1802	490	184	30.0	--	23	23
29...	1830	2390	167	26.0	--	22	27

## SABINE RIVER BASIN

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08028500 SABINE RIVER NEAR BON WEIR, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	154	253	153	153	140	137	93	148	160	168	164	181
2	164	203	158	155	133	128	87	127	169	162	163	182
3	173	218	158	155	124	139	120	182	135	176	170	157
4	199	242	160	152	144	144	127	149	164	167	184	167
5	159	259	161	150	134	143	131	159	197	178	156	169
6	164	251	158	151	143	146	131	137	169	172	173	174
7	174	251	161	152	148	150	135	155	175	182	182	190
8	174	245	158	150	148	149	135	160	175	153	193	215
9	158	226	158	141	121	151	138	157	188	163	212	169
10	157	208	157	141	83	145	140	161	146	163	207	170
11	157	181	159	141	84	145	140	---	169	163	248	178
12	160	167	159	142	91	138	136	156	175	165	255	215
13	174	183	100	144	136	136	47	149	175	173	294	211
14	185	180	102	146	129	143	106	130	175	175	288	194
15	213	191	116	147	137	148	109	154	184	152	294	229
16	179	195	122	153	138	146	118	136	207	162	217	237
17	184	209	140	136	139	150	125	130	210	164	202	176
18	181	179	149	129	138	82	134	139	180	155	288	221
19	183	184	146	131	139	109	136	146	194	169	225	197
20	181	188	137	130	142	112	131	146	168	184	182	200
21	175	174	207	126	143	99	138	144	162	173	179	165
22	142	148	125	92	148	112	142	152	148	158	163	184
23	129	101	139	91	149	119	146	149	154	170	162	195
24	108	86	123	77	158	128	144	152	163	174	167	165
25	241	117	97	81	151	132	143	151	171	167	162	165
26	170	108	96	85	148	137	135	153	173	165	142	163
27	167	129	129	113	150	117	127	157	178	177	163	162
28	239	147	127	134	150	89	143	154	176	182	169	164
29	235	149	132	134	150	87	143	141	172	144	171	167
30	207	151	146	134	---	88	142	115	178	151	172	155
31	207	---	152	134	---	91	---	161	---	161	170	---
MEAN	177	184	141	132	136	127	127	148	173	167	197	184

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	---	8.0	8.0	10.0	7.0	16.0	21.0	28.0	31.0	31.0	28.0
2	24.0	18.0	12.0	7.0	4.0	5.0	18.0	23.0	27.0	31.0	30.0	29.0
3	27.0	17.0	11.0	8.0	5.0	10.0	18.0	23.0	28.0	29.0	28.0	29.0
4	26.0	17.0	11.0	9.0	12.0	9.5	18.0	22.0	27.0	29.0	29.0	28.0
5	24.0	17.0	12.0	7.0	10.0	12.0	18.0	24.0	27.0	30.0	30.0	26.0
6	22.0	19.0	13.0	8.0	10.5	7.0	19.0	23.0	26.5	29.5	28.0	27.0
7	24.0	18.0	9.0	9.0	10.0	7.0	19.0	24.0	27.0	30.0	29.0	26.5
8	24.0	17.0	8.0	7.0	10.0	7.0	20.0	22.0	26.0	32.0	28.0	28.0
9	24.0	19.0	5.0	8.0	5.0	7.0	20.0	22.0	27.0	32.0	28.0	29.0
10	22.0	17.0	9.0	9.0	5.0	7.0	22.0	22.0	28.0	32.0	30.0	29.0
11	24.0	16.0	10.0	10.0	9.0	---	21.0	---	28.0	31.0	30.0	28.0
12	24.0	14.0	10.0	7.0	8.0	---	19.0	24.0	28.0	31.0	30.0	28.0
13	22.0	14.0	11.0	8.0	9.0	---	18.0	25.0	28.0	30.0	31.0	28.0
14	24.0	12.0	9.0	10.0	6.0	---	19.0	22.0	27.0	33.0	30.0	29.0
15	24.0	10.5	8.0	11.0	11.0	---	21.0	21.0	28.0	32.0	30.0	30.0
16	24.0	8.0	8.0	13.0	5.0	10.0	18.0	22.0	27.0	31.0	29.0	29.0
17	24.0	8.0	8.0	16.0	5.0	10.0	20.0	22.0	27.0	31.0	28.0	28.0
18	26.0	8.0	7.0	18.0	9.0	9.0	19.0	22.0	27.0	31.0	29.0	29.0
19	24.0	10.0	7.0	13.0	10.0	10.0	17.0	22.0	28.0	29.0	29.0	28.0
20	25.0	11.0	9.0	12.0	13.0	10.0	18.0	22.0	27.0	29.0	29.0	28.0
21	26.0	13.0	9.0	16.0	13.0	---	20.0	22.0	25.0	30.0	29.0	29.0
22	24.0	13.0	9.0	14.5	12.0	---	20.0	23.0	26.0	30.0	29.0	30.0
23	22.0	8.0	10.0	12.5	10.0	---	20.0	---	27.5	30.0	28.0	30.0
24	24.0	7.0	9.0	13.0	8.0	---	20.0	26.0	28.0	30.0	27.0	26.0
25	24.0	11.0	8.0	11.0	11.0	---	20.0	26.0	27.5	30.0	29.0	28.0
26	20.0	14.0	8.0	12.0	11.0	---	18.0	26.0	29.0	33.0	29.0	27.0
27	19.0	16.0	8.0	7.0	12.0	---	20.5	26.0	28.0	29.0	29.0	26.5
28	20.0	15.0	8.0	12.0	8.0	---	20.5	26.0	29.0	29.0	28.0	26.5
29	22.0	14.0	9.0	11.0	8.0	---	21.0	26.0	29.0	30.0	27.0	26.0
30	21.0	13.0	7.0	12.0	---	15.0	20.0	27.0	30.0	31.0	26.0	26.0
31	20.0	---	8.0	10.5	---	15.0	---	27.0	---	29.0	30.0	---
MEAN	23.5	13.5	9.0	10.5	9.0	9.5	19.5	23.5	27.5	30.5	29.0	28.0



## SABINE RIVER BASIN

08028500 SABINE RIVER NEAR BON WEIR, TX--Continued

COLOR (PLATINUM-COBALT UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	100	20	20	15	20	60	30	40	30	20	60
2	40	100	15	15	30	25	60	50	50	20	20	50
3	15	100	20	20	50	20	30	10	50	30	30	40
4	50	100	20	15	15	20	20	30	40	30	50	30
5	40	100	20	15	30	20	25	40	40	40	30	30
6	40	100	15	20	25	15	---	25	30	20	30	30
7	45	100	25	15	10	20	30	15	40	30	30	30
8	65	100	15	15	20	15	20	15	40	20	50	40
9	60	100	20	20	45	20	20	10	30	20	60	30
10	60	80	15	15	70	20	10	5	30	20	50	30
11	40	70	25	10	30	10	20	---	30	20	70	30
12	40	65	30	30	40	20	20	15	30	20	70	50
13	55	70	120	20	140	20	60	20	20	20	100	50
14	45	60	200	20	30	20	40	15	30	20	90	40
15	45	70	50	30	30	20	50	5	30	20	100	60
16	50	70	50	40	25	20	20	30	30	20	70	70
17	40	60	30	40	25	50	30	10	30	20	40	40
18	50	50	30	30	20	80	20	25	50	30	60	60
19	60	55	25	35	20	40	20	15	40	20	50	40
20	50	60	30	45	15	40	20	25	40	20	30	50
21	40	60	25	40	20	50	15	30	20	40	40	40
22	40	5	40	80	30	45	20	30	30	30	20	50
23	55	75	20	50	25	40	10	15	40	30	30	60
24	80	80	30	80	25	30	5	15	40	30	30	20
25	120	50	95	80	20	20	80	10	30	20	60	20
26	80	65	60	80	25	20	30	20	30	20	30	20
27	90	45	30	40	25	50	30	10	30	30	30	20
28	90	25	40	40	30	50	20	15	30	30	40	20
29	55	20	30	20	25	50	30	30	20	20	40	30
30	90	20	40	20	---	50	30	40	20	20	60	30
31	90	---	15	20	---	60	---	25	---	20	30	---
MEAN	55	70	39	33	31	32	29	21	34	25	47	39

## SABINE RIVER BASIN

301

08029500 BIG COW CREEK NEAR NEWTON, TX

LOCATION.--Lat 30°49'08", long 93°47'07", Newton County, Hydrologic Unit 12010005, near center of span at downstream side bridge on State Highway 87, 2.6 mi (4.2 km) southwest of Newton, 5.0 mi (8.0 km) downstream from Melhones Creek, and 8.0 mi (12.9 km) upstream from White Oak Creek.

DRAINAGE AREA.--128 mi<sup>2</sup> (332 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 134.69 ft (41.054 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 19, 1957, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--28 years, 113 ft<sup>3</sup>/s (3.200 m<sup>3</sup>/s), 11.99 in/yr (305 mm/yr), 81,870 acre-ft/yr (101 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 ft<sup>3</sup>/s (572 m<sup>3</sup>/s) Apr. 29, 1953, gage height, 19.45 ft (5.928 m); minimum daily, 10 ft<sup>3</sup>/s (0.28 m<sup>3</sup>/s) July 7, 8, 21-23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 27.5 ft (8.38 m) in April 1922, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft<sup>3</sup>/s (31.2 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Jan. 23	1300	1,170	33.1	14.41	4.392	Apr. 13	0600	2,160	61.2	15.47	4.715
Feb. 10	0500	1,740	49.3	15.16	4.621	May 17	0500	1,310	37.1	14.66	4.468
Mar. 28	1900	*2,290	64.9	15.54	4.737						

Minimum discharge, 25 ft<sup>3</sup>/s (0.71 m<sup>3</sup>/s) Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	477	80	84	134	532	215	97	73	38	41	36
2	62	188	80	79	105	498	172	102	70	37	37	34
3	59	94	79	85	98	192	157	98	67	37	35	32
4	57	79	77	107	93	151	142	88	65	36	35	35
5	56	73	77	102	89	159	121	85	63	36	38	34
6	54	70	77	85	88	150	112	81	61	35	45	35
7	53	67	78	81	86	131	112	78	60	35	40	44
8	54	66	77	79	101	131	112	79	58	34	36	41
9	53	80	73	77	954	124	103	81	57	33	33	37
10	52	105	71	77	1480	116	94	77	57	33	32	34
11	51	111	72	186	592	110	92	73	56	32	32	32
12	51	78	162	176	225	109	561	71	53	32	32	31
13	51	70	214	105	171	108	1600	73	51	31	32	29
14	51	66	191	88	146	99	1000	105	49	31	32	28
15	50	64	117	82	137	95	383	171	49	30	31	28
16	49	64	94	81	136	117	187	898	48	30	30	29
17	50	63	85	79	142	371	148	1260	48	29	29	28
18	52	63	80	77	125	215	135	648	47	30	29	28
19	52	64	77	75	114	166	121	241	47	36	30	49
20	50	65	78	73	111	291	111	260	51	40	31	53
21	51	67	78	74	107	276	103	258	66	37	29	43
22	83	281	79	370	102	210	98	186	112	36	27	36
23	120	545	112	1040	97	141	93	212	69	37	27	34
24	98	389	340	387	93	150	90	131	57	37	27	34
25	63	158	227	167	89	148	177	110	51	33	26	36
26	57	114	129	160	85	140	634	102	48	31	26	34
27	54	100	98	145	82	334	297	95	45	31	27	33
28	53	92	90	116	83	1560	140	89	43	42	32	33
29	54	88	90	111	100	1260	110	89	42	112	35	34
30	66	83	97	117	---	928	100	81	39	76	35	54
31	565	---	93	161	---	434	---	77	---	48	34	---
TOTAL	2336	3924	3372	4726	5965	9446	7520	6096	1702	1195	1005	1068
MEAN	75.4	131	109	152	206	305	251	197	56.7	38.5	32.4	35.6
MAX	565	545	340	1040	1480	1560	1600	1260	112	112	45	54
MIN	49	63	71	73	82	95	90	71	39	29	26	28
CFSM	.59	1.02	.85	1.19	1.61	2.38	1.96	1.54	.44	.30	.25	.28
IN.	.68	1.14	.98	1.37	1.73	2.75	2.19	1.77	.49	.35	.29	.31
AC-FT	4630	7780	6690	9370	11830	18740	14920	12090	3380	2370	1990	2120
CAL YR 1979	TOTAL	65106	MEAN 178	MAX 1360	MIN 41	CFSM 1.39	IN 18.92	AC-FT	129100			
WTR YR 1980	TOTAL	48355	MEAN 132	MAX 1600	MIN 26	CFSM 1.03	IN 14.05	AC-FT	95910			

## SABINE RIVER BASIN

08030000 CYPRESS CREEK NEAR BUNA, TX

LOCATION.--Lat 30°25'52", long 93°54'28", Jasper County, Hydrologic Unit 12010005, near center of span at downstream side of bridge on Farm Road 253, 0.3 mi (0.5 km) downstream from Boggy Creek, 3.2 mi (5.1 km) east of Buna, and 9.5 mi (15.3 km) upstream from Little Cypress Creek.

DRAINAGE AREA.--69.2 mi<sup>2</sup> (179.2 km<sup>2</sup>).

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 46.16 ft (14.070 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 23, 1957, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--28 years, 69.7 ft<sup>3</sup>/s (1.974 m<sup>3</sup>/s), 13.68 in/yr (347 mm/yr), 50,500 acre-ft/yr (62.3 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,100 ft<sup>3</sup>/s (201 m<sup>3</sup>/s) Sept. 18, 1963, gage height, 13.28 ft (4.048 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s) and maximum (\*)

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Jan. 22	2000	3,180 90.1	11.55 3.520	Apr. 12	2300	1,120 31.7	9.89 3.014
Feb. 9	1900	1,280 36.2	10.05 3.063	May 17	0300	*4,290 121	12.15 3.703
Mar. 29	2300	1,730 49.0	10.50 3.200				

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	151	7.1	56	49	56	598	3.3	1.4	.00	.00	.00
2	1.8	82	5.2	39	37	68	326	3.0	1.1	.00	.00	.00
3	1.3	44	4.1	60	41	63	162	2.1	.68	.00	.00	.00
4	.92	23	3.3	123	40	42	75	1.4	.36	.00	.00	.00
5	.65	13	2.8	68	32	39	39	.99	.20	.00	.00	.00
6	.48	8.1	2.4	45	30	36	22	.63	.12	.00	.00	.00
7	.40	5.0	2.0	35	25	27	16	.50	.11	.00	.00	.00
8	.39	3.5	1.7	32	42	22	14	.39	.11	.00	.00	.00
9	.36	2.9	1.5	47	931	18	10	.30	.09	.00	.00	.00
10	.34	2.4	1.2	36	974	14	6.8	.23	.08	.00	.00	.00
11	.32	1.8	1.1	128	655	9.6	4.7	.20	.06	.00	.00	.00
12	.30	1.4	.77	121	499	7.7	543	.18	.04	.00	.00	.00
13	.30	2.8	482	68	298	9.0	946	.16	.02	.00	.00	.00
14	.28	3.5	489	43	122	7.0	676	9.6	.00	.00	.00	.00
15	.25	2.7	397	30	127	4.1	452	111	.00	.00	.00	.00
16	.25	2.0	325	24	198	6.5	259	2130	.00	.00	.00	.00
17	.24	1.5	164	22	187	146	88	3680	.00	.00	.00	.00
18	.23	1.2	68	22	115	157	37	1670	.00	.00	.00	.00
19	.22	.92	38	20	76	85	20	924	.00	.00	.00	.00
20	.20	.75	26	28	56	92	12	669	.00	.00	.00	.00
21	.20	.64	21	185	42	174	7.7	416	.00	.00	.00	.00
22	11	32	19	1470	32	142	5.2	350	.00	.00	.00	.00
23	14	262	61	2050	22	129	3.8	157	.00	.00	.00	.00
24	2.9	192	582	1210	15	136	2.9	83	.00	.00	.00	.00
25	1.0	91	514	744	11	87	3.5	42	.00	.00	.00	.00
26	.45	54	236	475	7.0	77	68	20	.00	.00	.00	.00
27	.36	34	112	257	4.9	454	36	10	.00	.00	.00	.00
28	.35	22	66	109	3.7	1240	15	5.7	.00	.00	.00	.00
29	.33	15	68	62	4.2	1300	8.3	3.6	.00	.00	.00	.00
30	2.1	10	97	44	---	1500	4.8	2.3	.00	.00	.00	.00
31	280	---	78	46	---	927	---	1.6	---	.00	.00	---
TOTAL	324.42	1066.11	3952.4	7699	4675.8	7074.9	4461.7	10298.18	4.37	.00	.00	.00
MEAN	10.5	35.5	127	248	161	228	149	332	.15	.000	.000	.000
MAX	280	262	582	2050	974	1500	946	3680	1.4	.00	.00	.00
MIN	.20	.64	1.1	20	3.7	4.1	2.9	.16	.00	.00	.00	.00
CFSM	.15	.51	1.84	3.58	2.33	3.30	2.15	4.80	.002	.000	.000	.000
IN.	.17	.57	2.12	4.14	2.51	3.80	2.40	5.54	.00	.00	.00	.00
AC-FT	643	2110	7840	15270	9270	14030	8850	20430	8.7	.00	.00	.00

CAL YR 1979	TOTAL	53028.99	MEAN 145	MAX 2070	MIN .20	CFSM 2.10	IN 28.51	AC-FT 105200
WTR YR 1980	TOTAL	39556.88	MEAN 108	MAX 3680	MIN .00	CFSM 1.56	IN 21.26	AC-FT 78460

## SABINE RIVER BASIN

303

08030500 SABINE RIVER NEAR RULIFF, TX  
(Radiochemical and national stream-quality accounting network)

LOCATION.--Lat 30°18'13", long 93°44'37", Calcasieu Parish, Louisiana-Newton County, Texas State line, Hydrologic Unit 12010005, at downstream side of bridge on State Highway 12, 2.4 mi (3.9 km) north of Ruliff, 4.2 mi (6.8 km) upstream from the Kansas City Southern Railway Co. bridge, 4.5 mi (7.2 km) downstream from Cypress Creek, and at mile 40.2 (64.7 km).

DRAINAGE AREA.--9,329 mi<sup>2</sup> (24,162 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1924 to current year.

REVISED RECORDS.--WSP 1282: 1941(M), 1942. WSP 1442: 1925-29, 1937-39, 1943. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4.08 ft (1.244 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1941, nonrecording gage at Kansas City Southern Railway Co. bridge, 4.2 mi (6.8 km) downstream and at datum 2.02 ft (0.616 m) lower. Mar. 1, 1941, to Dec. 8, 1948, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair. Flow is partly regulated by Toledo Bend Reservoir (station 08025350) 116.3 mi (187.1 km) upstream.

AVERAGE DISCHARGE.--42 years (water years 1925-66) prior to completion of Toledo Bend Reservoir, 8,422 ft<sup>3</sup>/s (238.5 m<sup>3</sup>/s), 6,102,000 acre-ft/yr (7.52 km<sup>3</sup>/yr); 14 years (water years 1967-80) regulated, 7,743 ft<sup>3</sup>/s (219.3 m<sup>3</sup>/s), 5,610,000 acre-ft/yr (6.92 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft<sup>3</sup>/s (3,430 m<sup>3</sup>/s) May 22, 1953, gage height, 19.98 ft (6.090 m); minimum, 270 ft<sup>3</sup>/s (7.65 m<sup>3</sup>/s) Sept. 27-30, Oct. 1-3, 17-20, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1835, 22.2 ft (6.77 m) in May or June 1884 (adjusted to present site and datum on basis of slope of flood of June 8, 9, 1950); flood of Apr. 26-29, 1913, reached a stage of 19.5 ft (5.94 m), present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40,700 ft<sup>3</sup>/s (1,150 m<sup>3</sup>/s) May 19, gage height, 15.43 ft (4.703 m); minimum daily, 818 ft<sup>3</sup>/s (23.2 m<sup>3</sup>/s) Oct. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11200	2120	8110	10000	10300	15400	29000	23500	12800	3610	4060	3390
2	10200	3520	8240	9980	10400	14200	27600	21100	9870	2790	4180	2360
3	8520	4110	8260	10000	10900	13400	24200	16600	6760	3400	4190	1560
4	5510	3580	8230	10100	11400	13800	20400	12400	4520	3770	3660	1520
5	2910	2700	8190	10400	11800	15200	17800	9150	4440	3890	2180	2500
6	1780	2040	8160	10700	11800	16400	16000	6460	4790	3510	2090	2920
7	1450	1650	8020	10900	11200	17100	14900	4670	5120	2140	3810	2750
8	1300	1460	7870	10900	10600	16900	14400	4630	5020	1400	4560	1780
9	1200	1370	7550	11000	12100	16000	13900	5410	4390	1700	4000	1170
10	1120	1330	7510	11000	14700	15100	13100	7050	3080	3060	3440	1290
11	1050	1420	7730	10200	17300	14300	11800	8840	2700	3670	3030	2260
12	1000	1680	7710	8740	19600	14000	11300	10400	3560	3920	2090	1620
13	965	1660	6710	7660	21700	13300	11900	11000	3990	3940	1570	1080
14	936	1460	6630	7160	22000	11400	13700	9530	4130	3490	1420	928
15	899	1320	8260	6830	20700	8910	17000	7550	4150	2090	1370	1150
16	878	1220	10100	5760	19700	6670	22800	10700	3710	1810	1400	1050
17	858	1160	11600	3940	20400	5050	29200	21600	2430	3200	2300	910
18	846	1120	12500	2920	21200	4840	33100	30000	2210	3800	3150	1460
19	828	1090	12500	2480	21100	6330	33800	39100	2990	3970	2300	1320
20	821	1060	12200	2420	20200	7340	31900	40000	2250	4020	1830	1420
21	818	1040	11900	2850	19300	7980	30100	38100	3190	3590	2780	1260
22	839	1160	10000	3690	18500	8670	27900	37200	4320	2210	3280	1470
23	955	2200	7070	7840	17900	9470	25000	37100	4380	2010	3450	1220
24	1220	4510	6490	13700	17500	10300	21900	37500	3400	3380	3530	1140
25	1720	6380	7100	17600	17300	10800	20300	37700	3450	3990	3340	3480
26	1670	7520	8440	19400	17000	10900	19700	36600	3910	4220	2340	5180
27	1500	8030	9760	19400	16800	12300	20000	33200	4150	4250	1920	5950
28	1710	7870	10100	17400	16800	15100	21200	29000	4140	3770	2800	6380
29	1370	7650	9970	14100	16300	17400	23400	26200	4080	2340	<del>3250</del>	7190
30	1100	7860	9980	11400	---	20700	24100	21400	4060	2240	3250	8070
31	1380	---	10000	10400	---	26600	---	16500	---	3570	3130	---
TOTAL	68553	91290	276890	300870	476500	395860	641400	650190	131990	98750	89700	75778
MEAN	2211	3043	8932	9705	16430	12770	21380	20970	4400	3185	2894	2526
MAX	11200	8030	12500	19400	22000	26600	33800	40000	12800	4250	4560	8070
MIN	818	1040	6490	2420	10300	4840	11300	4630	2210	1400	1370	910
AC-FT	136000	181100	549200	596800	945100	785200	1272000	1290000	261800	195900	177900	150300

CAL YR 1979 TOTAL 4649843 MEAN 12740 MAX 41100 MIN 818 AC-FT 9223000  
WTR YR 1980 TOTAL 3297771 MEAN 9010 MAX 40000 MIN 818 AC-FT 6541000

## SABINE RIVER BASIN

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to September 1946, October 1947 to current year. Chemical and biochemical analyses: October 1967 to current. Pesticide analyses: January 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1945 to September 1946, October 1947 to current year.  
WATER TEMPERATURES: October 1947 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 779 micromhos Aug. 31, 1966; minimum, 28 micromhos Sept. 19, 1963.  
WATER TEMPERATURES: Maximum, 36.0°C Aug. 14, 1962; minimum, 1.0°C Jan. 28, 1948.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 265 micromhos Aug. 17; minimum daily, 40 micromhos May 18.  
WATER TEMPERATURES: Maximum daily, 31.0°C on several days during July; minimum daily, 7.0°C Feb. 12.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980 \*

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 23...	1515	980	150	7.5	23.5	60	12	8.0	92	1.2	130	31
NOV 14...	1710	1420	134	7.3	14.5	80	12	11.1	106	.7	K18	K6
JAN 16...	1120	5860	129	6.8	13.0	70	19	12.0	113	1.0	38	24
FEB 26...	1530	17100	139	7.1	13.0	40	16	11.6	107	1.8	50	36
MAR 25...	1230	10800	106	6.9	15.5	100	28	9.6	94	1.8	88	66
APR 30...	1030	24300	134	6.5	18.0	40	23	8.2	87	1.4	110	40
MAY 29...	1215	26300	144	6.5	24.5	50	31	8.6	101	.5	84	120
JUN 25...	1250	3450	142	6.9	29.0	50	21	6.9	88	1.1	42	24
JUL 30...	1235	2220	158	6.8	29.5	30	17	6.8	88	.2	60	44
AUG 27...	1435	1860	160	6.9	29.0	40	11	6.9	88	1.0	32	36
SEP 16...	1205	1050	196	7.1	30.0	45	6.8	7.0	92	.6	60	40

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 23...	28	0	7.5	2.3	18	1.5	2.0	39	0	15	14
NOV 14...	20	0	5.7	1.5	18	1.7	2.2	25	0	17	15
JAN 16...	26	10	6.5	2.3	13	1.1	2.3	19	0	14	18
FEB 26...	29	1	7.6	2.5	16	1.3	2.4	34	0	16	18
MAR 25...	20	4	5.2	1.7	11	1.1	1.9	19	0	13	11
APR 30...	27	11	6.8	2.4	14	1.2	2.3	22	0	20	14
MAY 29...	29	12	7.3	2.6	16	1.3	2.8	21	0	17	21
JUN 25...	26	17	6.6	2.3	15	1.3	2.4	20	0	23	21
JUL 30...	30	10	7.1	3.0	17	1.3	2.9	25	0	18	24
AUG 27...	25	0	6.4	2.3	18	1.6	2.6	24	0	22	20
SEP 16...	30	5	7.8	2.5	23	1.8	2.7	35	0	26	23

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 23...	.1	18	109	97	15	11	.24	.30	.180	.160	1.1
NOV 14...	.1	15	102	87	20	16	.06	.06	.050	.040	1.3
JAN 16...	.1	8.8	96	75	26	12	.04	.12	.100	.000	.53
FEB 26...	.1	6.3	78	86	20	11	.10	.07	.000	.010	.69
MAR 25...	.1	7.9	80	62	39	11	.08	.08	.120	.100	.87
APR 30...	.2	6.6	95	78	25	13	.06	.09	.100	.060	.53
MAY 29...	.1	7.4	96	84	50	8	.10	.07	.100	.040	.70
JUN 25...	.0	11	104	88	19	0	.00	.12	.060	.050	.77
JUL 30...	.2	10	102	95	29	30	.00	.02	.050	.030	.92
AUG 27...	.1	9.6	107	93	19	0	.00	.00	.350	.000	.75
SEP 16...	.1	13	132	114	8	0	.07	.07	.020	--	.38

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 23...	.38	1.3	.54	.050	.030	5.5	--	--	12	32	93
NOV 14...	.85	1.3	.89	.040	.010	10	--	--	15	58	66
JAN 16...	.55	.63	.55	.040	.030	--	9.4	1.3	28	443	82
FEB 26...	.33	.69	.34	.040	.020	7.9	--	--	24	1110	70
MAR 25...	.48	.99	.58	.060	.010	--	7.9	1.2	43	1250	81
APR 30...	.64	.63	.70	.040	.010	8.9	--	--	37	2430	77
MAY 29...	.39	.80	.43	.300	.010	8.2	--	--	40	2840	75
JUN 25...	.43	.83	.48	.040	.000	--	20	.8	109	1020	84
JUL 30...	.43	.97	.46	.050	.020	7.0	--	--	46	276	82
AUG 27...	.42	1.1	.42	.050	.030	5.5	--	--	28	141	84
SEP 16...	--	.40	--	.040	.020	--	5.5	1.0	15	43	81

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
NOV 14...	1710	--	--	--	--	--	--	--	--	--	--
JAN 16...	1120	1	1	0	0	0	50	1	0	29	0
FEB 26...	1530	--	--	--	--	--	--	--	--	--	--
MAR 25...	1230	1	1	0	100	60	40	3	0	5	20
MAY 29...	1215	--	--	--	--	--	--	--	--	--	--
JUN 25...	1250	2	1	1	0	0	50	1	0	1	0
AUG 27...	1435	--	--	--	--	--	--	--	--	--	--
SEP 16...	1205	2	1	1	100	40	60	2	0	2	10



08030500 SABINE RIVER NEAR RULIFF, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, SUS- PENDE RECOV. (UG/L AS CR)	CHROMIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 14...	--	--	--	--	--	--	--	--	--	--	--
JAN 16...	0	0	0	0	<3	5	3	2	840	740	100
FEB 26...	--	--	--	--	--	--	--	--	--	--	--
MAR 25...	20	0	2	0	<3	8	6	2	1200	1000	190
MAY 29...	--	--	--	--	--	--	--	--	--	--	--
JUN 25...	0	10	0	--	<3	10	5	5	870	700	170
AUG 27...	--	--	--	--	--	--	--	--	--	--	--
SEP 16...	10	0	1	--	<3	5	2	3	960	500	460

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDE RECOV- ERABLE (UG/L AS NI)
NOV 14...	--	--	--	--	--	--	--	--	--	--	--
JAN 16...	76	41	35	100	60	40	.0	.0	.0	9	4
FEB 26...	--	--	--	--	--	--	--	--	--	--	--
MAR 25...	26	0	36	70	30	40	.1	.1	.0	6	5
MAY 29...	--	--	--	--	--	--	--	--	--	--	--
JUN 25...	40	33	7	120	90	30	.1	.0	.1	0	0
AUG 27...	--	--	--	--	--	--	--	--	--	--	--
SEP 16...	8	6	2	100	40	60	.3	.3	.0	4	0

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 14...	--	--	--	--	1	--	--	--	--	--
JAN 16...	5	0	0	0	0	0	0	170	170	<3
FEB 26...	--	--	--	--	0	--	--	--	--	--
MAR 25...	1	0	0	0	0	0	0	30	30	5
MAY 29...	--	--	--	--	0	--	--	--	--	--
JUN 25...	6	0	0	0	0	0	0	30	30	4
AUG 27...	--	--	--	--	0	--	--	--	--	--
SEP 16...	4	0	0	0	0	0	0	20	10	10

DATE	TIME	GROSS ALPHA, DIS- SOLVED (PCI/L AS U-NAT)	GROSS ALPHA, TOTAL (PCI/L AS U-NAT)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (AS SR/ YT-90)	GROSS BETA, TOTAL (AS SR/ YT-90)	RADIUM 226, DIS- SOLVED RADON METHOD (PCI/L)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)
OCT 23...	1515	<1.0	<.5	<1.5	<.7	2.5	<.5	2.4	<.6	.03	.21
AUG 27...	1435	<1.0	.3	<1.5	.5	3.9	<.4	3.8	<.4	.06	.14

## SABINE RIVER BASIN

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08030500 SABINE RIVER NEAR RULIFF, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB, TOTAL (UG/L)	PCB, 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)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 14...	1710	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	1530	ND	--	ND	--	ND	--	ND	--	ND	--
DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL (UG/L)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	ND	--	ND	--	ND	--	ND	--	ND	--	ND
DATE	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	--	ND	--	ND	--	ND	--	ND	--	ND	--
DATE	METHYL TRI- THION, TOTAL (UG/L)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL (UG/KG)	TOTAL TRI- THION (UG/L)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 14...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	ND	--	ND	--	ND	--	ND	--	--	--	--

## SABINE RIVER BASIN

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	NOV 14,79 1710	MAR 25,80 1230	MAY 29,80 1215	JUN 25,80 1250
TOTAL CELLS/ML	50	260	2400	1300
DIVERSITY: DIVISION	1.2	1.6	1.3	1.3
..CLASS	1.2	1.6	1.3	1.3
...ORDER	1.2	1.8	2.4	1.9
...FAMILY	1.8	2.3	2.7	2.2
....GENUS	1.8	2.3	3.0	2.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	100	8
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	26	10	760#	32	51	4
....CHLORELLA	10#	20	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	170	7	--	-
....KIRCHNERIELLA	--	-	--	-	14	1	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	51	4
....SCENEDESMUS	--	-	52#	20	110	5	77	6
....TETRASTRUM	--	-	--	-	--	-	51	4
..TETRASPORALES								
...PALMELLACEAE								
...SPHAEROCYSTIS	--	-	--	-	290	12	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	100	4	26	2
...ZYGNEMATALES								
...DESMIDIACEAE								
...COSMARIUM	--	-	--	-	29	1	--	-
CHRYSTOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	14	1	13	1
....MELOSIRA	--	-	26	10	200	8	--	-
...PENNALES								
....ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	29	1	--	-
...CYMBELLACEAE								
....AMPHORA	--	-	13	5	--	-	--	-
...FRAGILIARIACEAE								
....FRAGILARIA	--	-	--	-	--	-	--	-
...NAVICULACEAE								
....NAVICULA	20#	40	--	-	14	1	--	-
...NITZSCHACEAE								
....NITZSCHIA	15#	30	39	15	72	3	130	10
..XANTHOPHYCEAE								
...HETEROCOCCALES								
...CHLOROTHECIACEAE								
...OPHIOCYTIUM	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
...CRYPTOMONADACEAE								
....CRYPTOMONAS	5	10	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	100#	40	290	12	640#	50
...HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	--	-	290	12	150	12

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## SABINE RIVER BASIN

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08030500 SABINE RIVER NEAR RULIFF, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 30,80 1235	AUG 27,80 1435	SEP 16,80 1205
TOTAL CELLS/ML	1600	1600	300
DIVERSITY: DIVISION	1.4	1.3	1.3
..CLASS	1.4	1.3	1.5
..ORDER	1.7	1.8	1.6
...FAMILY	2.0	2.2	1.6
....GENUS	2.4	2.5	1.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
....COELASTRACEAE						
.....COELASTRUM	--	-	--	-	--	-
....OOCYSTACEAE						
.....ANKISTRODESMUS	--	-	--	-	--	-
.....CHLORELLA	--	-	--	-	--	-
.....DICTYOSPHAERIUM	150	10	540#	33	--	-
.....KIRCHNERIELLA	--	-	--	-	--	-
.....SELENASTRUM	180	11	13	1	--	-
.....TETRAEDRON	26	2	13	1	13	4
....SCENEDESMACEAE						
.....CRUCIGENIA	150	10	--	-	--	-
.....SCENEDESMUS	--	-	180	11	--	-
.....TETRASTRUM	--	-	--	-	--	-
..TETRASPORALES						
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	--	-	--	-
...VOLVOCALES						
..CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	39	2	13	1	26	9
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	--	-
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
....COSCINODISCACEAE						
.....CYCLOTELLA	51	3	--	-	--	-
.....MELOSIRA	51	3	--	-	--	-
...PENNALES						
....ACHNANTHACEAE						
.....ACHNANTHES	--	-	--	-	--	-
....CYMBELLACEAE						
.....AMPHORA	--	-	--	-	--	-
...FRAGILARIACEAE						
.....FRAGILARIA	13	1	--	-	--	-
...NAVICULACEAE						
.....NAVICULA	--	-	26	2	--	-
...NITZSCHIACEAE						
.....NITZSCHIA	100	7	77	5	64#	22
..XANTHOPHYCEAE						
...HETEROCOCCALES						
....CHLOROTHECIACEAE					13	4
.....OPHIOCYTIUM	--	-	--	-		
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
....CRYPTOMONADACEAE						
.....CRYPTOMONAS	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
....CHROOCOCCACEAE						
.....AGMENELLUM			100	6		
.....ANACYSTIS	810#	51	440#	27	180#	61
...HORMOGONALES						
....OSCILLATORIACEAE						
.....OSCILLATORIA	--	-	230	14	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## SABINE RIVER BASIN

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	68553	146	82	15200	19	3580	14	2680	29
NOV.	1979	91290	116	67	16500	15	3810	12	2940	24
DEC.	1979	276890	124	71	53400	17	12400	13	9510	25
JAN.	1980	300870	106	62	50100	14	11500	11	8970	22
FEB.	1980	476500	116	67	86400	15	19900	12	15500	24
MAR.	1980	395860	116	67	71700	15	16500	12	12800	24
APR.	1980	641400	105	62	107000	14	24400	11	19200	22
MAY	1980	650190	115	66	116000	15	26800	12	20800	23
JUNE	1980	131990	156	86	30800	21	7310	15	5420	30
JULY	1980	98750	163	90	23900	21	5710	16	4200	31
AUG.	1980	89700	173	94	22800	23	5510	16	3970	33
SEPT	1980	75778	167	92	18800	22	4500	16	3290	32
TOTAL		3297771	**	**	613000	**	142000	**	109000	**
WTD. AVG.		9010	120	69	**	16	**	12	**	24

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	143	139	135	116	140	62	130	133	171	142	170
2	140	117	141	139	118	138	63	131	136	156	153	161
3	141	75	141	142	127	123	64	126	132	168	156	160
4	135	99	148	145	128	125	72	117	137	157	152	167
5	132	111	149	146	131	129	85	124	161	158	160	171
6	152	142	150	144	129	135	98	122	160	161	162	156
7	173	157	153	142	128	136	111	129	168	158	158	159
8	109	176	157	144	133	135	121	139	159	155	159	161
9	225	194	150	142	142	134	120	127	165	169	161	163
10	194	183	154	140	112	138	118	157	146	170	179	171
11	183	184	155	132	87	142	126	155	158	160	188	173
12	186	166	150	129	73	138	146	156	180	163	184	153
13	176	151	135	124	66	136	125	151	158	160	180	159
14	173	132	115	121	67	133	68	144	165	159	199	161
15	167	125	71	128	83	132	71	142	169	156	226	172
16	163	135	96	123	102	134	81	124	168	157	234	190
17	157	145	99	118	110	129	89	57	161	164	265	206
18	156	154	110	122	120	133	99	40	166	159	195	187
19	149	155	118	124	121	127	109	64	196	160	197	220
20	153	158	136	125	123	73	115	71	151	161	198	170
21	150	166	132	101	124	92	118	88	166	163	230	180
22	152	147	120	94	128	101	121	104	161	153	192	194
23	150	136	115	80	131	90	122	115	155	157	182	178
24	147	109	112	50	135	102	127	125	153	175	161	172
25	134	79	121	54	138	103	136	131	142	168	176	161
26	108	65	95	58	142	113	130	137	151	171	166	160
27	109	80	87	61	145	116	123	141	164	170	162	162
28	125	101	88	70	142	104	133	142	169	167	151	165
29	140	123	112	76	141	85	134	145	171	163	145	169
30	154	141	120	95	---	71	128	147	173	158	155	162
31	147	---	131	114	---	61	---	139	---	155	161	---
MEAN	155	135	126	113	119	118	107	123	159	162	178	171

## SABINE RIVER BASIN

311

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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



## SABINE RIVER BASIN

08031000 COW BAYOU NEAR MAURICEVILLE, TX

LOCATION.--Lat 30°11'10", long 93°54'30", Orange County, Hydrologic Unit 12010005, near center of span at downstream side of bridge on State Highway 12, 0.4 mi (0.6 km) upstream from Kansas City Southern Railway Co. bridge, and 2.7 mi (4.3 km) southwest of Mauriceville.

DRAINAGE AREA.--83.3 mi<sup>2</sup> (215.7 km<sup>2</sup>).

PERIOD OF RECORD.--March 1952 to current year (October 1956 to September 1957, monthly discharge only).  
Water-quality records: Sediment records: October 1976 to September 1979.

REVISED RECORD.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4.73 ft (1.442 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 23, 1957, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. No large diversion above station. Base flow is partly sustained by springs.

AVERAGE DISCHARGE.--28 years, 102 ft<sup>3</sup>/s (2.889 m<sup>3</sup>/s), 16.63 in/yr (422 mm/yr), 73,900 acre-ft/yr (91.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,600 ft<sup>3</sup>/s (130 m<sup>3</sup>/s) Sept. 19, 1963, gage height, 18.15 ft (5.532 m); no flow at times.  
Maximum stage since at least 1940, 18.16 ft (5.535 m) Oct. 28, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft<sup>3</sup>/s (25.5 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Jan. 25	1700	1,460	41.3	14.36	4.377
Mar. 30	2200	1,350	38.2	13.99	4.264
May 19	1400	*2,220	62.9	15.99	4.874

Minimum discharge, 0.03 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Sept. 21-26, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	17	198	82	136	198	29	1260	7.6	6.4	.09	.66	.12		
2	11	170	55	108	153	43	1100	6.5	4.3	.10	.55	.12		
3	7.1	158	37	215	124	52	904	7.7	3.1	.08	.45	.11		
4	5.1	155	26	261	96	60	576	52	2.3	.08	.40	.10		
5	3.4	141	19	200	86	65	305	74	1.7	.08	.45	.22		
6	2.5	108	14	168	98	58	189	46	1.3	.10	.50	166		
7	1.9	68	12	143	80	51	111	23	1.1	.08	.45	28		
8	1.6	43	9.1	116	108	44	70	11	.84	.09	.40	3.4		
9	1.2	34	7.2	99	608	37	42	5.7	.68	.08	.35	1.5		
10	1.0	29	5.7	88	612	32	27	3.4	.57	.10	.30	.98		
11	.84	21	5.0	106	720	26	19	2.3	.37	.13	.25	.57		
12	.71	15	19	112	770	23	28	1.7	.30	.11	.20	.32		
13	.57	11	213	116	724	20	116	1.4	.13	.08	.15	.17		
14	.47	8.4	279	124	573	16	191	2.6	.09	.06	.12	.08		
15	.40	6.7	248	123	405	12	324	63	.08	.05	.10	.06		
16	.39	5.4	277	111	301	10	432	436	.07	.05	.09	.05		
17	.33	4.3	301	154	227	22	414	1200	.08	.05	.09	.05		
18	.32	3.5	280	173	175	64	384	1740	.06	.05	.08	.05		
19	.32	2.8	239	122	154	135	247	2150	.06	.05	.08	.04		
20	.28	2.5	188	256	143	198	134	1980	.08	.05	.07	.04		
21	.26	2.2	136	585	129	225	59	1610	.13	.06	.07	.03		
22	2.1	56	97	980	108	222	33	1310	.20	.08	.07	.03		
23	2.6	410	106	1310	83	226	20	1030	.16	.06	.06	.03		
24	1.5	296	214	1420	63	222	14	758	.13	.05	.06	.03		
25	1.0	263	173	1450	49	175	9.6	436	.11	.06	.05	.03		
26	.96	250	171	1390	37	197	8.5	287	.11	.06	.05	.03		
27	.83	234	200	1220	28	819	8.4	193	.08	.06	.06	.04		
28	.63	205	223	999	22	1080	7.2	97	.08	1.4	.08	.03		
29	.57	168	236	719	18	1160	7.7	44	.09	.98	.08	.05		
30	7.3	124	218	393	---	1330	9.0	19	.10	.86	.08	78		
31	299	---	176	280	---	1340	---	10	---	.76	.10	---		
TOTAL	373.18	3192.8	4266.0	13677	6892	7993	7049.4	13607.9	24.80	5.99	6.50	302.06		
MEAN	12.0	106	138	441	238	258	235	439	.83	.19	.21	10.1		
MAX	299	410	301	1450	770	1340	1260	2150	6.4	1.4	.66	166		
MIN	.26	2.2	5.0	88	18	10	7.2	1.4	.06	.05	.05	.03		
CFSM	.14	1.27	1.66	5.29	2.86	3.10	2.82	5.27	.01	.002	.003	.12		
IN.	.17	1.43	1.91	6.11	3.08	3.57	3.15	6.08	.01	.00	.00	.13		
AC-FT	740	6330	8460	27130	13670	15850	13980	26990	49	12	13	599		
CAL YR 1979	TOTAL	87921.03	MEAN	241	MAX	3680	MIN	.13	CFSM	2.89	IN	39.26	AC-FT	174400
WTR YR 1980	TOTAL	57390.63	MEAN	157	MAX	2150	MIN	.03	CFSM	1.89	IN	25.63	AC-FT	113800

NOTE.--No gage-height record Aug. 2 to Sept. 3.

## NECHES RIVER BASIN

313

08031200 KICKAPOO CREEK NEAR BROWNSBORO, TX

LOCATION.--Lat 32°18'34", long 95°36'19", Henderson County, Hydrologic Unit 12020001, on left bank 94 ft (29 m) downstream from bridge on Farm Road 314, 1.0 mi (1.6 km) northeast of Brownsboro, and 11.5 mi (18.5 km) upstream from mouth.

DRAINAGE AREA.--232 mi<sup>2</sup> (601 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 358.62 ft (109.307 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those below 5.0 ft<sup>3</sup>/s (0.14 m<sup>3</sup>/s), which are poor. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years (water years 1963-80), 138 ft<sup>3</sup>/s (3.908 m<sup>3</sup>/s), 8.07 in/yr (205 mm/yr), 99,980 acre-ft/yr (123 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,800 ft<sup>3</sup>/s (419 m<sup>3</sup>/s), Apr. 27, 1966, gage height, 14.79 ft (4.508 m); maximum gage height, 15.34 ft (4.676 m) May 11, 1968; no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1935, 16.4 ft (5.00 m) in 1936 or 1937, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,530 ft<sup>3</sup>/s (71.6 m<sup>3</sup>/s) Jan. 24 at 1100 hours, gage height, 10.93 ft (3.331 m), no other peak above base of 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s); no flow July 6 to Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	16	14	110	154	61	377	168	18	.02	.00	.25
2	3.9	13	13	93	132	60	429	145	16	.01	.00	.20
3	2.2	14	13	88	119	60	337	136	14	.01	.00	.15
4	1.4	13	13	82	107	60	261	126	12	.01	.00	.12
5	.80	9.6	13	78	97	59	185	101	11	.01	.00	.08
6	.47	7.1	13	75	90	57	131	80	9.2	.00	.00	.06
7	.33	6.0	14	71	84	56	106	64	7.2	.00	.00	.04
8	.26	4.9	14	65	113	56	89	51	6.5	.00	.00	.03
9	.24	4.4	14	61	278	56	76	42	5.4	.00	.00	.02
10	.23	3.8	14	57	410	56	67	38	5.2	.00	.00	.01
11	.22	3.4	15	54	640	56	63	35	4.4	.00	.00	.00
12	.16	3.7	22	50	774	59	70	40	3.2	.00	.00	.00
13	.16	5.4	46	48	588	59	188	67	2.2	.00	.00	.00
14	.18	7.3	71	47	408	59	510	78	1.8	.00	.00	.00
15	.21	7.9	83	45	341	57	495	105	1.1	.00	.00	.00
16	.33	8.2	84	45	272	57	845	514	.50	.00	.00	.00
17	.44	8.2	73	44	212	58	702	569	.35	.00	.00	.00
18	.62	9.1	55	44	164	61	477	420	.26	.00	.00	.00
19	.84	12	42	46	135	66	339	377	.18	.00	.00	.00
20	1.1	15	35	53	116	90	244	339	.14	.00	.00	.00
21	1.3	19	31	74	105	209	165	230	.10	.00	.00	.00
22	1.7	19	41	284	97	271	108	138	.08	.00	.00	.00
23	2.2	21	143	1010	91	230	82	79	.06	.00	.00	.00
24	2.5	22	289	2330	85	158	73	51	.05	.00	.00	.00
25	2.4	24	359	1490	79	107	73	39	.04	.00	.00	.00
26	2.5	25	393	816	74	84	73	34	.04	.00	.00	.00
27	2.8	22	405	537	69	80	79	30	.03	.00	.01	.00
28	3.2	17	355	392	66	96	90	27	.03	.00	.10	.00
29	3.7	14	286	311	63	138	119	25	.02	.00	.20	.25
30	7.4	14	209	249	---	196	161	22	.02	.00	.30	.81
31	11	---	145	196	---	240	---	20	---	.00	.30	---
TOTAL	60.19	369.0	3317	8945	5963	3012	7014	4190	119.10	.06	.91	2.02
MEAN	1.94	12.3	107	289	206	97.2	234	135	3.97	.002	.029	.067
MAX	11	25	405	2330	774	271	845	569	18	.02	.30	.81
MIN	.16	3.4	13	44	63	56	63	20	.02	.00	.00	.00
CFSM	.008	.05	.46	1.25	.89	.42	1.01	.58	.02	.000	.000	.000
IN.	.01	.06	.53	1.43	.96	.48	1.12	.67	.02	.00	.00	.00
AC-FT	119	732	6580	17740	11830	5970	13910	8310	236	.1	1.8	4.0
CAL YR 1979	TOTAL	41424.47	MEAN	113	MAX	2970	MIN	.00	CFSM	.49	IN	6.64
WTR YR 1980	TOTAL	32992.28	MEAN	90.1	MAX	2330	MIN	.00	CFSM	.39	IN	5.29
										AC-FT	82170	
										AC-FT	65440	

## NECHES RIVER BASIN

08031290 LAKE ATHENS NEAR ATHENS, TX

LOCATION.--Lat 32°12'15", long 95°43'30", Henderson County, Hydrologic Unit 12020001, at upstream side of dam on Flat Creek, 5 mi (8 km) downstream from Underwood Lake, 8 mi (13 km) east of Athens, and 18 mi (29 km) upstream from Neches River.

DRAINAGE AREA.--21.6 mi<sup>2</sup> (55.9 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1964 to current year. Prior to October 1972, published as Flat Creek Reservoir.

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

REMARKS.--The lake is formed by a rolled earthfill dam 3,000 ft (910 m) long. Deliberate impoundment began Nov. 1, 1962, and the dam was completed in May 1963. The emergency spillway is an uncontrolled 300-foot-wide (91 m) channel cut through natural ground at the left end of the dam. The service spillway is an uncontrolled 6-by 6-foot (2 by 2 m) square drop inlet that is connected to a concrete conduit of the same size that extends through the dam. A 4.0- by 5.5-foot (1 by 1.7 m) inlet box with slide valve that connects to an 18-inch-diameter (457 mm) concrete conduit extends through the dam and serves as the low-flow service outlet. Water is used for municipal supply by the city of Athens. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	453 +	-
Crest of spillway.....	446.0	42,600
Crest of drop inlet (top of conservation pool).....	440.0	32,790
Normal operating level.....	440.0	32,790
Lowest gated outlet (invert).....	396.5	100

COOPERATION.--The capacity table, furnished by the city of Athens, is based on Geological Survey topographic maps dated 1949-50.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 36,500 acre-ft (45.0 hm<sup>3</sup>) May 10, 1968, elevation, 442.37 ft (134.834 m); minimum since operating level was reached (May 7, 1968), 29,820 acre-ft (36.8 hm<sup>3</sup>) Nov. 13, 1978, and Sept. 28, 1980, elevation, 438.00 ft (133.502 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 33,640 acre-ft (41.5 hm<sup>3</sup>) May 16 at 1500 to 2400 hours, elevation, 440.55 ft (134.280 m); minimum, 29,820 acre-ft (36.8 hm<sup>3</sup>) Sept. 28, elevation, 438.00 ft (133.502 m).

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

438.0	29,820	440.0	32,790
439.0	31,290	441.0	34,340

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32790	32570	32480	33180	33240	33050	33150	33180	32990	32320	31630	30510
2	32760	32570	32460	33180	33220	33070	33130	33240	32980	32290	31620	30510
3	32730	32550	32450	33180	33210	33050	33100	33240	32950	32260	31530	30480
4	32700	32540	32430	33160	33210	33090	33070	33240	32900	32230	31530	30450
5	32670	32490	32420	33160	33190	33050	33050	33240	32870	32220	31500	30420
6	32640	32480	32400	33160	33210	33050	33040	33240	32840	32200	31440	30350
7	32630	32480	32390	33150	33190	33050	33020	33240	32840	32190	31380	30360
8	32630	32450	32370	33150	33390	33040	33010	33100	32760	32170	31360	30330
9	32580	32450	32350	33130	33470	33040	32990	33070	32760	32160	31320	30320
10	32570	32430	32340	33130	33450	33050	32990	33050	32730	32140	31260	30320
11	32550	32400	32570	33120	33420	33020	33040	33050	32720	32070	31240	30330
12	32540	32420	32720	33100	33390	33120	33130	33220	32720	32010	31220	30300
13	32510	32390	32720	33090	33390	33090	33380	33300	32670	31960	31190	30260
14	32490	32390	32700	33090	33330	33070	33380	33300	32600	31920	31140	30220
15	32490	32370	32690	33100	33280	33070	33380	33610	32580	31870	31110	30190
16	32490	32370	32820	33100	33250	33090	33380	33640	32570	31840	31100	30170
17	32510	32370	32810	33100	33100	33050	33360	33550	32540	31830	31080	30130
18	32520	32390	32790	33090	33250	33050	33350	33480	32520	31830	31070	30100
19	32520	32420	32780	33090	33220	33040	33330	33440	32460	31830	31050	30050
20	32510	32420	32790	33130	33220	33010	33320	33380	32580	31830	31010	30040
21	32490	32540	32870	33220	33220	32990	33300	33330	32580	31860	30920	30040
22	32520	32540	33100	33480	33210	32990	33180	33300	32580	31830	30880	30030
23	32520	32540	33130	33450	33190	33020	33150	33250	32570	31830	30820	30000
24	32510	32510	33160	33440	33160	32980	33130	33210	32540	31830	30770	29940
25	32480	32490	33160	33390	33150	32960	33300	33190	32540	31800	30740	29910
26	32480	32510	33160	33360	33130	32950	33300	33180	32480	31780	30740	29880
27	32450	32520	33180	33330	33130	33090	33280	33180	32450	31780	30730	29850
28	32450	32520	33190	33320	33120	33090	33250	33150	32420	31740	30670	29820
29	32430	32510	33220	33300	33090	33160	33240	33100	32390	31710	30670	29970
30	32600	32490	33210	33300	---	33150	33210	33070	32350	31660	30600	29950
31	32600	---	33190	33250	---	33150	---	33020	---	31630	30600	---
MAX	32790	32570	33220	33480	33470	33160	33380	33640	32990	32320	31630	30510
MIN	32430	32370	32340	33090	33090	32950	32990	33020	32350	31630	30600	29820
(†)	439.87	439.80	440.26	440.30	440.19	440.23	440.27	440.15	439.71	439.23	438.53	438.09
(‡)	-210	-110	+700	+60	-160	+60	+60	-190	-670	-720	-1030	-650

CAL YR 1979 MAX 34650 MIN 31110 † +2110

WTR YR 1980 MAX 33640 MIN 29820 † -2860

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## NECHES RIVER BASIN

315

08031290 LAKE ATHENS NEAR ATHENS, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE. WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
JAN 10...	1440	89	11.5	22	6	6.2	1.5	7.2	.7

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JAN 10...	3.0	19	0	11	11	.1	5.7	55

## 08031400 LAKE PALESTINE NEAR FRANKSTON, TX

LOCATION.--Lat 32°03'12", long 95°26'12", Anderson-Cherokee County line, Hydrologic Unit 12020001, in outlet tower near right bank, 140 ft (43 m) upstream from Blackburn Crossing Dam on Neches River, 5 mi (8 km) east of Frankston, 11 mi (18 km) upstream from gage (station 08032000), and at mile 354.0 (569.6 km).

DRAINAGE AREA.--839 mi<sup>2</sup> (2,173 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1962, nonrecording gage read once daily.

REMARKS.--The lake is formed by a rolled earthfill dam with a 500-foot-wide (150 m) uncontrolled emergency spillway near the left end of dam. Deliberate impoundment began May 1, 1962. The enlargement of lake began Sept. 26, 1969, and was completed on Mar. 3, 1971. The outlet works consist of two 5- by 7-foot (1.5 by 2.1 m) gates located in concrete tower near center of dam and connected to an 8.5-foot-diameter (2.6 m) concrete conduit through the dam. The low-flow outlet consists of two 3.0-foot (0.9 m) iron pipes connected to the tower structure for low-flow releases. Water is used for municipal and industrial purposes in the Palestine area. The diversion point is downstream from gage (station 08032000). There are no large diversions above station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	364.0	-
Design flood.....	355.3	726,000
Crest of spillway (top of conservation pool).....	345.0	412,000
Lowest gated outlet (invert).....	298.0	550

COOPERATION.--The capacity table, furnished by the Upper Neches River Municipal Water Authority, is based on Geological Survey topographic maps dated 1946 and 1948-49.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 501,300 acre-ft (618 hm<sup>3</sup>) June 7, 1973, elevation, 348.29 ft (106.159 m); minimum since first appreciable storage, 11,450 acre-ft (14.1 hm<sup>3</sup>) Nov. 28, 1970, elevation, 310.00 ft (94.488 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 444,100 acre-ft (548 hm<sup>3</sup>) Jan. 26, elevation, 346.23 ft (105.531 m); minimum, 360,300 acre-ft (444 hm<sup>3</sup>) Sept. 28, 29, elevation, 342.90 ft (104.516 m).

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

342.0	339,500	345.0	411,800
343.0	362,600	346.0	437,900
344.0	386,700	347.0	464,900

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	418300	410300	408300	421500	426700	421700	422800	420400	414900	401000	383100	366900
2	417000	411000	407800	421700	427700	416200	422800	423300	414900	400300	381900	366700
3	417000	410300	407800	422200	426900	413900	424300	423000	414700	398500	380700	366200
4	414700	409000	407300	421700	425600	416800	423000	422500	414100	398200	380700	366000
5	413100	410000	407500	420700	425100	415700	421500	421500	412800	398000	380400	365500
6	413100	409800	407800	419900	424100	414700	421700	420700	412300	397500	380000	364800
7	411500	408500	408000	419600	423000	415500	420400	412600	396700	380000	364300	
8	410800	406800	407800	419100	429500	415700	420400	419600	413100	396000	379500	365700
9	412600	410300	407800	418300	431900	415700	419100	418100	412300	395500	378700	365700
10	410300	409000	407000	418100	432200	415700	416500	416800	411300	394700	378000	365700
11	409000	408300	410500	418800	433700	415700	421500	416200	410500	394200	377800	365000
12	408800	408000	413600	417000	433700	416200	423500	419900	409800	393500	377100	364300
13	409000	407500	413900	417000	433200	416200	426900	420400	409000	392200	376600	364300
14	408300	407500	413900	416500	432200	416000	429300	421500	408000	391200	375600	364000
15	407500	407000	414100	416000	428800	414900	431400	424900	407300	390500	375100	363600
16	407800	406800	416200	417000	431600	414900	431400	425900	407000	390200	374400	362600
17	407800	406800	413900	417000	428200	415700	433700	427500	407000	389200	373900	362600
18	406300	406500	413100	416000	425900	415200	431900	430100	406500	388700	373900	362600
19	405300	406800	413400	416500	426200	415200	430600	430600	406300	388200	373200	362600
20	404800	406800	413900	418300	425100	415700	429000	429800	406500	387500	373000	362100
21	404500	411800	414700	421500	424300	415200	427500	429300	406300	387700	373000	361500
22	407500	410800	418800	430600	423500	413900	425400	427200	405500	387000	372700	361500
23	406000	410000	420900	435800	423000	416500	423800	425900	405000	386700	372000	361500
24	405800	410500	422000	439800	423000	417000	422500	423800	403500	386000	371500	361200
25	405300	410500	422200	442800	422000	416200	425900	423500	404300	384500	370800	362100
26	403800	409000	422800	443800	419400	416200	423800	422200	404000	383800	370100	361200
27	403800	411500	423000	440100	419100	417500	422500	420900	403300	385000	369600	360800
28	404800	409800	423300	438400	418800	420900	421500	419400	401300	386000	369100	360300
29	403300	409000	424300	435300	421700	422200	420700	417800	401800	385500	368100	362100
30	409300	408300	423800	434800	---	422000	419900	417800	401300	385000	366700	362100
31	410500	---	422800	432700	---	422200	---	415500	---	384300	366200	---
MAX	418300	411800	424300	443800	433700	422200	433700	430600	414900	401000	383100	366900
MIN	403300	406500	407000	416000	418800	413900	416500	415500	401300	383800	366200	360300
(†)	344.95	344.86	345.42	345.80	345.38	345.40	345.31	345.14	344.58	343.90	343.15	342.98
(‡)	-8900	-2200	+14500	+9900	-11000	+500	-2300	-4400	-14200	-17000	-18100	-4100
CAL YR 1979	MAX	476100	MIN	370800	†	+51500						
WTR YR 1980	MAX	443800	MIN	360300	†	-57300						

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## NECHES RIVER BASIN

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08031400 LAKE PALESTINE NEAR FRANKSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1976 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
JAN 09...	1800	164	10.0	37	16	9.6	3.2	15	1.1
JUN 18...	1720	190	26.5	47	16	12	4.2	19	1.2

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JAN 09...	3.6	26	0	23	21	.2	8.8	97
JUN 18...	3.9	38	0	28	24	.1	4.1	114



## NECHES RIVER BASIN

08032000 NECHES RIVER NEAR NECHES, TX

LOCATION.--Lat 31°53'32", long 95°25'50", Anderson-Cherokee County line, Hydrologic Unit 12020001, on left bank downstream from bridge on U.S. Highway 79, 1.0 mi (1.6 km) downstream from Missouri Pacific Railway Co. bridge, 1.4 mi (2.3 km) downstream from Walnut Creek, 4.4 mi (7.1 km) northeast of Neches, and at mile 333.2 (536.1 km),

DRAINAGE AREA.--1,145 mi<sup>2</sup> (2,966 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 264.06 ft (80.486 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1945, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Some regulation by Lake Palestine (station 08031400) 11 mi (18 km) upstream and by Lake Athens (station 08031290) 50 mi (80 km) upstream, capacity, 100,200 acre-ft (124 hm<sup>3</sup>). No large diversion above station.

AVERAGE DISCHARGE.--22 years (water years 1940-61) unregulated, 804 ft<sup>3</sup>/s (22.77 m<sup>3</sup>/s), 582,500 acre-ft/yr (718 hm<sup>3</sup>/yr); 19 years (water years 1962-80) regulated, 667 ft<sup>3</sup>/s (18.89 m<sup>3</sup>/s), 483,200 acre-ft/yr (596 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,500 ft<sup>3</sup>/s (1,290 m<sup>3</sup>/s), Apr. 2, 1945, gage height, 22.07 ft (6.727 m); no flow Oct. 3-5, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908, stage 24.3 ft (7.41 m), was the highest since flood in May 1884, which was probably higher.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,890 ft<sup>3</sup>/s (110 m<sup>3</sup>/s) Jan. 28 at 1600 hours, gage height, 14.62 ft (4.456 m); minimum daily, 31 ft<sup>3</sup>/s (0.88 m<sup>3</sup>/s) Sept. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	694	380	295	1140	2720	721	822	777	465	116	88	33
2	598	395	240	1100	2420	841	824	731	398	116	67	33
3	557	373	229	1040	2030	865	831	794	360	113	45	35
4	462	300	224	1020	1660	646	850	886	341	107	40	34
5	430	242	219	1010	1430	540	885	919	319	106	39	33
6	334	225	223	969	1290	584	864	857	284	104	39	32
7	281	279	276	880	1200	522	797	783	252	103	38	31
8	251	221	234	842	1160	484	739	716	233	101	38	32
9	212	184	214	811	1450	496	738	676	266	91	37	40
10	257	246	209	754	2010	487	705	616	258	71	36	49
11	261	287	209	704	2420	475	621	506	222	74	36	38
12	178	226	289	709	2390	478	824	479	194	92	35	34
13	158	206	585	689	2230	530	1360	694	171	94	35	33
14	162	202	729	609	2130	604	2120	833	152	92	35	32
15	154	177	789	575	2050	538	2350	914	141	91	35	32
16	144	168	700	558	1930	479	2180	1170	134	91	36	32
17	145	166	613	573	1910	468	1910	1360	129	91	36	32
18	148	167	588	580	1870	571	1760	1560	126	89	36	32
19	147	173	466	555	1670	513	1700	1580	124	88	34	36
20	144	198	412	542	1460	450	1650	1550	131	88	34	37
21	143	334	407	607	1310	489	1560	1500	208	89	34	34
22	147	629	558	849	1230	488	1450	1430	223	91	33	34
23	224	612	949	1290	1150	422	1310	1360	232	90	33	33
24	193	456	1150	1900	1080	446	1200	1270	205	90	33	33
25	156	361	1260	2570	1030	523	1090	1160	164	89	32	34
26	147	325	1290	3020	994	505	1040	1040	144	88	32	34
27	150	303	1260	3500	927	483	1050	934	136	87	32	33
28	149	313	1210	3830	820	582	1030	846	130	106	34	32
29	145	397	1170	3780	738	669	968	715	125	143	32	32
30	148	384	1150	3410	---	730	872	606	120	109	33	46
31	294	---	1140	2990	---	795	---	524	---	93	33	---
TOTAL	7613	8929	19287	43406	46709	17424	36100	29786	6387	2993	1180	1035
MEAN	246	298	622	1400	1611	562	1203	961	213	96.5	38.1	34.5
MAX	694	629	1290	3830	2720	865	2350	1580	465	143	88	49
MIN	143	166	209	542	738	422	621	479	120	71	32	31
AC-FT	15100	17710	38260	86100	92650	34560	71600	59080	12670	5940	2340	2050
CAL YR 1979	TOTAL	329790	MEAN 904	MAX 7330	MIN 126	AC-FT 654100						
WTR YR 1980	TOTAL	220849	MEAN 603	MAX 3830	MIN 31	AC-FT 438100						

08032000 NECHES RIVER NEAR NECHES, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1969 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1973-80): Maximum daily, 1,190 micromhos Aug. 29, 1976; minimum daily, 77 micromhos July 28, 1979

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 322 micromhos Oct. 31; minimum daily, 116 micromhos Apr. 14.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT					
17...	1000	145	193	21.0	30
NOV					
01...	1045	368	155	16.0	24
28...	1425	321	175	12.5	26
DEC					
12...	1200	250	203	12.5	38
JAN					
09...	1045	816	177	9.5	27
23...	1445	1320	149	11.0	19
FEB					
13...	1030	2260	152	6.0	19
MAR					
04...	1430	624	183	10.5	29
27...	0845	479	175	14.0	25
APR					
17...	1300	1920	164	17.0	20
MAY					
07...	1120	78	180	21.0	23
28...	1500	814	188	21.0	25
JUN					
18...	0945	125	205	27.5	30
JUL					
11...	1520	78	225	28.0	32
AUG					
11...	1050	45	225	28.5	34
21...	1220	34	219	26.5	35
SEP					
10...	0940	52	206	26.5	28

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	175	170	172	175	146	158	---	---	---	167	161	163
2	177	172	174	165	146	157	---	---	---	169	163	166
3	175	172	172	183	164	172	---	---	---	168	166	168
4	178	170	175	181	170	175	---	---	---	166	162	164
5	179	169	174	172	170	171	---	---	---	165	162	163
6	186	175	180	174	172	172	---	---	---	180	164	172
7	186	181	183	173	165	168	---	---	---	189	168	182
8	189	181	185	179	169	172	---	---	---	172	166	167
9	192	188	190	187	179	181	---	---	---	178	172	174
10	189	167	179	187	180	184	---	---	---	183	175	177
11	187	167	178	180	165	169	---	---	---	183	176	180
12	200	187	195	172	170	170	300	192	229	175	164	167
13	197	191	195	174	172	172	233	160	184	260	166	187
14	191	183	188	174	168	171	161	153	156	181	177	179
15	191	182	187	173	170	172	158	151	154	178	173	175
16	194	191	192	176	172	174	177	158	170	199	179	184
17	192	188	190	179	173	175	176	163	169	189	173	178
18	189	185	187	179	173	175	175	163	170	176	172	173
19	188	184	186	179	175	178	182	174	177	178	173	175
20	190	185	187	189	178	184	179	173	176	194	175	177
21	187	184	185	313	181	218	178	173	175	236	175	199
22	187	179	184	195	158	166	280	170	213	233	160	191
23	179	166	168	179	158	168	167	137	144	159	141	145
24	219	166	196	183	179	180	153	144	149	151	146	149
25	203	185	189	183	179	180	158	140	149	153	149	151
26	187	181	184	179	177	177	160	153	156	157	153	155
27	183	179	180	180	177	179	165	156	160	157	156	156
28	183	179	180	178	165	171	165	162	164	156	156	156
29	183	179	180	166	162	164	163	160	162	156	153	153
30	193	177	181	165	165	165	163	162	163	153	153	153
31	322	175	213	---	---	---	163	160	162	155	153	154
MONTH	322	166	184	313	146	174	300	137	169	260	141	169

## NECHES RIVER BASIN

08032000 NECHES RIVER NEAR NECHES, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	156	155	155	187	166	172	163	161	162	175	175	162
2	156	156	156	169	162	163	163	160	163	183	175	164
3	159	155	157	175	162	169	163	158	160	183	166	160
4	163	156	159	189	174	182	162	159	162	167	166	154
5	164	160	161	183	165	177	163	158	160	178	167	159
6	167	160	163	177	163	170	162	161	161	179	178	165
7	165	163	163	183	176	179	169	160	165	192	168	178
8	167	163	165	187	179	185	169	163	168	190	186	187
9	180	134	152	186	180	184	163	161	162	190	183	185
10	134	133	133	191	185	188	165	163	164	193	185	188
11	139	133	136	187	179	185	200	165	170	195	191	191
12	146	139	143	211	178	189	196	195	195	216	185	190
13	158	146	152	198	165	176	195	194	195	282	158	189
14	161	156	158	175	164	170	194	116	165	175	148	171
15	163	158	161	182	172	177	151	138	120	175	159	175
16	158	157	158	186	178	180	164	151	131	166	144	161
17	159	157	158	191	175	185	166	156	143	150	137	151
18	161	158	159	175	164	171	166	166	147	157	145	158
19	167	160	163	179	174	176	172	166	149	162	153	165
20	170	161	165	191	179	186	167	164	153	173	162	176
21	169	164	166	186	167	175	168	167	155	174	166	180
22	171	164	167	167	163	165	170	168	156	175	168	181
23	170	165	167	171	166	168	171	170	157	178	170	183
24	170	165	167	228	169	190	171	171	158	181	174	187
25	167	162	165	169	164	165	175	171	159	184	178	190
26	166	161	163	172	166	170	175	175	162	191	178	195
27	173	163	167	172	165	168	175	168	160	190	182	197
28	174	167	170	250	169	195	172	168	157	189	184	197
29	172	167	170	168	158	163	175	172	160	189	183	196
30	---	---	---	164	163	163	175	175	162	189	183	196
31	---	---	---	164	162	163	---	---	---	186	181	194
MONTH	180	133	159	250	158	176	200	116	159	282	137	178

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	189	184	197	---	---	---	222	205	215	221	219	220
2	191	185	198	---	---	---	230	222	228	221	218	220
3	189	184	197	---	---	---	231	228	230	218	213	216
4	189	183	197	---	---	---	231	224	228	215	212	213
5	193	185	199	---	---	---	224	224	224	214	212	213
6	197	190	203	---	---	---	227	223	225	214	211	212
7	198	193	205	---	---	---	224	220	222	215	212	214
8	197	190	204	---	---	---	225	221	223	214	211	212
9	210	185	199	---	---	---	226	223	224	217	207	212
10	211	189	209	---	---	---	224	221	223	208	201	205
11	199	192	206	---	---	225	223	221	222	209	196	204
12	204	196	210	221	211	215	223	221	221	211	196	203
13	207	199	214	219	211	214	223	221	222	211	204	207
14	208	200	215	215	211	213	225	221	222	208	203	205
15	208	200	215	216	211	213	243	219	222	213	207	210
16	---	---	216	234	212	219	245	219	223	214	211	212
17	---	---	---	215	209	212	221	219	220	215	212	213
18	---	---	215	211	207	209	222	218	220	217	208	213
19	---	---	213	211	206	208	226	221	223	245	207	214
20	---	---	---	209	202	206	224	221	222	208	206	207
21	---	---	---	207	199	203	221	218	220	212	207	210
22	---	---	---	204	199	202	221	218	220	208	202	204
23	---	---	---	206	199	202	222	219	220	213	205	209
24	---	---	---	214	203	208	222	220	221	216	210	213
25	---	---	---	209	206	207	222	220	221	216	213	215
26	---	---	---	232	192	208	222	221	221	213	213	213
27	---	---	---	207	183	193	222	218	221	213	210	212
28	---	---	---	212	191	199	236	215	219	213	210	211
29	---	---	---	213	193	202	229	215	221	211	203	208
30	---	---	---	204	198	201	222	217	219	230	195	206
31	---	---	---	205	201	203	221	219	220	---	---	---
MONTH	211	183	206	234	183	208	245	205	222	245	195	211

## NECHES RIVER BASIN

321

08033000 NECHES RIVER NEAR DIBOLL, TX

LOCATION.--Lat 31°07'58", long 94°48'35", Angelina-Polk County line, Hydrologic Unit 12020002, near center of main span on downstream side of downstream bridge on U.S. Highway 59, 700 ft (210 m) downstream from Texas and New Orleans Railroad Co. bridge, 2.9 mi (4.7 km) downstream from Alabama Creek, 3.8 mi (6.1 km) south of Diboll, and at mile 203.5 (327.4 km).

DRAINAGE AREA.--2,724 mi<sup>2</sup> (7,055 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to September 1925, March 1939 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1242: 1950. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 134.46 ft (40.983 m) National Geodetic Vertical Datum of 1929. Prior to July 10, 1925, nonrecording gage at site 630 ft (192 m) upstream; July 10 to Aug. 31, 1925, and Mar. 30, 1939, to Sept. 24, 1943, nonrecording gage at site 500 ft (150 m) upstream; Sept. 25, 1943, to Aug. 16, 1973, nonrecording gage at site 70 ft (21 m) upstream; all at present datum.

REMARKS.--Water-discharge records good. At times low flow may be affected by regulation by Lake Athens (station 08031290), Lake Palestine (station 08031400), and Lake Jacksonville, combined capacity 130,700 acre-ft/yr (161 hm<sup>3</sup>). During the current year, Upper Neches River Municipal Water Authority diverted 3,080 acre-ft (3.80 hm<sup>3</sup>) from stream at Rocky Point Crossing 120 mi (193 km) upstream for municipal and industrial uses in the Palestine area.

AVERAGE DISCHARGE.--24 years (water years 1923-25, 1939-61) unregulated, 1,807 ft<sup>3</sup>/s (51.17 m<sup>3</sup>/s), 1,309,000 acre-ft/yr (1.61 km<sup>3</sup>/yr); 19 years (water years 1962-80) regulated, 1,397 ft<sup>3</sup>/s (39.56 m<sup>3</sup>/s), 1,012,000 acre-ft/yr (1.25 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,900 ft<sup>3</sup>/s (1,410 m<sup>3</sup>/s) May 4, 1944, gage height, 18.70 ft (5.700 m); no flow Aug. 15-22, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1874, 21 ft (6.4 m) in May 1884, discharge, about 110,000 ft<sup>3</sup>/s (3,120 m<sup>3</sup>/s), from rating curve extended above 40,000 ft<sup>3</sup>/s (1,130 m<sup>3</sup>/s); flood in 1900 reached a stage of 19.9 ft (6.07 m), discharge, about 80,000 ft<sup>3</sup>/s (2,270 m<sup>3</sup>/s); from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,600 ft<sup>3</sup>/s (357 m<sup>3</sup>/s) May 17 at 1200 hours, gage height, 15.12 ft (4.609 m); minimum daily, 30 ft<sup>3</sup>/s (0.85 m<sup>3</sup>/s) Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2510	1330	1720	2560	3670	2750	3970	2950	2270	306	136	30
2	2290	1270	1430	2610	3570	2710	3360	2820	2040	275	155	31
3	2130	1240	1160	2620	3450	2860	3240	2710	1810	250	170	31
4	2010	1120	974	2570	3340	3170	2960	2590	1600	230	167	35
5	1890	1010	860	2500	3260	3230	2400	2360	1380	216	153	44
6	1750	893	803	2440	3240	3150	2010	2130	1180	205	137	61
7	1580	787	763	2320	3270	3020	1770	1880	1020	194	121	59
8	1380	718	724	2160	3390	2740	1630	1700	876	185	107	58
9	1180	671	688	2040	4360	2390	1520	1540	762	179	93	56
10	994	628	655	1940	6220	2100	1450	1400	680	170	80	54
11	851	587	633	1860	6450	1820	1400	1320	615	164	66	53
12	733	555	1270	1760	6100	1630	1390	1280	566	156	55	54
13	638	534	4450	1680	5540	1460	1580	1300	524	152	49	56
14	566	516	6190	1620	4970	1340	2260	1640	493	147	46	58
15	517	495	4870	1550	4640	1250	3000	3110	470	140	43	59
16	491	483	3630	1480	4350	1210	3380	8840	448	130	43	63
17	471	482	2780	1490	4180	1180	3390	12300	423	121	43	71
18	447	476	2210	1570	4040	1160	3290	11400	392	114	44	74
19	425	460	1860	1530	3940	1140	3310	9290	361	115	44	76
20	407	448	1640	1490	3820	1280	3410	8250	342	116	44	74
21	391	442	1510	1810	3710	1790	3550	7310	328	120	44	71
22	395	887	1440	3680	3600	1950	3640	6650	308	125	44	70
23	404	1600	1440	7590	3500	1810	3680	5690	317	120	44	55
24	393	2940	2040	10500	3390	1650	3660	4850	341	118	42	50
25	387	3970	2190	9830	3260	1620	3680	4320	356	115	40	51
26	390	4140	2290	7930	3130	1550	3560	3930	363	116	38	57
27	398	3680	2260	6380	3030	1770	3420	3590	372	115	35	59
28	398	3130	2330	5320	2920	4730	3390	3310	374	127	32	60
29	398	2600	2430	4620	2790	5630	3330	3040	362	139	32	60
30	432	2100	2490	4090	---	5450	3120	2770	338	140	35	57
31	1370	---	2510	3820	---	4970	---	2500	---	137	33	---
TOTAL	28616	40192	62240	105360	115130	74510	85750	128770	21711	4937	2215	1687
MEAN	923	1340	2008	3399	3970	2404	2858	4154	724	159	71.5	56.2
MAX	2510	4140	6190	10500	6450	5630	3970	12300	2270	306	170	76
MIN	387	442	633	1480	2790	1140	1390	1280	308	114	32	30
AC-FT	56760	79720	123500	209000	228400	147800	170100	255400	43060	9790	4390	3350

CAL YR 1979 TOTAL 999134 MEAN 2737 MAX 15500 MIN 260 AC-FT 1982000  
WTR YR 1980 TOTAL 671118 MEAN 1834 MAX 12300 MIN 30 AC-FT 1331000

08033000 NECHES RIVER NEAR DIBOLL, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1969 to current year.

WATER TEMPERATURES: October 1969 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 (1969-1979): Maximum daily, 614 micromhos May 2, 1971; minimum daily, 85 micromhos Jan. 27, 1974.

WATER TEMPERATURES (1969-1979): Maximum daily, 38.0°C Aug. 31, Sept. 6, 1970, Aug. 17, 18, 22, 1977; minimum daily, 3.0°C Jan. 21, 1970, Feb. 5, 6, 1979.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY AS (MG/L)	HARD- NESS (MG/L CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT										
09...	1245	1180	177	7.8	22.5	7.4	83	1.1	36	16
NOV										
06...	1515	810	214	--	15.0	--	--	--	45	21
20...	1215	447	200	7.2	14.5	10.3	100	.5	43	14
JAN										
15...	1627	1540	296	--	13.0	--	--	--	43	0
17...	1745	1520	280	6.8	15.0	10.2	100	1.7	61	43
FEB										
28...	1400	2930	182	7.1	14.5	9.8	95	2.0	38	14
APR										
23...	1110	3700	145	6.8	19.0	7.9	84	1.1	30	13
JUN										
18...	0755	396	210	7.4	27.0	6.2	77	3.4	44	20
AUG										
01...	1550	139	270	6.4	30.0	7.2	95	.6	44	12

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT										
09...	8.5	3.7	16	1.2	3.5	25	0	15	18	.1
NOV										
06...	11	4.3	22	1.4	3.5	30	0	27	29	.1
20...	9.6	4.6	23	1.5	3.7	35	0	23	30	.1
JAN										
15...	9.9	4.4	45	3.0	3.1	66	0	52	30	.1
17...	15	5.8	30	1.7	3.4	22	0	58	35	.1
FEB										
28...	8.9	3.9	20	1.4	3.2	30	0	29	24	.1
APR										
23...	6.7	3.1	14	1.1	3.0	20	0	20	19	.1
JUN										
18...	9.9	4.7	20	1.3	3.2	29	0	29	30	.2
AUG										
01...	9.7	4.9	36	2.4	4.1	39	0	37	38	.2

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, 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									
09...	14	91	.09	.02	.11	.03	.73	.76	.060
NOV									
06...	19	131	--	--	--	--	--	--	--
20...	17	128	.13	.02	.15	.03	.44	.47	.050
JAN									
15...	15	192	--	--	--	--	--	--	--
17...	15	173	.05	.01	.06	.02	.45	.47	.060
FEB									
28...	5.7	110	.01	.01	.02	.00	.43	.43	.010
APR									
23...	9.2	85	.05	.00	.05	.04	.95	.99	.090
JUN									
18...	16	127	.04	.01	.05	.06	.94	1.0	.080
AUG									
01...	9.8	159	.15	.00	.15	.05	1.3	1.3	.100

## NECHES RIVER BASIN

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08033000 NECHES RIVER NEAR DIBOLL, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER, 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	28616	182	102	7860	24	1880	21	1630	39
NOV.	1979	40192	221	123	13300	29	3160	25	2730	44
DEC.	1979	62240	237	132	22200	31	5240	27	4510	46
JAN.	1980	105360	182	102	28900	24	6860	21	5930	37
FEB.	1980	115130	187	104	32400	25	7730	22	6700	39
MAR.	1980	74510	*	*	*	*	*	*	*	*
APR.	1980	85750	*	*	*	*	*	*	*	*
MAY	1980	128770	*	*	*	*	*	*	*	*
JUNE	1980	21711	*	*	*	*	*	*	*	*
AUG.	1980	2215	261	145	870	34	204	29	176	49
SEPT	1980	1687	268	150	681	35	159	30	137	48
TOTAL		671118	**	**	**	**	**	**	**	**
WTD. AVG.		1036	**	**	**	**	**	**	**	**

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	207	245	216	237	167						289	232
2	177	242	219	235	174						280	238
3	182	238	222	240	181						273	246
4	181	237	221	235	189						261	255
5	182	235	225	231	196						254	226
6	181	232	229	295	200						242	215
7	182	231	235	280	199						237	220
8	181	229	238	260	183						247	248
9	181	227	241	235	180						232	265
10	182	225	242	238	165						245	279
11	183	223	244	245	162						256	319
12	180	221	248	270	168						261	305
13	178	220	244	286	176						262	270
20	182	224	241	310	200						283	237
21	180	232	242	304	198						281	239
22	179	226	244	123	197						272	240
23	178	221	242	120	199						271	242
24	179	218	241	117	196						269	245
25	181	212	238	115	197						257	242
26	179	210	235	122	195						255	258
27	175	213	241	130	193						253	274
28	171	216	242	135	194						250	300
29	179	217	241	144	196						247	320
30	168	218	241	154	---						240	348
31	182	---	235	160	---						233	---
MEAN	180	224	236	226	189						261	268



## NECHES RIVER BASIN

08033000 NECHES RIVER NEAR DIBOLL, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	15.0	9.0	17.0	7.0						31.0	29.0
2	23.0	19.0	9.0	12.0	5.0						32.0	29.0
3	23.0	15.0	8.0	17.0	---						32.0	31.0
4	23.0	12.0	---	17.0	---						31.0	31.0
5	23.0	12.0	8.0	17.0	17.0						30.0	29.0
6	23.0	12.0	8.0	17.0	17.0						31.0	28.0
7	24.0	15.0	8.0	16.0	16.0						30.0	28.0
8	24.0	15.0	8.0	16.0	16.0						32.0	28.0
9	24.0	13.0	8.0	17.0	17.0						29.0	29.0
10	24.0	13.0	8.0	17.0	17.0						30.0	31.0
11	23.0	13.0	8.0	17.0	17.0						31.0	30.0
12	23.0	13.0	7.0	17.0	17.0						30.0	31.0
13	23.0	13.0	7.0	12.0	12.0						31.0	30.0
14	22.0	12.0	7.0	12.0	12.0						29.0	30.0
15	22.0	12.0	7.0	13.0	13.0						30.0	31.0
16	22.0	12.0	---	13.0	13.0						31.0	31.0
17	22.0	12.0	---	15.0	15.0						31.0	29.0
18	21.0	13.0	---	15.0	15.0						30.0	29.0
19	27.0	14.0	6.0	15.0	15.0						31.0	28.0
20	21.0	---	6.0	15.0	15.0						30.0	28.0
21	21.0	---	6.0	14.0	14.0						31.0	28.0
22	21.0	14.0	6.0	13.0	13.0						30.0	29.0
23	20.0	14.0	7.0	12.0	12.0						29.0	28.0
24	20.0	12.0	7.0	12.0	12.0						29.0	29.0
25	19.0	11.0	7.0	12.0	12.0						30.0	28.0
26	19.0	10.0	8.0	12.0	12.0						31.0	28.0
27	19.0	10.0	8.0	10.0	10.0						29.0	28.0
28	20.0	9.0	8.0	10.0	10.0						29.0	29.0
29	20.0	9.0	8.0	9.0	9.0						30.0	28.0
30	20.0	9.0	8.0	9.0	---						31.0	26.0
31	19.0	---	5.0	9.0	---						31.0	---
MEAN	22.0	12.5	7.5	14.0	13.5						30.5	29.0

## NECHES RIVER BASIN

325

08033300 PINEY CREEK NEAR GROVETON, TX

LOCATION.--Lat 31°08'25", long 95°05'11", Trinity County, Hydrologic Unit 12020002, on left bank at downstream side of bridge on State Highway 94, 6.3 mi (10.1 km) northeast of Groveton, and 7.3 mi (11.7 km) upstream from Caney Creek.

DRAINAGE AREA.--79.0 mi<sup>2</sup> (204.6 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 251.40 ft (76.627 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years, 39.3 ft<sup>3</sup>/s (1.113 m<sup>3</sup>/s), 6.76 in/yr (172 mm/yr), 28,470 acre-ft/yr (35.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,480 ft<sup>3</sup>/s (184 m<sup>3</sup>/s) Apr. 20, 1979, gage height, 15.70 ft (4.785 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1921, 17 ft (5.2 m) in May 1942, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 550 ft<sup>3</sup>/s (15.6 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)	Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Dec. 12	2400	1,150	32.6	12.75	3.886	Mar. 28	1300	1,450	41.1	13.01	3.965
Jan. 23	0100	3,090	87.5	13.99	4.264	May 16	0900	*6,220	176	15.59	4.752
Feb. 10	1500	805	22.8	12.16	3.706						

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	67	7.4	45	81	62	84	6.8	4.5	.05	.00	.00
2	2.4	18	6.4	30	54	86	63	5.5	3.7	.05	.00	.00
3	1.9	5.8	5.6	29	43	44	159	4.4	3.0	.04	.00	.00
4	1.4	2.4	5.0	71	37	26	109	7.3	2.5	.04	.00	.00
5	1.1	1.2	4.7	48	31	20	51	5.0	2.1	.04	.00	.00
6	.91	.69	4.5	31	27	16	31	3.2	1.8	.04	.00	.00
7	.81	.51	4.1	23	23	12	23	2.4	1.7	.04	.00	.00
8	.72	.41	3.6	19	29	11	19	2.4	1.5	.04	.00	.00
9	.68	.43	3.2	15	421	9.3	15	2.2	1.3	.04	.00	.00
10	.64	.42	2.9	13	756	7.8	12	2.0	1.3	.04	.00	.00
11	.56	.35	3.3	12	620	6.7	10	1.8	1.1	.04	.00	.00
12	.53	.32	449	11	310	6.2	9.5	1.8	1.0	.04	.00	.00
13	.53	.50	1040	9.1	80	5.3	62	6.7	.97	.04	.00	.00
14	.46	.33	563	7.9	54	4.1	156	229	.80	.03	.00	.00
15	.43	.27	131	7.3	42	3.3	94	1510	.67	.03	.00	.00
16	.40	.24	61	23	36	3.7	46	4790	.60	.03	.00	.00
17	.40	.23	38	102	31	5.2	25	1660	.51	.02	.00	.00
18	.34	.23	26	68	26	12	16	915	.47	.02	.00	.00
19	.34	.21	21	37	23	6.0	11	664	.45	.02	.00	.00
20	.32	.24	18	65	21	48	8.2	151	.41	.02	.00	.00
21	.32	73	15	373	19	101	6.4	51	1.2	.02	.00	.00
22	.72	480	16	1130	16	59	5.2	34	1.1	.02	.00	.00
23	9.5	486	22	2200	14	30	4.3	26	.51	.01	.00	.00
24	1.5	241	292	987	12	169	3.7	20	.34	.01	.00	.00
25	.55	63	366	566	9.7	73	7.8	17	.18	.01	.00	.00
26	.38	33	193	120	7.8	50	155	14	.11	.01	.00	.00
27	.29	21	62	61	6.8	225	75	12	.06	.01	.00	.00
28	.25	16	39	45	6.3	1170	32	9.9	.06	.00	.00	.00
29	.22	12	42	35	6.2	874	16	8.2	.06	.00	.00	.00
30	7.8	9.0	87	39	---	633	9.5	6.9	.05	.00	.00	.00
31	174	---	70	104	---	359	---	5.6	---	.00	.00	---
TOTAL	213.60	1533.78	3601.7	6326.3	2842.8	4137.6	1318.6	10175.1	34.05	.80	.00	.00
MEAN	6.89	51.1	116	204	98.0	133	44.0	328	1.14	.026	.000	.000
MAX	174	486	1040	2200	756	1170	159	4790	4.5	.05	.00	.00
MIN	.22	.21	2.9	7.3	6.2	3.3	3.7	1.8	.05	.00	.00	.00
CFSM	.09	.65	1.47	2.58	1.24	1.68	.56	4.15	.01	.000	.000	.000
IN.	.10	.72	1.70	2.98	1.34	1.95	.62	4.79	.02	.00	.00	.00
AC-FT	424	3040	7140	12550	5640	8210	2620	20180	68	1.6	.00	.00
CAL YR 1979	TOTAL	56988.48	MEAN	156	MAX	3740	MIN	.07	CFSM	1.98	IN	26.83
WTR YR 1980	TOTAL	30184.33	MEAN	82.5	MAX	4790	MIN	.00	CFSM	1.04	IN	14.21
										AC-FT	113000	59870

## NECHES RIVER BASIN

08033500 NECHES RIVER NEAR ROCKLAND, TX

LOCATION.--Lat 31°01'29", long 94°23'55", Tyler County, Hydrologic Unit 12020003, on downstream side of bridge at U.S. Highway 69, 2,200 ft (671 m) upstream from abandoned ferry crossing, 0.8 mi (1.3 km) upstream from Texas and New Orleans Railway Co. bridge, 1.2 mi (1.9 km) north of Rockland, 3.2 mi (5.1 km) downstream from Billiams Creek, and 32.4 mi (52.1 km) upstream from Angelina River.

DRAINAGE AREA.--3,636 mi<sup>2</sup> (9,417 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1903 to current year.

REVISED RECORDS.--WSP 878: 1926-27. WSP 1342: 1922(M), 1935. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 88.41 ft (26.947 m) National Geodetic Vertical Datum of 1929. Prior to May 23, 1973, nonrecording gage located 2,200 ft (671 m) downstream at datum 3.00 ft (0.914 m) higher. May 23, 1973, to Sept. 30, 1975, recording gage at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge records good. No large diversions above station. At times flow may be affected by regulation from upstream reservoirs.

AVERAGE DISCHARGE.--58 years (water years 1904-61) unregulated, 2,362 ft<sup>3</sup>/s (66.89 m<sup>3</sup>/s), 1,711,000 acre-ft/yr (2.11 km<sup>3</sup>/yr); 19 years (water years 1962-80) regulated, 2,007 ft<sup>3</sup>/s (56.84 m<sup>3</sup>/s), 1,454,000 acre-ft/yr (1.79 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,800 ft<sup>3</sup>/s (1,410 m<sup>3</sup>/s) May 6, 1944, gage height, 35.04 ft (10.680 m), present site; minimum observed during period of daily records, 1.6 ft<sup>3</sup>/s (0.045 m<sup>3</sup>/s) Sept. 28-30, Oct. 1, 2, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Historical flood information begins with flood in May 1884 which reached a stage of 38.0 ft (11.58 m), present site, from information by local resident, discharge, about 62,000 ft<sup>3</sup>/s (1,760 m<sup>3</sup>/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,400 ft<sup>3</sup>/s (549 m<sup>3</sup>/s) May 20 at 1800 hours, gage height, 25.80 ft (7.864 m); minimum daily, 40 ft<sup>3</sup>/s (1.13 m<sup>3</sup>/s) Sept. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3190	2180	3380	3010	7630	3430	11600	3480	3340	345	140	43
2	2930	2220	2990	2950	6500	3320	11000	3410	3040	318	134	44
3	2720	1980	2420	2930	5500	3230	9950	3240	2760	291	131	43
4	2560	1920	1870	3000	4650	3200	8560	3060	2490	267	140	41
5	2370	1840	1450	2980	4160	3170	7200	2900	2190	248	151	40
6	2240	1610	1200	2920	3900	3180	5870	2750	1900	231	152	45
7	2110	1310	1050	2840	3710	3210	4550	2600	1600	219	144	58
8	1980	1080	968	2740	3810	3230	3470	2420	1300	204	132	68
9	1830	955	910	2620	6690	3230	2720	2200	1110	192	120	75
10	1590	865	863	2470	7700	3170	2260	2010	946	184	109	71
11	1380	791	821	2310	8130	2980	2040	1890	833	177	100	63
12	1200	727	1540	2140	8810	2700	1900	1770	748	170	89	59
13	1030	669	4490	1980	8950	2410	3060	1670	670	166	80	58
14	896	604	5450	1850	8890	2140	3520	1930	609	162	72	58
15	792	577	6260	1750	8610	1940	3670	3130	557	156	66	59
16	716	550	6590	1660	8170	1810	3460	7230	523	152	60	60
17	664	535	6670	1600	7560	1770	3380	8880	491	147	58	61
18	635	538	6610	1590	6920	1750	3410	11900	464	141	57	64
19	604	522	6150	1690	6170	1730	3520	16100	428	135	54	127
20	569	501	5270	1810	5570	1780	3490	19200	399	130	54	118
21	541	643	4070	2150	4980	2200	3410	19000	373	125	54	94
22	575	2780	3100	3560	4510	2980	3360	18000	364	125	53	84
23	499	3670	2490	5130	4200	3320	3400	16900	335	130	51	77
24	465	3910	3390	5320	4000	3330	3480	14900	323	135	50	75
25	453	3420	3470	5900	3820	3230	4320	12900	332	140	49	71
26	435	3100	3550	6750	3670	3140	5120	11000	349	135	49	63
27	419	3110	3410	8230	3510	3940	4480	9250	356	132	48	60
28	410	3270	3260	9470	3410	7040	4060	7510	362	130	48	62
29	404	3430	3140	9950	3320	8040	3790	5830	366	130	48	66
30	485	3490	3100	9520	---	10300	3600	4610	359	135	45	74
31	2030	---	3050	8620	---	11200	---	3760	---	140	43	---
TOTAL	38722	52797	102982	121440	167450	112100	137650	225430	29917	5492	2581	1981
MEAN	1249	1760	3322	3917	5774	3616	4588	7272	997	177	83.3	66.0
MAX	3190	3910	6670	9950	8950	11200	11600	19200	3340	345	152	127
MIN	404	501	821	1590	3320	1730	1900	1670	323	125	43	40
AC-FT	76810	104700	204300	240900	332100	222400	273000	447100	59340	10890	5120	3930
CAL YR 1979	TOTAL	1553770	MEAN	4257	MAX	24100	MIN	272	AC-FT	3082000		
WTR YR 1980	TOTAL	998542	MEAN	2728	MAX	19200	MIN	40	AC-FT	1981000		

## NECHES RIVER BASIN

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08033500 NECHES RIVER NEAR ROCKLAND, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to September 1947. Chemical and biochemical analyses:  
December 1967 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
NOV 19...	1705	522	220	7.0	15.0	50	20	10.6	103	.9	42	17
JAN 18...	1120	1590	224	6.6	14.0	50	26	10.6	101	1.5	45	23
MAR 27...	1300	3260	240	6.6	14.0	100	36	10.3	99	2.0	49	42
MAY 01...	1805	3480	192	6.3	19.0	60	24	7.9	84	1.0	40	21
JUN 27...	1515	356	240	7.3	32.0	60	19	7.7	104	.9	47	17
AUG 29...	1145	48	340	7.2	28.0	70	37	6.9	86	1.0	50	8

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 19...	10	4.2	24	1.6	4.2	31	0	23	32	.1	19	132
JAN 18...	11	4.2	24	1.6	3.2	27	0	37	30	.0	16	139
MAR 27...	13	4.1	26	1.6	2.9	9	0	63	29	.1	14	157
MAY 01...	9.4	3.9	17	1.2	3.1	22	0	31	23	.1	9.2	108
JUN 27...	11	4.8	28	1.8	3.4	37	0	28	39	.1	16	149
AUG 29...	12	4.9	43	2.6	4.1	51	0	31	54	.2	12	187

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)	PHENOLS (UG/L)
NOV 19...	0	0	.15	.02	.17	.04	.55	.59	.050	7.1	0
JAN 18...	20	1	.05	.02	.07	.08	.48	.56	.050	6.8	1
MAR 27...	5	5	.07	.01	.08	.06	1.1	1.2	.090	12	5
MAY 01...	33	13	.04	.00	.04	.12	1.3	1.4	.070	11	1
JUN 27...	17	0	.13	.01	.14	.05	.72	.77	.010	7.6	3
AUG 29...	10	0	.00	.01	.00	.36	2.2	2.6	.060	6.6	0

## NECHES RIVER BASIN

08033500 NECHES RIVER NEAR ROCKLAND, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 19...	1705	0	60	11	0	1	140
JAN 18...	1120	0	60	2	0	1	170
MAR 27...	1300	0	70	4	0	3	440
JUN 27...	1515	2	60	2	20	4	190
AUG 29...	1145	1	60	<1	0	0	150

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 19...	25	90	.0	0	0	<3
JAN 18...	18	70	.1	0	0	6
MAR 27...	51	120	.2	0	0	9
JUN 27...	16	9	2.3	0	0	5
AUG 29...	0	120	.0	0	0	6

## NECHES RIVER BASIN

329

08033600 BOWLES CREEK NEAR SELMAN CITY, TX  
(Low-flow partial-record station)

LOCATION.--Lat 32°11'41", long 94°58'36", Rusk County, Hydrologic Unit 12020004, at bridge on State Highway 64 and 1.5 mi (2.4 km) west of Selman City.

DRAINAGE AREA.--14.5 mi<sup>2</sup> (37.6 km<sup>2</sup>).

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: November 1967 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH  (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 17...	1440	1.7	1450	6.0	20.5	81	75	19	8.2	260
NOV 28...	1610	4.3	831	--	10.0	61	54	14	6.2	140
JAN 09...	1340	6.1	924	--	9.5	68	66	16	6.8	170
FEB 13...	1235	13	666	--	7.5	65	61	16	6.0	100
MAR 26...	0905	6.1	977	--	12.5	77	71	18	7.8	140
MAY 07...	1305	2.6	2370	--	22.5	130	120	34	11	410
JUN 18...	1135	1.9	5500	--	25.5	200	200	51	18	1000
AUG 06...	1215	1.3	1210	--	26.0	70	28	17	6.7	210
SEP 10...	1150	1.8	956	--	23.5	75	73	20	6.1	150

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 17...	13	4.7	7	0	14	460	.1	25	794
NOV 28...	7.8	4.5	8	0	16	240	.1	26	451
JAN 09...	9.0	3.4	2	0	22	270	.1	29	518
FEB 13...	5.4	3.5	4	0	27	190	.1	23	368
MAR 26...	6.9	8.1	7	0	27	260	.1	25	489
MAY 07...	16	7.4	12	0	22	720	.1	25	1240
JUN 18...	31	8.7	8	0	17	1700	.1	19	2820
AUG 06...	11	3.9	51	0	8.1	360	.2	17	648
SEP 10...	7.5	6.0	2	0	67	250	.1	19	519



## NECHES RIVER BASIN

08033800 STRIKER CREEK RESERVOIR NEAR NEW SALEM, TX

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO
JAN 09...	1150	363	12.0	40	33	9.1	4.3	52	3.6

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
JAN 09...	3.5	9	0	27	85	.1	15	200

## NECHES RIVER BASIN

331

08033900 EAST FORK ANGELINA RIVER NEAR CUSHING, TX

LOCATION.--Lat 31°51'36", long 94°49'23", Rusk County, Hydrologic Unit 12020004, near left bank on downstream side of bridge on Farm Road 225, 0.1 mi (0.2 km) downstream from Everett Branch, 0.9 mi (1.4 km) upstream from Reagan Branch, 3.5 mi (5.6 km) north of Cushing, and 8 mi (13 km) upstream from Angelina River.

DRAINAGE AREA.--158 mi<sup>2</sup> (409 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 275.29 ft (83.908 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--16 years, 112 ft<sup>3</sup>/s (3.172 m<sup>3</sup>/s), 9.63 in/yr (245 mm/yr), 81,140 acre-ft/yr (100 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,500 ft<sup>3</sup>/s (552 m<sup>3</sup>/s) Apr. 12, 1980, gage height, 13.34 ft (4.066 m), from rating curve extended above 4,600 ft<sup>3</sup>/s (130 m<sup>3</sup>/s) on basis of area-velocity study; minimum, 0.7 ft<sup>3</sup>/s (0.020 m<sup>3</sup>/s) Aug. 14, 1964.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)	Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Nov. 22	1800	1,850	52.4	10.22	3.115	Apr. 12	0730	*19,500	552	13.34	4.066
Jan. 23	0900	2,200	62.3	10.39	3.167	May 16	1400	4,620	131	10.99	3.350
Feb. 10	0900	1,460	41.3	10.06	3.066						

Minimum discharge, 7.4 ft<sup>3</sup>/s (0.21 m<sup>3</sup>/s) Aug. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEI
1	49	159	91	132	334	113	114	129	87	28	16	20
2	46	86	89	120	221	119	106	148	83	26	15	17
3	43	60	87	122	174	107	104	166	79	25	13	15
4	40	52	85	130	158	106	98	138	75	24	13	14
5	37	49	90	117	151	108	89	116	72	24	13	12
6	37	47	90	110	154	102	84	106	68	23	13	11
7	37	46	87	109	141	99	85	100	65	22	12	10
8	37	46	82	105	215	102	83	97	63	22	11	13
9	37	48	79	101	847	99	74	94	62	22	11	17
10	37	52	77	99	1390	95	69	89	63	21	11	18
11	36	48	78	104	952	93	158	86	59	20	10	15
12	35	45	114	102	594	102	8620	128	55	19	11	13
13	34	43	342	92	313	112	3150	308	51	18	14	11
14	34	42	405	91	214	93	2350	381	49	17	14	9.8
15	32	42	249	90	194	84	1180	403	48	17	13	9.4
16	32	43	148	104	182	95	700	3080	47	17	14	9.2
17	34	44	121	160	163	129	436	2330	45	16	16	8.5
18	36	45	106	165	152	130	288	1320	42	16	13	8.6
19	36	48	102	124	149	100	231	734	41	16	12	8.8
20	35	51	101	206	146	119	195	419	49	17	11	10
21	34	299	101	480	140	138	175	215	94	17	10	11
22	42	1410	115	1270	131	109	160	174	73	23	9.5	12
23	68	1180	245	1850	124	100	150	157	55	25	9.1	11
24	51	700	586	980	119	142	144	142	51	20	8.4	9.8
25	42	365	593	582	114	137	197	133	45	18	7.9	13
26	38	159	537	324	108	108	416	127	39	16	7.7	33
27	36	127	234	201	106	136	445	119	36	16	9.4	31
28	35	115	152	169	107	357	223	109	33	22	13	23
29	36	103	154	189	107	336	152	102	31	24	15	21
30	46	94	178	320	---	187	134	97	29	22	29	31
31	164	---	154	371	---	132	---	91	---	19	27	---
TOTAL	1336	5648	5672	9119	7900	3989	20410	11838	1689	632	402.0	446.1
MEAN	43.1	188	183	294	272	129	680	382	56.3	20.4	13.0	14.9
MAX	164	1410	593	1850	1390	357	8620	3080	94	28	29	33
MIN	32	42	77	90	106	84	69	86	29	16	7.7	8.5
CFSM	.27	1.19	1.16	1.86	1.72	.82	4.30	2.42	.36	.13	.08	.09
IN.	.31	1.33	1.34	2.15	1.86	.94	4.81	2.79	.40	.15	.09	.11
AC-FT	2650	11200	11250	18090	15670	7910	40480	23480	3350	1250	797	885

CAL YR 1979	TOTAL	88759.0	MEAN 243	MAX 3490	MIN 18	CFSM 1.54	IN 20.90	AC-FT 176100
WTR YR 1980	TOTAL	69081.1	MEAN 189	MAX 8620	MIN 7.7	CFSM 1.20	IN 16.26	AC-FT 137000

## 08034000 LAKE TYLER NEAR WHITEHOUSE, TX

LOCATION.--Lat 32°14'30", long 95°10'33", Smith County, Hydrologic Unit 12020004, at city of Tyler pumphouse, 2.0 mi (3.2 km) north of Whitehouse Dam on Prairie Creek, 3.0 mi (4.8 km) northwest of Mud Creek, and 3.2 mi (5.1 km) northeast of Whitehouse.

DRAINAGE AREA.--107 mi<sup>2</sup> (277 km<sup>2</sup>). Prior to May 29, 1968, 45.3 mi<sup>2</sup> (117.3 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stages gages. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 3, 1949, nonrecording gage at dam. May 3, 1949, to July 11, 1951, nonrecording gage at pumphouse. July 12, 1951, to Feb. 1, 1968, water-stage recorder at intake tower in lake 660 ft (201 m) south of pumphouse. All gages at same datum.

REMARKS.--Originally Lake Tyler was formed by Whitehouse Dam. Deliberate impoundment began Jan. 8, 1949, and the dam was completed May 13, 1949. The construction of Mud Creek Dam began Feb. 11, 1966, and deliberate impoundment began Nov. 22, 1966; final completion of dam was in January 1967. Whitehouse Dam is a rolled earthfill dam with an uncontrolled concrete spillway 200 ft (61 m) wide near left end of dam. Mud Creek Dam is a rolled earthfill dam with an uncontrolled concrete spillway 300 ft (91 m) wide near center of dam. On May 29, 1968, the lakes were joined through an interconnecting canal. An 18-inch (457 mm) conduit through the embankment of Mud Creek Dam serves as a low-flow outlet. Water is used for municipal supply for the cities of Tyler, Troop, and Whitehouse. The dam is owned and operated by the city of Tyler. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	390.0 to 391.5	-
Design flood.....	386.0	-
Crest of spillways.....	375.4	80,900
Bottom of interconnecting canal between lakes.....	355.0	14,480
Lowest gated outlet (invert at Mud Creek Dam).....	350.0	7,200

COOPERATION.--The capacity tables, furnished by the city of Tyler, are based on surveys made in 1948-49 and 1966-67.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 87,340 acre-ft (108 hm<sup>3</sup>) Feb. 3, 1975, elevation, 376.71 ft (114.821 m); maximum elevation, 378.3 ft (115.31 m) Apr. 24, 1966, prior to adjoining of lakes; minimum contents since joining of lakes, 63,100 acre-ft (77.8 hm<sup>3</sup>) Nov. 13, 1978, elevation, 371.44 ft (113.215 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 84,120 acre-ft (104 hm<sup>3</sup>) May 16, elevation, 376.06 ft (114.623 m); minimum, 67,800 acre-ft (83.6 hm<sup>3</sup>) Sept. 29, elevation, 372.54 ft (113.550 m).

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

372.0	65,470	375.0	79,000
373.0	69,820	376.0	83,820
374.0	74,330	377.0	88,800

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80770	79810	80770	81440	81340	81150	81680	81150	80670	78430	74010	69780
2	80670	79760	80770	81340	81290	81290	81580	81540	80630	78290	73920	69690
3	80630	79720	80770	81440	81290	81250	81490	81390	80670	78100	73740	69510
4	80390	79670	80820	81390	81290	81390	81390	81340	80580	77960	73560	69430
5	80340	79670	80820	81290	81250	81340	81340	81250	80480	77770	73380	69250
6	80240	79570	80770	81340	81290	81390	81340	81100	80480	77630	73200	69210
7	80200	79480	80820	81250	81290	81440	81340	81060	80340	77540	73060	69120
8	80150	79480	80770	81150	83000	81440	81250	80910	80390	77350	72880	69290
9	80000	79810	80820	81150	83430	81440	81200	80960	80290	77160	72740	69250
10	79960	79720	80820	81200	82950	81440	81100	80860	80200	77020	72560	69160
11	79860	79720	80860	81060	82510	81490	81490	80960	80050	76780	72420	69120
12	79760	79620	81970	81060	82220	81730	82170	81970	80000	76590	72330	68940
13	79720	79620	81970	81010	82120	81580	83340	82070	79910	76460	72200	68810
14	79620	79620	81730	81060	82020	81540	83000	81930	79760	76270	71970	68770
15	79530	79570	81630	81100	81880	81490	82510	83430	79670	76090	72060	68680
16	79480	79570	81390	81150	81630	81490	82220	83820	79570	75850	71930	68510
17	79530	79530	81290	81150	81680	81340	81970	83040	79480	75760	71750	68370
18	79530	79570	81250	81150	81630	81340	81730	82510	79330	75580	71610	68330
19	79430	79620	81250	81150	81630	81340	81580	82120	79240	75350	71520	68680
20	79330	79620	81250	81150	81680	81290	81540	81830	79530	75210	71390	68590
21	79290	81150	81340	81540	81680	81250	81440	81540	79530	75160	71250	68460
22	79570	81250	82460	83240	81630	81250	81340	81440	79570	75020	71070	68370
23	79530	81290	83190	82950	81630	81440	81340	81340	79480	74880	70980	68290
24	79480	81200	83000	82410	81580	81390	81100	81290	79380	74750	70760	68200
25	79430	81150	82610	82070	81440	81340	81580	81250	79190	74560	70630	68160
26	79380	81100	82220	81880	81390	81250	81540	81200	79100	74280	70450	68070
27	79330	81010	82070	81680	81440	81540	81440	81060	78760	74750	70360	67890
28	79290	80860	81930	81630	81440	81580	81290	81010	78810	74650	70180	67850
29	79240	80770	81830	81580	81540	81930	81290	80960	78620	74470	70130	68070
30	79810	80770	81680	81540	---	81830	81200	80860	78530	74420	70040	67980
31	79860	---	81580	81390	---	81780	---	80820	---	74240	69910	---
MAX	80770	81290	83190	83240	83430	81930	83340	83820	80670	78430	74010	69780
MIN	79240	79480	80770	81010	81250	81150	81100	80820	78530	74240	69910	67850
(†)	375.18	375.37	375.54	375.50	375.53	375.58	375.46	375.38	374.90	373.98	373.02	372.58
(‡)	-970	+910	+810	-190	+150	+240	-580	-380	-2290	-4290	-4330	-1930
(††)	981	860	904	885	903	1020	901	867	1370	1900	1800	1190

CAL YR 1979 MAX 85800 MIN 67650 ‡ +14200 †† 11670  
WTR YR 1980 MAX 83820 MIN 67850 ‡ -12580 †† 13580

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Tyler.

## NECHES RIVER BASIN

08034000 LAKE TYLER NEAR WHITEHOUSE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1976 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
JAN 09...	1635	95	10.5	21	6	5.4	1.9	7.2	.7

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
JAN 09...	2.8	19	0	10	10	.1	13	60

## NECHES RIVER BASIN

08036500 ANGELINA RIVER NEAR ALTO, TX

LOCATION.--Lat 31°40'10", long 94°57'24", Nagacdoches-Cherokee County line, Hydrologic Unit 12020004, near center of rectified channel at downstream side of pier of bridge on State Highway 21, 0.4 mi (0.6 km) upstream from Allen Creek, 1.5 mi (2.4 km) upstream from Bingham Creek, 7.5 mi (12.1 km) east of Alto, and 149.3 mi (240.2 km) upstream from mouth.

DRAINAGE AREA.--1,276 mi<sup>2</sup> (3,305 km<sup>2</sup>).

PERIOD OF RECORD.--May to August 1940 (discharge measurements only), September 1940 to March 1949 (fragmentary for 1941-42, 1944-49), February 1959 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 204.30 ft (62.271 m) National Geodetic Vertical Datum of 1929. May 9, 1940, to Mar. 31, 1949, nonrecording gage on bridge at natural channel 1,400 ft (427 m) to right at same datum. Feb. 18 to Sept. 15, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good. No large diversion above station. Flow partly regulated since May 1957 by Lake Striker 35.5 mi (57.1 km) upstream and Lake Tyler 69.9 mi (112.5 km) upstream since January 1949, combined capacity, 110,700 acre-ft (136 hm<sup>3</sup>). Recording rain gage at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--22 years (water years 1943, 1960-80), 796 ft<sup>3</sup>/s (22.54 m<sup>3</sup>/s), 576,700 acre-ft/yr (711 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,600 ft<sup>3</sup>/s (867 m<sup>3</sup>/s) Apr. 28, 1966, gage height, 21.51 ft (6.556 m), but may have been higher during period of no gage-height record in November 1940; minimum, 2.0 ft/s (0.057 m<sup>3</sup>/s) Aug. 14, 15, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, about 22 ft (6.7 m) in May 1908, from information by local residents. Flood in 1932 reached a stage of 21.5 ft (6.55 m), and flood in May 1958 reached a stage of 20.3 ft (6.19 m), from floodmarks and information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,970 ft<sup>3</sup>/s (282 m<sup>3</sup>/s) Apr. 16 at 1600 hours, gage height, 18.75 ft (5.715 m); minimum daily, 34 ft<sup>3</sup>/s (0.96 m<sup>3</sup>/s) Aug. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1370	549	1040	3040	3090	888	1230	1320	481	92	109	135
2	845	632	872	2700	2730	896	1180	1180	425	84	102	111
3	475	672	734	2300	2460	894	1120	1060	381	77	92	98
4	314	700	644	1950	2220	892	964	1050	343	73	85	87
5	295	672	595	1630	2010	842	833	1040	314	69	79	80
6	299	507	560	1370	1810	751	824	1020	298	66	74	76
7	285	336	491	1170	1640	705	827	920	313	64	71	72
8	218	266	413	1040	1540	693	782	754	294	62	69	70
9	165	237	370	976	1920	671	713	683	242	59	68	68
10	147	220	350	940	2080	645	644	687	218	57	67	69
11	138	207	340	920	2140	622	598	674	206	56	66	75
12	133	227	377	898	2510	614	1940	638	197	54	66	91
13	127	339	517	865	3100	624	2440	822	189	51	65	95
14	120	417	552	836	3630	659	3900	918	180	48	64	85
15	117	386	606	808	4020	669	7170	1160	166	47	65	67
16	116	262	739	787	3990	727	9600	3560	152	45	67	54
17	115	206	849	827	3680	794	8990	3120	140	44	69	47
18	113	191	927	827	3190	827	7690	3330	131	43	69	44
19	110	182	938	815	2770	847	6450	4270	123	42	69	42
20	112	176	878	817	2350	890	5170	4920	121	41	68	40
21	113	501	811	931	2000	836	4140	5030	148	43	57	39
22	126	1190	815	1560	1690	715	3320	4940	155	63	47	40
23	136	870	1020	1930	1420	662	2680	4480	172	71	43	39
24	143	908	1760	2080	1200	688	2140	3750	230	72	40	39
25	173	1150	1660	2810	1020	683	1740	3060	244	81	38	45
26	192	1330	1810	3830	903	684	1480	2460	211	85	36	57
27	174	1460	2240	4500	836	742	1260	1900	173	80	34	69
28	154	1470	2820	4740	849	1010	1230	1430	139	81	39	108
29	142	1380	3230	4550	872	1070	1320	1020	116	81	54	103
30	151	1230	3410	4050	---	1140	1380	702	102	84	63	87
31	495	---	3300	3550	---	1190	---	549	---	93	102	---
TOTAL	7613	18873	35668	60047	63670	24570	83755	62447	6604	2008	2037	2132
MEAN	246	629	1151	1937	2196	793	2792	2014	220	64.8	65.7	71.1
MAX	1370	1470	3410	4740	4020	1190	9600	5030	481	93	109	135
MIN	110	176	340	787	836	614	598	549	102	41	34	39
AC-FT	15100	37430	70750	119100	126300	48730	166100	123900	13100	3980	4040	4230
(††)	1.96	5.20	4.18	3.58	1.87	2.41	1.79	7.13	.80	.50	1.27	.78

CAL YR 1979 TOTAL 533825 MEAN 1463 MAX 9040 MIN 66 AC-FT 1059000 †† 59.65  
WTR YR 1980 TOTAL 369424 MEAN 1009 MAX 9600 MIN 34 AC-FT 732800 †† 31.47

†† Rainfall, in inches.

## 08036700 LAKE NACOGDOCHES NEAR NACOGDOCHES, TX

LOCATION.--Lat 31°35'19", long 94°49'31", Nacogdoches County, Hydrologic Unit 12020004, at upstream side of dam on Bayou Loco near service outlet tower and 10 mi (16 km) west of Nacogdoches.

DRAINAGE AREA.--87.9 mi<sup>2</sup> (227.7 km<sup>2</sup>).

PERIOD OF RECORD.--March 1977 to current year.

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

REMARKS.--The lake is formed by a rolled earthfill dam. Deliberate impoundment began July 14, 1976. Water is used for industrial and municipal supply by the city of Nacogdoches. The emergency spillway is an uncontrolled 500-foot-wide (150 m) cut through natural ground located near the right end of the dam. There is an uncontrolled drop inlet with a 20.5-foot-diameter (6.2 m) top opening that is connected to an 8- by 7-foot (2.4 by 2.1 m) conduit that extends through the dam. A separate multi-gated inlet tower is connected to a valve box by a 30-inch (762 mm) conduit through the dam. The valve box directs water to a purification plant. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	303.0	-
Top of design flood.....	298.5	102,900
Crest of spillway.....	286.0	59,570
Crest of drop inlet (top of conservation pool).....	279.0	42,320
Lowest gated outlet (invert of 30 in conduit).....	238.25	254

COOPERATION.--The capacity table, furnished by the city of Nacogdoches, is based on Geological Survey topographic maps dated 1952.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 53,550 acre-ft (66.0 hm<sup>3</sup>) June 3, 1979, elevation, 283.76 ft (86.490 m); minimum since first appreciable storage, 20,540 acre-ft (25.3 hm<sup>3</sup>) Nov. 26, 1977, elevation, 266.62 ft (81.266 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 52,420 acre-ft (64.6 hm<sup>3</sup>) Apr. 12, elevation, 283.32 ft (86.356 m); minimum, 36,250 acre-ft (44.7 hm<sup>3</sup>) Sept. 30, elevation, 276.05 ft (84.140 m).

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

276.0	36,140	281.0	47,770
278.0	40,200	284.0	54,160

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42050	41680	42500	42850	43280	42390	42930	42350	42350	41250	39080	37520
2	41960	41660	42480	42760	43190	42330	42780	42290	42260	41190	39020	37460
3	41920	41600	42390	42670	43100	42310	42670	42240	42240	41120	38960	37420
4	41790	41550	42330	42610	43020	42310	42570	42240	42180	41040	38900	37360
5	41700	41550	42330	42540	42950	42290	42500	42200	42130	40990	38840	37280
6	41700	41550	42220	42480	42910	42260	42460	42160	42070	40930	38780	37220
7	41660	41510	42200	42410	42820	42260	42410	42110	42030	40650	38720	37180
8	41640	41510	42180	42370	43230	42260	42370	42070	42010	40580	38660	37140
9	41600	41490	42130	42330	44730	42240	42330	42030	41960	40500	38600	37100
10	41550	41440	42130	42290	45030	42240	42330	41980	41900	40430	38530	37100
11	41510	41400	42180	42240	44700	42240	42570	41940	41810	40370	38470	36980
12	41490	41400	42650	42200	44310	42260	52240	41920	41770	40280	38410	36910
13	41470	41340	43080	42160	44010	42220	49140	42350	41730	40220	38370	36890
14	41380	41290	43040	42130	43790	42180	48130	42570	41640	40150	38330	36850
15	41380	41270	42950	42110	43600	42180	46790	43430	41600	40070	38290	36830
16	41380	41250	42820	42090	43410	42260	45580	48180	41550	40010	38250	36770
17	41340	41250	42720	42070	43260	42350	44570	48180	41530	39930	38210	36670
18	41320	41230	42610	42050	43130	42310	44070	47770	41490	39870	38170	36650
19	41320	41250	42520	42030	43040	42310	43640	46630	41440	39770	38130	36630
20	41270	41250	42440	42240	42950	42460	43320	45650	41750	39730	38090	36650
21	41250	43320	42350	42460	42910	42570	43100	44830	41770	39690	38070	36570
22	41400	44420	42290	44510	42820	42440	42930	44290	41750	39630	38050	36530
23	41290	44180	42460	45060	42760	42440	42780	43970	41680	39550	38010	36490
24	41210	43900	43210	44460	42630	42570	42650	43640	41640	39490	37930	36450
25	41140	43580	43210	44120	42570	42440	42780	43320	41600	39390	37890	36430
26	41120	43340	43020	43790	42540	42350	42890	43040	41550	39340	37830	36410
27	41140	43130	42820	43560	42520	43040	42690	42890	41510	39340	37810	36390
28	41120	42910	42720	43430	42480	43540	42570	42760	41440	39320	37740	36350
29	41120	42760	42820	43640	42440	43430	42500	42630	41380	39260	37700	36290
30	41490	42610	43020	43470	---	43210	42440	42520	41320	39200	37620	36250
31	41700	---	42930	43380	---	43080	---	42410	---	39140	37540	---
MAX	42050	44420	43210	45060	45030	43540	52240	48180	42350	41250	39080	37520
MIN	41120	41230	42130	42030	42440	42180	42330	41920	41320	39140	37540	36250
(†)	278.70	279.12	279.27	279.48	279.04	279.34	279.04	279.03	278.52	277.48	276.69	276.05
(†)	-390	+910	+320	+450	-940	+640	-640	-30	-1090	-2180	-1600	-1290
(††)	242	226	215	243	222	207	171	154	394	509	448	416
CAL YR	1979	MAX	53420	MIN	31510	±	+12510	††	2507			
WTR YR	1980	MAX	52240	MIN	36250	±	-5840	††	3447			

† Elevation, in feet, at end of month.

± Change in contents, in acre-feet.

†† Diversions, in acre-feet, by the city of Nacogdoches.

NOTE: No gage-height record Dec. 17 to Jan. 23, Mar. 17 to Apr. 14, Apr. 17 to May 28, July 28 to Aug. 22, and Sept. 26-30.



## NECHES RIVER BASIN

08037050 BAYOU LANANA AT NACOGDOCHES, TX

LOCATION.--Lat 31°36'58", long 94°38'28", Nacogdoches County, Hydrologic Unit 12020005, on right bank at downstream side of bridge on Farm Road 1878 in Nacogdoches and 14.5 mi (23.3 km) upstream from mouth.

DRAINAGE AREA.--31.3 mi<sup>2</sup> (81.1 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Prior to July 1974, concrete control. Datum of gage is 264.23 ft (80.537 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. No diversion above station. Several observations of water temperature in addition to those made during chemical-quality sampling were made during the year.

AVERAGE DISCHARGE.--16 years, 31.1 ft<sup>3</sup>/s (0.881 m<sup>3</sup>/s), 13.49 in/yr (343 mm/yr), 22,530 acre-ft/yr (27.8 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft<sup>3</sup>/s (382 m<sup>3</sup>/s) June 2, 1979, gage height, 22.18 ft (6.760 m), from rating curve extended above 2,800 ft<sup>3</sup>/s (79.3 m<sup>3</sup>/s) on basis of indirect measurement of peak flow; no flow at times.

Maximum stage since at least 1956, that of June 2, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft<sup>3</sup>/s (31.2 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Nov. 21	2000	1,840	52.1	15.57	4.746
Jan. 22	1700	1,160	32.9	12.88	3.926
May 16	0400	*2,930	83.0	17.17	5.233

Minimum discharge, 0.04 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Aug. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	6.6	12	28	43	22	20	4.5	10	.79	.43	.25
2	.20	3.1	11	26	39	17	22	11	9.6	.70	.43	.15
3	.18	2.6	10	32	35	17	19	5.0	8.2	.49	.37	.11
4	.17	1.7	10	27	32	19	14	3.1	7.9	.49	.37	.08
5	.14	1.6	10	24	32	19	12	2.1	7.2	.49	.37	.10
6	.15	1.6	9.6	24	30	16	12	1.6	6.3	.43	.37	.13
7	.16	1.2	8.2	22	27	17	12	1.3	6.0	.37	.33	1.1
8	.27	1.2	7.5	21	160	16	9.2	1.1	5.2	.35	.35	.29
9	.43	4.0	7.2	20	479	15	7.9	.88	5.0	.35	.35	3.1
10	.34	1.2	7.5	21	157	15	7.2	.62	5.0	.33	.29	.55
11	.26	.88	7.5	22	79	15	32	.55	4.2	.29	.29	.29
12	.31	.79	247	19	57	20	456	7.2	3.5	.25	24	.21
13	.29	.79	198	19	49	15	763	13	3.3	.25	1.1	.10
14	.23	.70	63	19	44	13	144	17	3.1	.25	.25	.09
15	.23	.70	41	18	43	13	57	296	3.1	.25	.18	.08
16	.30	.70	33	21	37	22	31	1200	2.6	.25	.15	.08
17	.37	.79	25	21	33	28	24	327	2.4	.25	.11	.07
18	.32	.88	23	19	32	17	21	80	2.1	.25	.11	.07
19	.31	.98	22	18	31	20	16	84	1.9	.21	.10	.10
20	.29	.98	21	50	29	73	13	45	75	.21	.08	2.0
21	.23	1000	21	77	28	41	10	37	15	.33	.08	1.0
22	100	489	32	759	24	27	8.5	29	5.7	.37	.06	.30
23	2.3	198	129	189	23	30	6.3	22	5.2	.37	.08	.15
24	.98	54	181	78	22	37	7.2	20	3.5	.29	.10	.10
25	.79	36	52	57	20	26	76	18	2.4	.29	.08	100
26	.62	26	38	51	19	25	34	16	1.9	.25	.06	50
27	.55	21	32	42	20	163	10	14	1.6	12	.10	10
28	.62	15	29	37	19	171	6.0	13	1.3	3.1	.15	2.0
29	.70	14	54	77	19	69	4.7	12	1.1	.88	.25	1.0
30	92	13	41	85	---	40	4.2	12	.88	.62	.18	2.0
31	45	---	32	60	---	25	---	11	---	.49	.43	---
TOTAL	249.02	1898.99	1414.5	1983	1662	1063	1859.2	2304.95	210.18	26.24	31.60	175.50
MEAN	8.03	63.3	45.6	64.0	57.3	34.3	62.0	74.4	7.01	.85	1.02	5.85
MAX	100	1000	247	759	479	171	763	1200	75	12	24	100
MIN	.14	.70	7.2	18	19	13	4.2	.55	.88	.21	.06	.07
CFSM	.26	2.02	1.46	2.05	1.83	1.10	1.98	2.38	.22	.03	.03	.19
IN.	.30	2.26	1.68	2.36	1.98	1.26	2.21	2.74	.25	.03	.04	.21
AC-FT	494	3770	2810	3930	3300	2110	3690	4570	417	52	63	348
CAL YR 1979	TOTAL	35516.48	MEAN 97.3	MAX 5730	MIN .14	CFSM 3.11	IN 42.21	AC-FT 70450				
WTR YR 1980	TOTAL	12878.18	MEAN 35.2	MAX 1200	MIN .06	CFSM 1.13	IN 15.31	AC-FT 25540				

## 08038000 ATTOYAC BAYOU NEAR CHIRENO, TX

LOCATION.--Lat 31°30'15", long 94°18'15", Nacogdoches-San Augustine County line, Hydrologic Unit 12020005, near right bank on downstream side of pier of bridge on State Highway 21, 2.2 mi (3.5 km) upstream from Amaladeros Creek, 2.8 mi (4.5 km) east of Chireno, 5.4 mi (8.7 km) downstream from Arenoso Creek, and 41 mi (66 km) upstream from mouth.

DRAINAGE AREA.--503 mi<sup>2</sup> (1,303 km<sup>2</sup>).

PERIOD OF RECORD.--January 1924 to September 1925, July 1939 to November 1954, and October 1955 to current year. Monthly discharge only for some periods, published in WSP 1312 and 1732.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 169.58 ft (51.688 m) National Geodetic Vertical Datum of 1929. Jan. 24, 1924, to Aug. 29, 1925, and Sept. 6, 1957, to Oct. 27, 1958, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow is affected at times by discharge from the flood-detention pools of twelve floodwater-retarding structures with a combined detention capacity of 15,870 acre-ft (19.6 hm<sup>3</sup>). These structures control runoff from 46.7 mi<sup>2</sup> (121.0 km<sup>2</sup>). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--41 years, 449 ft<sup>3</sup>/s (12.72 m<sup>3</sup>/s), 12.12 in/yr (308 mm/yr), 325,300 acre-ft/yr (401 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft<sup>3</sup>/s (903 m<sup>3</sup>/s), Nov. 24, 1940, gage height, 25.97 ft (7.916 m); minimum, 0.8 ft<sup>3</sup>/s (0.023 m<sup>3</sup>/s) Aug. 26, 27, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1865, 29.9 ft (9.11 m) June 29, 1902, from information by local residents. Flood in July 1933 reached a stage of 25.2 ft (7.68 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Nov. 24	1700	3,970 112	17.81 5.428	Apr. 13	1400	*22,900 649	23.82 7.260
Jan. 25	2100	2,820 79.9	17.08 5.206	May 18	0700	9,580 271	19.91 6.069

Minimum discharge, 21 ft<sup>3</sup>/s (0.59 m<sup>3</sup>/s) Aug. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	606	1220	548	1410	359	1930	569	339	78	48	34
2	129	551	828	481	1270	383	1920	483	310	74	42	36
3	120	457	465	443	1120	362	1800	461	283	70	39	37
4	112	332	357	456	991	353	1510	484	262	67	36	38
5	104	220	320	436	882	346	1170	468	241	64	33	38
6	97	177	304	411	741	332	767	415	224	62	32	38
7	94	159	291	394	613	324	557	358	208	60	31	34
8	92	150	277	371	593	327	489	326	192	57	34	34
9	90	147	265	348	1030	322	438	307	181	55	42	35
10	89	151	253	334	1330	315	393	289	175	52	41	37
11	88	150	245	329	1470	310	362	272	168	51	40	40
12	87	140	326	330	1440	301	601	268	158	50	44	49
13	86	133	677	315	1790	297	16700	343	149	49	48	46
14	84	127	880	305	1940	296	12600	484	139	47	48	36
15	83	123	909	293	1750	293	7210	990	131	45	55	32
16	82	122	925	283	1540	354	4050	2710	124	44	52	30
17	83	121	946	326	1370	497	2730	4720	118	43	48	28
18	85	124	955	390	1200	525	2240	8410	112	42	47	26
19	85	126	900	369	899	487	1940	4740	108	41	53	28
20	86	127	636	362	630	766	1730	3140	107	40	54	48
21	86	173	442	559	537	1160	1560	2680	125	41	50	48
22	90	618	400	992	496	1190	1400	2400	150	44	39	47
23	259	1000	458	1260	463	1150	1290	1960	155	66	28	46
24	275	3080	703	1480	432	967	1180	1660	155	57	25	38
25	186	3340	842	2410	403	811	1100	1410	141	53	23	37
26	145	2550	825	2610	374	725	1050	1200	124	50	22	34
27	119	2120	829	2210	352	788	939	849	107	45	23	36
28	107	1810	858	1880	341	1250	765	565	95	49	29	40
29	104	1590	886	1670	333	1560	691	469	87	80	59	44
30	115	1400	874	1510	---	1920	657	415	82	67	55	51
31	362	---	709	1510	---	2020	---	373	---	59	36	---
TOTAL	3763	21924	19805	25615	27740	21090	71769	44218	4950	1702	1256	1145
MEAN	121	731	639	826	957	680	2392	1426	165	54.9	40.5	38.2
MAX	362	3340	1220	2610	1940	2020	16700	8410	339	80	59	51
MIN	82	121	245	283	333	293	362	268	82	40	22	26
CFSM	.24	1.45	1.27	1.64	1.90	1.35	4.76	2.84	.33	.11	.08	.08
IN.	.28	1.62	1.46	1.89	2.05	1.56	5.31	3.27	.37	.13	.09	.08
AC-FT	7460	43490	39280	50810	55020	41830	142400	87710	9820	3380	2490	2270
CAL YR 1979	TOTAL	353347	MEAN 968	MAX 14100	MIN 65	CFSM 1.92	IN 26.13	AC-FT 700900				
WTR YR 1980	TOTAL	244977	MEAN 669	MAX 16700	MIN 22	CFSM 1.33	IN 18.12	AC-FT 485900				

08039100 AYISH BAYOU NEAR SAN AUGUSTINE, TX

LOCATION.--Lat 31°23'46", long 94°09'03", San Augustine County, Hydrologic Unit 12020005, near center of span at downstream side of pier of bridge on State Highway 103, 3.0 mi (4.8 km) upstream from Turkey Creek, and 9.5 mi (15.3 km) south of San Augustine.

DRAINAGE AREA.--89.0 mi<sup>2</sup> (230.5 km<sup>2</sup>).

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

REVISED RECORDS.--WSP 1922: 1959(M).

GAGE.--Water-stage recorder. Datum of gage is 190.22 ft (57.979 m) National Geodetic Vertical Datum of 1929. Prior to June 2, 1959, nonrecording gage at same site and datum.

REMARKS.--Records good. No known diversion above station. Recording rain gage located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--21 years (water years 1960-80), 83.7 ft<sup>3</sup>/s (2.370 m<sup>3</sup>/s), 12.77 in/yr (324 mm/yr), 60,640 acre-ft/yr (74.8 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,200 ft<sup>3</sup>/s (515 m<sup>3</sup>/s) Sept. 14, 1978, gage height, 18.02 ft (5.492 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Between October 1957 and February 1959, the maximum discharge was 15,900 ft<sup>3</sup>/s (450 m<sup>3</sup>/s) Sept. 21 or 22, 1958, gage height, 17.5 ft (5.33 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,530 ft<sup>3</sup>/s (128 m<sup>3</sup>/s) May 16 at 1300 hours, gage height, 13.73 ft (4.185 m), no other peak above base of 1,500 ft<sup>3</sup>/s (42.5 m<sup>3</sup>/s); no flow Aug. 31, Sept. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	39	16	41	193	52	270	46	49	3.2	2.9	.00
2	4.9	26	16	37	115	66	240	52	44	2.8	2.1	.04
3	4.5	13	16	39	93	53	604	53	39	2.5	1.8	.67
4	3.3	8.8	16	52	81	47	358	45	35	2.3	1.6	.63
5	2.1	7.1	16	44	73	48	160	38	32	2.1	1.3	.64
6	2.5	6.0	16	39	79	44	124	33	28	1.9	1.0	.65
7	2.7	5.3	17	37	71	42	112	30	25	1.8	.92	.64
8	2.8	7.2	15	36	81	44	100	29	22	1.7	.90	.50
9	2.8	6.9	14	33	552	43	82	28	20	1.6	.81	.51
10	2.9	6.9	14	32	985	40	72	26	19	1.5	.73	.75
11	2.9	7.0	14	35	494	38	74	24	18	1.3	.67	1.2
12	2.9	7.2	82	44	190	37	259	23	15	1.3	.62	1.3
13	2.9	6.8	212	34	140	36	578	49	14	1.2	.64	1.2
14	2.7	5.5	94	30	117	31	1070	80	12	1.1	.62	.95
15	2.6	4.4	55	28	106	28	473	232	11	1.0	.71	.69
16	2.8	4.2	41	28	100	35	175	2420	11	.91	.77	.52
17	2.8	4.7	34	33	90	65	131	1680	9.5	.90	.72	.42
18	2.8	5.4	28	34	80	66	133	833	8.8	.80	.68	.31
19	3.0	5.8	26	31	76	50	109	621	8.2	.70	.61	.25
20	3.2	6.1	26	29	73	171	90	749	8.0	.64	.55	.15
21	3.4	8.6	26	46	69	573	78	648	11	1.5	.49	.06
22	3.6	129	28	237	63	360	69	775	14	4.6	.39	.02
23	7.1	115	45	563	58	123	62	702	18	9.0	.42	.18
24	15	75	189	307	55	110	57	247	17	4.5	.36	.51
25	11	42	109	119	51	88	59	148	11	3.8	.25	.54
26	6.4	30	65	113	46	81	143	119	7.7	2.7	.17	.55
27	4.9	24	50	106	43	208	91	98	6.2	2.3	.09	1.1
28	4.3	18	43	82	44	1040	65	83	5.2	2.8	.03	1.9
29	4.2	15	43	73	44	736	54	72	4.5	2.4	.02	2.1
30	4.4	12	53	94	---	489	47	63	3.8	3.7	.01	1.9
31	30	---	48	278	---	698	---	56	---	4.1	.00	---
TOTAL	156.4	651.9	1467	2734	4262	5542	5939	10102	526.9	72.65	22.88	20.88
MEAN	5.05	21.7	47.3	88.2	147	179	198	326	17.6	2.34	.74	.70
MAX	30	129	212	563	985	1040	1070	2420	49	9.0	2.9	2.1
MIN	2.1	4.2	14	28	43	28	47	23	3.8	.64	.00	.00
CFSM	.06	.24	.53	.99	1.65	2.01	2.23	3.66	.20	.03	.008	.008
IN.	.07	.27	.61	1.14	1.78	2.32	2.48	4.22	.22	.03	.01	.01
AC-FT	310	1290	2910	5420	8450	10990	11780	20040	1050	144	45	41
(††)	1.81	2.98	3.21	3.50	1.96	4.27	4.33	7.65	1.05	2.70	.15	.50

CAL YR 1979 TOTAL 67359.10 MEAN 185 MAX 4910 MIN 1.9 CFSM 2.08 IN 28.15 AC-FT 133600 †† 50.71  
WTR YR 1980 TOTAL 31497.61 MEAN 86.1 MAX 2420 MIN .00 CFSM .97 IN 13.17 AC-FT 62480 †† 34.11

†† Rainfall, in inches.

## 08039300 SAM RAYBURN RESERVOIR NEAR JASPER, TX

LOCATION.--Lat 31°03'38", long 94°06'21", Jasper County, Hydrologic Unit 12020005, in the powerhouse-intake structure of Sam Rayburn Dam on the Angelina River, 10 mi (16 km) northwest of Jasper, and 25.2 mi (40.5 km) upstream from mouth.

DRAINAGE AREA.--3,449 mi<sup>2</sup> (8,933 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Stevens-type AP recording transmitter. Datum of gage is National Geodetic Vertical Datum of 1929 (level by Corps of Engineers). Prior to Apr. 20, 1965, nonrecording gage at same site and datum. Corps of Engineers gage-height telemeter at station.

REMARKS.--The reservoir is formed by a rolled earthfill dam 19,430 ft (5,920 m) long, including spillway and dikes. The dam was completed and deliberate impoundment began Mar. 29, 1965. The spillway is an uncontrolled broad-crested weir 2,200 ft (670 m) wide, on right bank 7,000 ft (2,100 m) to right of outlet works, and is designed to discharge 125,300 ft<sup>3</sup>/s (3,550 m<sup>3</sup>/s) at maximum flood design. The flood-control outlet works consists of two 10.0- by 20.0-foot (3.0 by 6.1 m) rectangular concrete-lined conduits controlled by two 10.0- by 20.0-foot (3.0 by 6.1 m) tractor-type service gates and one 10.0- by 20.0-foot (3.0 by 6.1 m) tractor-type emergency gate. Water for turbines is admitted through four 18.0- by 26.0-foot (5.5 by 7.9 m) penstocks and controlled by two wheeled-leaf-type headgates. The reservoir is operated for flood control and power generation. The area-capacity tables are based on topographic maps prepared by the Corps of Engineers and detailed sedimentation ranges established in 1961 and dated February 1965. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08038000. Corps of Engineers gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	190.0	-
Design flood.....	183.0	5,610,000
Crest of spillway.....	176.0	4,442,400
Top of flood-control pool.....	173.0	3,997,600
Top of conservation pool (power pool).....	164.0	2,852,600
Top of power head and sediment pool.....	149.0	1,452,000
Lowest gated outlet (invert).....	105.0	21,940

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,881,000 acre-ft (4.79 km<sup>3</sup>) Feb. 7, 1974, elevation, 172.17 ft (52.477 m); minimum since conservation storage was reached in 1968, 1,797,000 acre-ft (2.22 km<sup>3</sup>) Nov. 15, 1977, elevation, 153.35 ft (46.741 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,353,000 acre-ft (4.13 km<sup>3</sup>) May 27 at 0800 hours, elevation, 168.19 ft (51.264 m); minimum, 2,171,000 acre-ft (2.68 km<sup>3</sup>) Sept. 30 at 1430 hours, elevation, 157.49 ft (48.003 m).

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

156.0	2,032,000	162.0	2,631,000	168.0	3,329,000
158.0	2,221,000	164.0	2,853,000	170.0	3,586,000
160.0	2,421,000	166.0	3,085,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2304000	2295000	2413000	2530000	2727000	2882000	2985000	3025000	3260000	2801000	2540000	2318000
2	2301000	2295000	2417000	2530000	2737000	2846000	2998000	3013000	3235000	2795000	2536000	2312000
3	2300000	2294000	2414000	2542000	2746000	2824000	3018000	2997000	3212000	2782000	2532000	2303000
4	2300000	2292000	2414000	2542000	2753000	2820000	3014000	2980000	3184000	2776000	2529000	2288000
5	2300000	2295000	2415000	2542000	2756000	2814000	3012000	2979000	3157000	2769000	2518000	2279000
6	2304000	2299000	2416000	2542000	2756000	2807000	3005000	2964000	3131000	2758000	2512000	2277000
7	2297000	2295000	2414000	2550000	2749000	2804000	3001000	2963000	3107000	2752000	2505000	2277000
8	2293000	2295000	2408000	2554000	2789000	2800000	2987000	2963000	3087000	2745000	2494000	2274000
9	2298000	2303000	2407000	2552000	2838000	2792000	2967000	2947000	3059000	2735000	2483000	2269000
10	2288000	2302000	2401000	2556000	2851000	2788000	2945000	2941000	3038000	2727000	2483000	2262000
11	2284000	2299000	2405000	2560000	2863000	2788000	2941000	2935000	3016000	2718000	2475000	2254000
12	2284000	2304000	2465000	2556000	2870000	2785000	2966000	2926000	2994000	2710000	2463000	2249000
13	2286000	2300000	2478000	2557000	2876000	2785000	2987000	2933000	2974000	2701000	2450000	2246000
14	2282000	2299000	2478000	2555000	2883000	2785000	3014000	2940000	2956000	2693000	2440000	2248000
15	2282000	2299000	2483000	2559000	2907000	2777000	3032000	2995000	2945000	2682000	2430000	2239000
16	2279000	2299000	2490000	2565000	2905000	2777000	3036000	3067000	2937000	2670000	2427000	2231000
17	2280000	2297000	2468000	2568000	2886000	2789000	3036000	3114000	2925000	2666000	2427000	2224000
18	2279000	2298000	2462000	2568000	2902000	2776000	3036000	3157000	2914000	2660000	2417000	2221000
19	2269000	2300000	2461000	2574000	2902000	2782000	3034000	3224000	2902000	2644000	2407000	2219000
20	2266000	2295000	2465000	2589000	2902000	2809000	3034000	3255000	2911000	2635000	2399000	2219000
21	2261000	2334000	2468000	2598000	2905000	2802000	3035000	3284000	2898000	2633000	2390000	2215000
22	2281000	2349000	2473000	2631000	2902000	2801000	3034000	3311000	2892000	2627000	2383000	2209000
23	2273000	2357000	2498000	2634000	2902000	2812000	3031000	3323000	2881000	2619000	2379000	2202000
24	2273000	2373000	2507000	2647000	2907000	2816000	3024000	3336000	2873000	2606000	2378000	2196000
25	2273000	2378000	2508000	2662000	2896000	2816000	3066000	3346000	2863000	2597000	2367000	2192000
26	2268000	2387000	2509000	2675000	2880000	2822000	3089000	3347000	2854000	2587000	2361000	2184000
27	2270000	2408000	2512000	2682000	2874000	2864000	3077000	3343000	2841000	2577000	2355000	2181000
28	2270000	2420000	2516000	2690000	2871000	2867000	3062000	3334000	2830000	2577000	2347000	2180000
29	2266000	2414000	2522000	2698000	2871000	2934000	3048000	3319000	2824000	2567000	2338000	2182000
30	2283000	2410000	2527000	2718000	---	2957000	3038000	3304000	2807000	2558000	2329000	2180000
31	2295000	---	2527000	2725000	---	2971000	---	3288000	---	2548000	2326000	---
MAX	2304000	2420000	2527000	2725000	2907000	2971000	3089000	3347000	3260000	2801000	2540000	2318000
MIN	2261000	2292000	2401000	2530000	2727000	2776000	2941000	2926000	2807000	2548000	2326000	2180000
(†)	158.76	159.90	161.02	162.86	164.16	165.03	165.60	167.67	163.60	161.22	159.07	157.58
(‡)	-1300	+115000	+117000	+198000	+146000	+100000	+67000	+250000	-481000	-259000	-222000	-146000
CAL YR 1979	MAX	3446000	MIN	2150000								
WTR YR 1980	MAX	3347000	MIN	2180000								

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

## NECHES RIVER BASIN

08039300 SAM RAYBURN RESERVOIR NEAR JASPER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1964 to current year. Biochemical analyses: November 1967 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS $\text{CaCO}_3$ )	HARDNESS, NONCARBONATE (MG/L $\text{CaCO}_3$ )	CALCIUM DISSOLVED (MG/L AS $\text{Ca}$ )	MAGNESIUM, DISSOLVED (MG/L AS $\text{Mg}$ )	SODIUM, DISSOLVED (MG/L AS $\text{Na}$ )
JUL 15...	1530	138	--	26.0	29	15	6.0	3.3	14
SEP 17...	1530	144	6.5	25.5	27	7	5.7	3.2	14

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS $\text{K}$ )	BICARBONATE (MG/L AS $\text{HCO}_3$ )	CARBONATE (MG/L AS $\text{CO}_3$ )	SULFATE DISSOLVED (MG/L AS $\text{SO}_4$ )	CHLORIDE, DISSOLVED (MG/L AS $\text{Cl}$ )	FLUORIDE, DISSOLVED (MG/L AS $\text{F}$ )	SILICA, DISSOLVED (MG/L AS $\text{SiO}_2$ )	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
JUL 15...	1.1	2.3	17	0	22	19	.1	10	85
SEP 17...	1.2	3.0	24	0	19	20	.5	10	87



## 08040000 B. A. STEINHAGEN LAKE AT TOWN BLUFF, TX

LOCATION.--Lat 30°47'43", long 94°10'48", Tyler County, Hydrologic Unit 12020003, near right bank 70 ft (21 m) upstream from outlet structure of Town Bluff Dam on Neches River, 0.4 mi (0.6 km) north of Town Bluff, and at mile 113.7 (182.9 km).

DRAINAGE AREA.--7,573 mi<sup>2</sup> (19,614 km<sup>2</sup>).

PERIOD OF RECORD.--April 1951 to current year. Prior to October 1967, published as Dam B Reservoir at Town Bluff.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 25, 1954, at site 490 ft (149 m) upstream at same datum. Corps of Engineers gage-height telemeter at station.

REMARKS.--The lake is formed by a rolled earthfill dam with concrete spillway sections. The total length of dam is 6,698 ft (2,042 m), including a concrete spillway and nonoverflow section. Deliberate impoundment of water began Apr. 16, 1951, and the dam was completed in June 1951. The uncontrolled spillway is 6,100 ft (1,860 m) long. A 326-foot-long (99 m) gated service spillway with six 40.0- by 35.0-foot (12.2 by 10.7 m) tainter gates is located near right end of dam. The capacity of the spillways at maximum flood design is 218,300 ft<sup>3</sup>/s (6,180 m<sup>3</sup>/s). The capacity table is based on a survey made in 1945. Water is used for industrial, municipal, and irrigation supplies. Corps of Engineers gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam (nonoverflow).....	95.0	-
Design flood.....	93.0	306,400
Crest of uncontrolled spillway (top of tainter gates).....	85.0	124,700
Top of conservation pool.....	83.0	94,200
Bottom of tainter gates (sill).....	50.0	0

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 128,400 acre-ft (158 hm<sup>3</sup>) May 22, 1953, elevation, 85.21 ft (25.972 m); no storage Sept. 18 to Oct. 13, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 104,800 acre-ft (129 hm<sup>3</sup>) Dec. 18 at 1300 hours, elevation, 83.74 ft (25.524 m); minimum, 49,050 acre-ft (60.5 hm<sup>3</sup>) Oct. 30 at 1330 hours, elevation, 78.89 ft (24.046 m).

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

78.0	41,830	82.0	81,280
80.0	59,320	84.0	108,700

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69680	64970	87450	75660	79210	81890	91140	77540	69350	85520	88360	78850
2	70890	68260	84640	77070	74160	88360	88360	78250	73470	86160	85270	82630
3	70780	70990	85020	81030	68700	90740	85910	78370	77540	85020	79090	85910
4	68480	73360	85270	81280	65390	91000	83750	78370	79450	83750	77420	86930
5	68590	75430	80910	80300	68480	86160	76950	71330	80660	84130	75890	82630
6	70330	77660	77660	76600	74160	86800	76480	62100	82010	84000	77540	91270
7	74160	78370	80910	77540	75660	88760	71780	67940	82380	83250	79570	86420
8	79450	79210	82880	75780	78850	90200	74850	73930	83380	80790	80790	86550
9	88100	81280	81770	73250	86930	87580	76130	72450	82510	80540	84260	88360
10	86930	80420	85140	73130	85910	82760	75780	67080	83250	77900	80060	90070
11	86160	79690	82760	73360	83880	74500	80420	68590	84760	77660	81890	91540
12	85400	79210	85910	73250	84760	72680	81150	74730	86810	76130	83380	93700
13	84640	78250	89680	71330	85780	74040	81280	81030	88230	73700	87190	91271
14	83130	77070	90740	70330	87190	71000	83380	84380	93840	73020	90340	88100
15	81890	76010	92480	67510	87970	72000	76950	92080	93020	74620	92080	89280
16	82260	75080	94940	67510	83880	76480	74620	99420	91670	73930	87190	90600
17	81030	73930	99850	69130	80300	80300	76250	92480	89020	74620	81400	91940
18	79450	72790	101700	69890	74620	86800	79570	83130	87580	75780	81030	96040
19	78020	70330	89680	71220	69890	88890	82510	82140	84890	76130	82630	95900
20	80660	66980	77660	72450	69570	92890	83500	81030	81150	75660	84760	92480
21	78020	68800	70670	76480	73250	92080	83880	83750	76480	76130	87580	88100
22	78130	78850	69130	87580	77420	93570	84260	85520	75660	77420	89940	86930
23	74500	86040	69350	90740	82010	92890	84380	84640	76710	76600	86290	89150
24	71330	88360	73820	90740	85910	89810	84640	82880	76240	77070	80660	91140
25	68050	85520	77900	86040	87840	84890	92210	83750	79450	78730	80060	93430
26	64450	83880	82880	80420	89020	82260	82510	83000	79690	80300	80420	93160
27	61500	84260	86680	79690	86550	88890	71890	81400	82760	81770	79690	96020
28	58070	83880	87320	83500	77900	98430	73700	79090	82760	84380	79810	84380
29	54580	85400	82880	85520	75660	97860	75200	78490	83380	87190	81280	85270
30	55510	87450	77900	88230	---	96180	76480	76130	84760	87710	82510	81280
31	60900	---	77300	85140	---	93570	---	71220	---	89150	79690	---
MAX	88100	88360	101700	90740	89020	98430	92210	99420	93840	89150	92080	96040
MIN	54580	64970	69130	67510	63390	71000	71780	62100	69350	73020	75890	69020
(†)	80.16	82.49	81.67	82.31	81.53	82.95	81.60	81.14	82.28	82.62	81.87	82.00
(‡)	-6180	+26550	-10150	+7840	-9480	+17910	-17090	-5260	+13540	+4390	-9460	+1590

CAL YR 1979 MAX 101700 MIN 47520 † +17290

WTR YR 1980 MAX 101700 MIN 54580 ‡ +14200

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.



## NECHES RIVER BASIN

## 08040500 NECHES RIVER AT TOWN BLUFF, TX

LOCATION.--Lat 30°47'36", long 94°10'28", Jasper-Tyler County line, Hydrologic Unit 12020003, on left bank 0.3 mi (0.5 km) downstream from Town Bluff Dam, 0.5 mi (0.8 km) northeast of Town Bluff, 2.5 mi (4.0 km) upstream from Walnut Run, 8 mi (13 km) downstream from Wolf Creek, and at mile 113.4 (182.5 km).

DRAINAGE AREA.--7,573 mi<sup>2</sup> (19,614 km<sup>2</sup>).

PERIOD OF RECORD.--March 1951 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 21, 1953, water-stage recorder, and May 21, 1953, to Dec. 3, 1954, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated by B. A. Steinhagen Lake (station 08040000) 0.3 mi (0.5 km) upstream and by Sam Rayburn Reservoir (station 08039300) 37.9 mi (61.0 km) upstream. Some diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years (water years 1952-64) prior to regulation by Sam Rayburn Reservoir, 4,406 ft<sup>3</sup>/s (124.8 m<sup>3</sup>/s), 3,192,000 acre-ft/yr (3.94 km<sup>3</sup>/yr); 16 years (water years 1965-80) regulated, 4,786 ft<sup>3</sup>/s (135.5 m<sup>3</sup>/s), 3,467,000 acre-ft/yr (4.27 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,900 ft<sup>3</sup>/s (2,570 m<sup>3</sup>/s) May 21, 22, 1953, elevation, 82.85 ft (25.253 m); no flow at times due to regulation of B. A. Steinhagen Lake.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1884 reached a stage about 86.8 ft (26.46 m), discharge about 120,000 ft<sup>3</sup>/s (3,400 m<sup>3</sup>/s), and is the highest since that date, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,600 ft<sup>3</sup>/s (498 m<sup>3</sup>/s) May 26 at 0600 hours, elevation, 67.77 ft (20.656 m); minimum daily, 1,100 ft<sup>3</sup>/s (31.2 m<sup>3</sup>/s) Nov. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6040	1370	5580	5640	12900	7900	13000	13100	16400	4180	3220	2790
2	6020	1180	5610	5610	12800	8660	12900	13200	14600	3620	3210	2800
3	5980	1140	5600	5620	12000	11100	12800	13200	14500	3600	3190	2750
4	5370	1130	5610	5950	10200	13200	13400	13200	14600	3590	3170	2670
5	3020	1130	5610	6350	7660	12400	14200	13100	14600	3590	3160	2680
6	1870	1120	4590	6350	6520	9330	13100	11600	14700	3710	3110	2710
7	1800	1110	3090	6350	7200	6870	12300	7670	14700	4110	3020	2690
8	1780	1100	3030	6340	8150	7580	12200	5350	14700	4120	3030	2400
9	1770	1100	3020	6320	9800	9430	12200	7010	14700	4120	3040	1830
10	1770	1230	3020	5710	12100	9690	12200	8030	14200	4110	3040	1800
11	1770	1380	3030	4990	12900	8840	11100	5950	12300	4100	3020	1800
12	1770	1380	3030	4980	12800	7400	9320	4520	9920	4090	3020	1790
13	1760	1360	4330	4960	12400	4990	9680	4480	9790	4090	3030	1790
14	1760	1350	6760	4950	11900	5170	10400	5270	8380	4070	3040	1780
15	1760	1350	7760	4930	12200	4010	12700	6820	6090	4060	3060	1770
16	1760	1350	7800	3840	13000	2460	14400	10600	6400	4070	3050	1770
17	2000	1350	9050	2000	13400	2450	13400	15600	6680	4070	3030	1770
18	2350	1350	12600	1930	13300	2470	12100	15400	6670	4080	3010	2000
19	2350	1840	14800	1920	13200	3470	12000	15100	7170	4090	3020	2470
20	2350	2370	13900	1920	12000	4840	12500	15000	7430	4080	3020	2460
21	2350	2400	10500	1920	9450	5020	13000	15000	7400	3940	3020	2440
22	2370	2940	6730	4190	8620	4890	13100	16000	6870	3730	3030	2420
23	2380	2950	4710	7770	8620	5770	13100	17400	5670	3720	3030	2410
24	2380	3800	3300	8430	8660	7610	13100	17500	4750	3720	3010	2420
25	2380	5640	3240	8940	9410	8580	13600	17600	4720	3590	2990	2420
26	2370	4990	3880	9780	10100	7890	15000	17600	4720	3430	3000	2420
27	2340	4120	4610	9740	10800	6680	14600	17600	4720	3430	3000	2420
28	2280	4060	5700	9730	11300	10100	14000	17500	4730	3460	3000	2410
29	2260	4070	7280	10400	10100	12600	13200	17400	4720	3460	2900	2400
30	2280	4660	7310	11900	---	13900	13100	17400	4720	3450	2770	2410
31	2340	---	6630	12600	---	13300	---	17300	---	3350	2810	---
TOTAL	80780	66320	191710	192060	313490	238600	381700	392500	281550	118830	94050	68690
MEAN	2606	2211	6184	6195	10810	7697	12720	12660	9385	3833	3034	2290
MAX	6040	5640	14800	12600	13400	13900	15000	17600	16400	4180	3220	2800
MIN	1760	1100	3020	1920	6520	2450	9320	4480	4720	3350	2770	1770
AC-FT	160200	131500	380300	381000	621800	473300	757100	778500	558500	235700	186500	136200
CAL YR 1979	TOTAL	3489140	MEAN	9559	MAX	20100	MIN	1070	AC-FT	6921000		
WTR YR 1980	TOTAL	2420280	MEAN	6613	MAX	17600	MIN	1100	AC-FT	4801000		

08041000 NECHES RIVER AT EVADALE, TX  
(National stream-quality accounting network)

LOCATION.--Lat 30°21'22", long 94°05'36", Jasper-Hardin County line, Hydrologic Unit 12020003, near center of channel on downstream side of pier of bridge on U.S. Highway 96 at Evadale, 0.8 mi (1.3 km) upstream from Mill Creek, 16 mi (26 km) upstream from Village Creek, and at mile 55.6 (89.5 km).

DRAINAGE AREA.--7,951 mi<sup>2</sup> (20,593 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1904 to December 1906, April 1921 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 718: 1929. WSP 1342: 1905-7, 1924. WSP 1732: Drainage area at former site.

GAGE.--Water-stage recorder. Datum of gage is 8.25 ft (2.515 m) National Geodetic Vertical Datum of 1929. July 1, 1904, to Dec. 31, 1906, nonrecording gage on Gulf, Colorado, and Santa Fe Railway Co. bridge at site 1.2 mi (1.9 km) downstream at datum 5.50 ft (1.676 m) lower; Apr. 1, 1921, to Dec. 7, 1948, nonrecording gages at site 1.2 mi (1.9 km) downstream at present datum; Dec. 8, 1948, to Nov. 8, 1963, water-stage recorder at site 1.2 mi (1.9 km) downstream at present datum.

REMARKS.--Water-discharge records fair. Flow regulated by B. A. Steinhagen Lake (station 08040000) 58.1 mi (93.5 km) upstream, capacity 124,700 acre-ft (154 hm<sup>3</sup>), and Sam Kayburn Reservoir (station 08039300), 95.7 mi (154.0 km) upstream, capacity 4,442,000 acre-ft (5.48 km<sup>3</sup>). Some diversions upstream from municipal use. Gage-height telemeter at station.

AVERAGE DISCHARGE.--45 years (water years 1905-6, 1922-64) unregulated, 6,308 ft<sup>3</sup>/s (178.6 m<sup>3</sup>/s), 4,570,000 acre-ft/yr (5.63 km<sup>3</sup>/yr); 16 years (water years 1965-80) regulated, 5,379 ft<sup>3</sup>/s (152.3 m<sup>3</sup>/s), 3,897,000 acre-ft/yr (4.81 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92,100 ft<sup>3</sup>/s (2,610 m<sup>3</sup>/s) May 11, 1944, gage height, 23.58 ft (7.187 m), from floodmark, at site then in use; minimum daily, 63 ft<sup>3</sup>/s (1.78 m<sup>3</sup>/s) Nov. 26-28, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of 26.2 ft (7.99 m) at former site with a discharge of about 125,000 ft<sup>3</sup>/s (3,540 m<sup>3</sup>/s), and flood in August 1915 reached a stage of 24.5 ft (7.47 m) at former site with a discharge of about 102,000 ft<sup>3</sup>/s (2,890 m<sup>3</sup>/s). These are the highest floods since at least 1884. Stages furnished by Gulf, Colorado, and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,900 ft<sup>3</sup>/s (507 m<sup>3</sup>/s) May 27, 29, 30, gage height, 16.40 ft (4.999 m); minimum daily, 1,140 ft<sup>3</sup>/s (32.3 m<sup>3</sup>/s) Nov. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10200	4170	4610	7510	11500	11600	16000	14300	17700	4970	3530	2960
2	8430	3540	5320	6990	12200	11000	15800	13900	17600	4860	3360	2930
3	7210	2370	5730	6460	13000	9860	15000	13600	17100	4350	3310	2920
4	6710	1640	5860	6250	13400	9920	14100	13500	15900	4020	3300	2930
5	6270	1390	5960	6220	13000	11200	13700	13400	14900	3880	3280	2920
6	5180	1290	5730	6500	11800	12600	13800	13400	14500	3850	3270	2960
7	3370	1240	5120	6690	9190	12900	14200	13200	14400	3870	3250	2960
8	2490	1180	4410	6770	8190	11000	14000	12100	14400	4050	3190	2920
9	2280	1140	3840	6770	8940	9000	13300	9110	14500	4220	3150	2780
10	2210	1140	3520	6790	9920	8650	12800	7370	14500	4260	3130	2280
11	2190	1210	3430	6730	11600	9630	12700	7830	14500	4220	3140	2000
12	2190	1430	3760	6130	13000	10000	13700	7890	14200	4140	3140	1940
13	2160	1430	4480	5760	13900	9570	14300	6500	12900	4160	3150	1920
14	2150	1380	5130	5600	14000	7890	12700	5860	11500	4170	3150	1910
15	2140	1350	5940	5500	13900	6560	11800	6030	10500	4160	3150	1880
16	2150	1330	6760	5430	13500	5780	11700	8210	8870	4120	3170	1870
17	2090	1320	7770	5050	13300	4670	12600	12000	7530	4120	3170	1850
18	2130	1310	8460	3580	13500	4020	14000	14800	7220	4200	3180	1850
19	2540	1310	9240	2610	14000	3790	14400	17300	7210	4220	3160	1990
20	2700	1450	11200	2760	14500	3940	13400	17500	7250	4240	3140	2510
21	2730	2120	13600	2980	14400	5110	12900	16800	7560	4330	3140	2680
22	2830	2600	14800	4360	13500	5970	12700	16600	7690	4220	3160	2680
23	2880	3260	13100	6390	11500	6150	13100	15900	7670	4020	3160	2640
24	2870	3760	9660	8170	10100	6200	13500	16100	7040	3850	3160	2630
25	2840	4030	6490	9530	9360	6910	13700	16900	5980	3740	3130	2640
26	2780	5220	4970	10000	9440	8080	14000	17500	5300	3670	3140	2670
27	2740	6100	4540	10200	9830	9360	14400	17800	5060	3550	3130	2660
28	2710	5500	4920	10500	10400	10200	14900	17800	5030	3510	3130	2640
29	2710	4930	5480	10600	11000	11100	15100	17800	4990	3500	3090	2610
30	2720	4620	6540	10600	---	13200	14800	17800	4990	3480	3040	2640
31	3720	---	7340	10900	---	15000	---	17800	---	3510	2990	---
TOTAL	108320	74760	207710	210330	345870	271060	413100	416600	318490	125460	98590	74770
MEAN	3494	2492	6700	6785	11930	8744	13770	13440	10620	4047	3180	2492
MAX	10200	6100	14800	10900	14500	15000	16000	17800	17700	4970	3530	2960
MIN	2090	1140	3430	2610	8190	3790	11700	5860	4990	3480	2990	1850
AC-FT	214900	148300	412000	417200	686000	537600	819400	826300	631700	248800	195600	148300
CAL YR 1979	TOTAL	4007370	MEAN	10980	MAX	27200	MIN	1060	AC-FT	7949000		
WTR YR 1980	TOTAL	2665060	MEAN	7282	MAX	17800	MIN	1140	AC-FT	5286000		

## NECHES RIVER BASIN

08041000 NECHES RIVER AT EVADALE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1947 to current year. Pesticide analyses: January 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1947 to current year.

WATER TEMPERATURES: October 1947 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 422 micromhos Jan. 25, 1957; minimum daily, 23 micromhos Sept. 19, 1963.

WATER TEMPERATURES: Maximum daily, 34.0°C June 29, 1953; minimum daily, 3.0°C Jan. 30, 31, 1948, Jan. 31, 1949, and Jan. 24, 1963.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 183 micromhos Mar. 26; minimum daily, 78 micromhos May 26.

WATER TEMPERATURES: Maximum daily, 33.0°C July 16; minimum daily, 7.0°C Feb. 2.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM 5 DAY UNINHIB (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 23...	1045	2880	147	7.4	23.0	45	19	8.1	92	1.6	210	56
NOV 14...	1330	1380	160	7.2	14.5	80	32	10.3	98	1.0	40	24
JAN 15...	1405	5500	174	6.8	12.0	55	23	12.2	112	1.2	28	30
FEB 26...	1045	9370	149	7.5	12.5	50	24	10.9	100	1.7	32	30
MAR 24...	1615	6200	168	7.0	16.0	60	26	10.5	105	1.5	62	60
APR 29...	1330	15200	132	6.8	19.0	--	--	8.2	87	1.5	310	150
MAY 28...	1415	17800	88	6.6	25.5	160	48	6.2	75	1.0	150	92
JUN 24...	1605	6940	148	6.8	28.0	60	29	6.9	86	.4	54	30
JUL 29...	1615	3500	142	6.9	30.0	35	26	7.9	103	.2	24	32
AUG 26...	1715	3150	148	6.9	30.0	40	18	7.7	100	1.0	40	24
SEP 15...	1555	1880	154	7.3	29.0	25	11	8.3	108	.6	64	88

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 23...	29	6	7.1	2.8	14	1.1	2.9	28	0	17	17
NOV 14...	32	11	8.3	2.7	17	1.3	3.2	--	0	18	22
JAN 15...	33	16	8.1	3.2	17	1.3	2.9	21	0	27	21
FEB 26...	29	16	7.0	2.9	16	1.3	2.4	16	0	23	19
MAR 24...	31	15	7.5	3.0	17	1.3	2.5	20	0	23	21
APR 29...	--	--	--	--	--	--	--	17	0	--	--
MAY 28...	21	0	5.4	1.8	8.4	.8	2.3	15	0	14	9.2
JUN 24...	31	15	6.9	3.3	15	1.2	2.5	19	0	21	24
JUL 29...	30	14	6.7	3.3	14	1.1	2.6	19	0	23	18
AUG 26...	29	12	6.5	3.2	14	1.1	2.4	21	0	21	19
SEP 15...	30	15	6.6	3.3	13	1.0	2.6	23	0	21	19

08041000 NECHES RIVER AT EVADALE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 23...	.1	13	109	88	27	13	.11	.16	.060	.030	.56
NOV 14...	.1	13	110	97	50	28	.05	.08	.060	.030	1.0
JAN 15...	.1	14	122	104	89	21	.07	.04	.060	.000	.45
FEB 26...	.1	11	96	89	33	30	.02	.02	.000	.010	.66
MAR 24...	.1	11	111	95	48	10	.02	.03	.000	.010	.81
APR 29...	--	--	--	--	--	--	--	--	--	--	--
MAY 28...	.1	9.1	79	63	18	4	.09	.10	.040	.070	.72
JUN 24...	.1	11	113	91	22	0	.09	.04	.040	.010	.82
JUL 29...	.2	12	95	89	41	27	.00	.00	.020	.000	.77
AUG 26...	.1	11	105	87	13	0	.22	.00	.460	.000	.84
SEP 15...	.1	11	84	86	21	0	.00	.00	.000	.000	.69

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE (MG/L AS C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 23...	.60	.62	.63	.050	.090	8.5	--	--	57	443	60
NOV 14...	.71	1.1	.74	.070	.010	11	--	--	61	227	49
JAN 15...	.36	.51	.36	.040	.030	--	7.1	1.9	36	535	66
FEB 26...	.56	.66	.57	.040	.010	8.2	--	--	40	1010	62
MAR 24...	.52	.81	.53	.070	.020	--	8.4	.8	53	887	67
APR 29...	--	--	--	--	--	--	--	--	43	1770	86
MAY 28...	.45	.76	.52	.200	.020	18	--	--	38	1830	92
JUN 24...	.49	.86	.50	.010	.000	--	6.2	.8	47	881	82
JUL 29...	.38	.79	.38	.050	.020	7.3	--	--	81	765	56
AUG 26...	.39	1.3	.39	.050	.030	6.8	--	--	70	595	55
SEP 15...	.41	.69	.41	.030	.060	--	5.3	1.8	96	487	50

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
NOV 14...	1330	--	--	--	--	--	--	--	--	--	--
JAN 15...	1405	1	1	0	0	0	50	1	0	18	10
FEB 26...	1045	--	--	--	--	--	--	--	--	--	--
MAR 24...	1615	1	1	0	100	50	50	2	0	2	20
MAY 28...	1415	--	--	--	--	--	--	--	--	--	--
JUN 24...	1605	3	2	1	0	0	50	2	0	6	0
AUG 26...	1715	--	--	--	--	--	--	--	--	--	--
SEP 15...	1555	2	1	1	0	0	40	1	--	<1	0

08041000 NECHES RIVER AT EVADALE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

	NICKEL, DIS- SOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISTRIBUTED SOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISTRIBUTED SOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISTRIBUTED SOLVED (UG/L AS ZN)
NOV 14...	--	--	--	--	1	--	--	--	--	--
JAN 15...	3	0	0	0	0	0	0	40	30	7
FEB 26...	--	--	--	--	0	--	--	--	--	--
MAR 24...	3	0	0	0	0	0	0	20	20	<3
MAY 28...	--	--	--	--	0	--	--	--	--	--
JUN 24...	5	0	0	0	0	0	0	70	70	5
AUG 26...	--	--	--	--	0	--	--	--	--	--
SEP 15...	2	0	0	0	0	0	0	20	20	4

## NECHES RIVER BASIN

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08041000 NECHES RIVER AT EVADALE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
FEB 26...	1045	.00	0	.00	.00	.0	.0	0	.00	.0
JUL 29...	1615	.00	0	.00	.00	.0	.0	0	.00	.0

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
FEB 26...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0
JUL 29...	.00	.0	.00	.0	.00	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
FEB 26...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0
JUL 29...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
FEB 26...	.00	.00	.00	.00	0	0	.00	.00	.00	.00
JUL 29...	.00	.00	.00	.00	0	0	.00	.01	.00	.00



## NECHES RIVER BASIN

08041000 NECHES RIVER AT EVADALE, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	NOV 14, 79 1330	MAR 24, 80 1615	MAY 28, 80 1415	JUN 24, 80 1605
TOTAL CELLS/ML	4100	1200	2300	1200
DIVERSITY: DIVISION	1.5	1.5	1.4	1.5
..CLASS	1.5	1.5	1.4	1.6
...ORDER	2.0	2.1	2.0	2.1
...FAMILY	2.3	2.4	2.9	2.4
....GENUS	2.8	3.1	3.8	3.1

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...CHARACIACEAE								
...SCHROEDERIA	24	1	--	-	--	-	--	-
...COELASTRACEAE								
...COELASTRUM	--	-	--	-	110	5	64	6
...HYDRODICTYACEAE								
...PEDIASTRUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
...ANKISTRODESMUS	250	6	39	3	110	5	26	2
...CHLORELLA	240	6	--	-	--	-	--	-
...CHODATELLA	--	-	--	-	--	-	--	-
...DICTYOSPHAERIUM	--	-	--	-	400#	17	350#	30
...KIRCHNERIELLA	180	4	--	-	110	5	--	-
...OOCYSTIS	--	-	--	-	--	-	--	-
...TETRAEDRON	--	-	13	1	--	-	--	-
...TREUBARIA	--	-	--	-	14	1	--	-
...WESTELLA	--	-	--	-	--	-	210#	18
...SCENEDESMACEAE								
...ACTINASTRUM	--	-	--	-	110	5	--	-
...CRUCIGENIA	170	4	130	11	55	2	--	-
...SCENEDESMUS	190	5	130	11	380#	16	--	-
...TETRASTRUM	--	-	52	4	--	-	--	-
...TETRASPORALES								
...COCCOMYXACEAE								
...ELAKATOTHRIX	--	-	--	-	41	2	--	-
...VOLVOCALES								
...CHLAMYDOMONADACEAE								
...CHLAMYDOMONAS	24	1	39	3	69	3	39	3
...POLYTOMA	--	-	--	-	14	1	--	-
...ZYGNEMATALES								
...DESMIDIACEAE								
...SPONDYLIUM	--	-	--	-	--	-	--	-
CHRYSTOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINODISCACEAE								
...CYCLOTELLA	500	12	90	8	96	4	26	2
...MELOSIRA	--	-	160	13	55	2	90	8
...SKELETONEMA	140	4	--	-	--	-	--	-
...PENNALES								
...ACHNANTHACEAE								
...ACHNANTHES	--	-	--	-	27	1	--	-
...CYMBELLACEAE								
...CYMBELLA	--	-	13	1	--	-	--	-
...FRAGILARIACEAE								
...FRAGILARIA	--	-	--	-	--	-	--	-
...SYNEDRA	--	-	--	-	--	-	--	-
...GOMPHONEMATAACEAE								
...GOMPHONEMA	*	0	--	-	--	-	--	-
...NAVICULACEAE								
...GYROSIGMA	--	-	--	-	--	-	--	-
...NAVICULA	--	-	13	1	41	2	13	1
...NITZSCHIA								
...NITZSCHIA	180	4	260#	22	120	5	77	7
...XANTHOPHYCEAE								
...HETEROCOCCALES								
...CHLOROTHECIACEAE								
...OPHIOCYTIUM	--	-	--	-	14	1	13	1
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
...CRYPTOMONADACEAE								
...CRYPTOMONAS	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

08041000 NECHES RIVER AT EVADALE, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980--Continued

DATE TIME	NOV 14,79 1330		MAR 24,80 1615		MAY 28,80 1415		JUN 24,80 1605	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM					330	14	--	-
....ANACYSTIS	1900#	47	230#	20	110	5	90	8
....COCCOCHLORIS	--	-	--	-	14	1	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	72	2	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	140	12
...OSCILLATORIAEAE								
....LYNGBYA	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	96	4	--	-
....SCHIZOTHRIX	180	4	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	*	0	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	13	1
....TRACHELOMONAS	--	-	--	-	14	1	13	1
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 29,80 1615		AUG 26,80 1715		SEP 15,80 1555	
TOTAL CELLS/ML	7600		40000		15000	
DIVERSITY: DIVISION	1.0		0.3		1.0	
..CLASS	1.0		0.3		1.0	
...ORDER	1.8		0.6		1.9	
...FAMILY	2.1		1.3		2.5	
...GENUS	2.7		1.5		2.6	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE			*	0	--	-
...SCHROEDERIA	--	-				
...COELASTRACEAE			290	1	750	5
...COELASTRUM	--	-				
...HYDRODICTYACEAE			*	0	350	2
...PEDIASTRUM	--	-				
...OOCYSTACEAE						
...ANKISTRODESMUS	210	3	380	1	170	1
...CHLORELLA	--	-	--	-	--	-
...CHODATELLA	*	0	--	-	--	-
...DICTYOSPHAERIUM	*	0	*	0	--	-
...KIRCHNERIELLA	--	-	--	-	--	-
...OOCYSTIS	130	2	*	0	*	0
...TETRAEDRON	--	-	*	0	*	0
...TREUBARIA	--	-	--	-	--	-
...WESTELLA	51	1	--	-	120	1
...SCENEDESMACEAE						
...ACTINASTRUM	--	-	--	-	--	-
...CRUCIGENIA	--	-	*	0	120	1
...SCENEDESMUS	390	5	290	1	750	5
...TETRASTRUM	100	1	--	-	--	-
...TETRASPORALES						
...COCOMOXYACEAE						
...ELAKATOTHRIX	--	-	--	-	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE			*	0	140	1
...CHLAMYDOMONAS	*	0	--	-	--	-
...POLYTOMA	--	-	--	-	--	-
...ZYGNEMATALES						
...DESMIDIACEAE						
...SPONDYLIUM	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## NECHES RIVER BASIN

08041000 NECHES RIVER AT EVADALE, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980--Continued

DATE TIME	JUL 29,80 1615		AUG 26,80 1715		SEP 15,80 1555	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
...CYCLOTELLA	150	2	*	0	320	2
...MELOSIRA	140	2	*	0	*	0
...SKELETONEMA	--	-	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
...ACHNANTHES	--	-	--	-	--	-
...CYMBELLACEAE						
...CYMBELLA	--	-	--	-	--	-
...FRAGILARIACEAE						
...FRAGILARIA	*	0	--	-	--	-
...SYNEDRA	--	-	--	-	*	0
...GOMPHONEMACEAE						
...GOMPHONEMA	--	-	--	-	--	-
...NAVICULACEAE						
...GYROSIGMA	--	-	*	0	--	-
...NAVICULA	120	2	--	-	*	0
...NITZSCHACEAE						
...NITZSCHIA	190	3	320	1	350	2
..XANTHOPHYCEAE						
..HETEROCOCCALES						
...CHLOROTHECIACEAE						
...OPHIOCYTIUM	*	0	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
...CRYPTOMONAS	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	460	6	230	1	230	2
...ANACYSTIS	3800#	51	960	2	6200#	41
...COCCOCHLORIS	--	-	--	-	--	-
..HORMOGONALES						
..NOSTOCACEAE						
...ANABAENA	210	3	--	-	--	-
...ANABAENOPSIS	1200#	16	6700#	17	1200	8
...APHANIZOMENON	--	-	--	-	--	-
...OSCILLATORIA						
...OSCILLATORIA	260	3	29000#	73	4000#	27
...LYNGBYA	--	-	810	2	--	-
...OSCILLATORIA	--	-	--	-	--	-
...SCHIZOTHRIX	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
...EUGLENA	39	1	--	-	--	-
...PHACUS	--	-	--	-	--	-
...TRACHELOMONAS	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
...GLENODINIUM	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## NECHES RIVER BASIN

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08041000 NECHES RIVER AT EVADALE, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	108320	123	73	21200	15	4500	15	4360	26
NOV.	1979	74760	139	81	16300	18	3540	17	3390	29
DEC.	1979	207710	134	78	44000	17	9470	16	9110	28
JAN.	1980	210330	160	91	51900	20	11600	19	11000	32
FEB.	1980	345870	135	79	74000	17	16000	16	15300	29
MAR.	1980	271060	159	91	66800	20	15000	19	14200	32
APR.	1980	413100	135	79	88000	17	19000	16	18200	29
MAY	1980	416600	116	69	77100	14	16200	14	15800	25
JUNE	1980	318490	142	83	71200	18	15500	17	14900	30
JULY	1980	125460	147	85	28900	19	6340	18	6050	31
AUG.	1980	98590	146	85	22500	19	4930	18	4710	30
SEPT	1980	74770	144	83	16900	18	3680	17	3520	30
TOTAL		2665060	**	**	579000	**	126000	**	120000	**
WTD. AVG.		7282	138	80	**	17	**	17	**	29

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	112	137	153	127	150	134	131	128	145	142	144
2	97	111	132	158	122	155	135	132	133	146	142	146
3	102	100	131	159	123	158	114	138	137	148	141	145
4	109	120	122	161	125	156	105	141	140	147	140	145
5	114	139	126	158	131	155	106	145	142	147	142	142
6	117	148	125	170	136	154	110	144	143	148	143	141
7	120	153	132	167	144	152	116	143	149	150	141	143
8	124	161	134	166	150	157	125	144	143	148	142	144
9	127	155	135	164	154	166	132	149	144	150	145	143
10	129	157	136	168	140	163	140	146	143	149	147	144
11	129	155	142	167	138	167	144	147	143	151	148	146
12	130	145	176	165	133	165	135	149	142	151	147	145
13	132	150	155	162	118	164	138	148	141	150	146	146
14	131	156	147	170	122	163	132	148	144	150	147	145
15	134	159	148	173	113	165	131	146	143	151	148	148
16	133	160	157	170	121	167	147	135	141	150	149	146
17	138	159	136	168	132	168	142	121	140	150	148	145
18	141	160	125	170	133	160	141	125	142	150	149	146
19	139	159	116	171	136	155	145	114	140	140	146	145
20	138	159	122	164	137	159	165	109	146	146	147	140
21	140	157	123	162	139	161	149	82	161	144	146	141
22	139	156	125	170	141	158	150	92	157	145	146	142
23	140	140	130	127	144	166	151	88	150	146	148	143
24	141	137	127	138	148	170	151	94	145	145	146	142
25	150	133	130	161	150	179	148	79	147	147	147	141
26	155	152	135	168	153	183	146	78	146	148	148	141
27	148	147	136	167	155	174	141	80	145	146	146	142
28	149	132	140	165	150	171	133	88	144	144	148	147
29	149	122	148	154	155	143	125	100	146	143	149	146
30	140	125	150	143	---	153	123	110	145	142	148	141
31	125	---	153	140	---	136	---	120	---	143	149	---
MEAN	131	144	136	161	137	161	135	121	144	147	146	144

## NECHES RIVER BASIN

08041000 NECHES RIVER AT EVADALE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.0	12.0	11.0	10.0	---	---	22.0	27.0	31.0	31.0	30.0
2	---	19.0	11.0	11.0	7.0	11.0	---	22.0	27.0	32.0	30.0	30.0
3	---	19.0	11.0	10.0	8.0	11.0	---	22.0	28.0	32.0	30.0	30.0
4	---	18.0	12.0	10.0	9.0	11.0	---	22.0	28.0	32.0	30.0	30.0
5	---	18.0	12.0	10.0	10.0	14.0	---	23.0	28.0	32.0	30.0	30.0
6	---	18.0	12.0	10.0	10.0	13.0	---	23.0	28.0	32.0	30.0	30.0
7	---	19.0	12.0	10.0	9.0	15.0	---	24.0	28.0	32.0	30.0	29.0
8	---	18.0	12.0	10.0	---	17.0	---	24.0	28.0	32.0	30.0	28.0
9	---	18.0	12.0	10.0	8.0	18.0	---	24.0	26.0	32.0	30.0	29.0
10	---	17.0	13.0	11.0	8.0	18.0	---	24.0	27.0	32.0	30.0	29.0
11	---	17.0	15.0	13.0	8.0	17.0	---	25.0	28.0	32.0	---	30.0
12	---	17.0	13.0	12.0	8.0	18.0	---	25.0	28.0	32.0	30.0	30.0
13	---	16.0	12.0	13.0	8.0	18.0	---	25.0	28.0	32.0	30.0	30.0
14	---	15.0	12.0	13.0	9.0	17.0	---	24.0	---	32.0	30.0	30.0
15	---	14.0	12.0	13.0	10.0	17.0	19.0	24.0	28.0	32.0	30.0	30.0
16	---	14.0	12.0	15.0	8.0	17.0	19.0	---	29.0	33.0	30.0	30.0
17	---	14.0	11.0	15.0	8.0	17.0	19.0	24.0	29.0	32.0	30.0	30.0
18	---	17.0	10.0	15.0	8.0	18.0	18.0	24.0	29.0	32.0	30.0	30.0
19	---	17.0	10.0	16.0	12.0	17.0	20.0	23.0	29.0	32.0	30.0	29.0
20	---	16.0	11.0	17.0	13.0	19.0	21.0	24.0	29.0	30.0	30.0	29.0
21	---	16.0	12.0	17.0	15.0	18.0	20.0	25.0	29.0	30.0	30.0	29.0
22	25.0	15.0	14.0	14.0	15.0	19.0	20.0	24.0	29.0	30.0	30.0	30.0
23	24.0	15.0	12.0	13.0	15.0	18.0	21.0	25.0	30.0	31.0	30.0	29.0
24	23.0	14.0	13.0	12.0	17.0	18.0	21.0	25.0	29.0	31.0	30.0	30.0
25	24.0	14.0	13.0	13.0	15.0	17.0	21.0	26.0	30.0	31.0	30.0	30.0
26	24.0	14.0	---	13.0	15.0	17.0	20.0	26.0	30.0	30.0	30.0	29.0
27	24.0	14.0	13.0	13.0	17.0	17.0	20.0	26.0	30.0	30.0	30.0	29.0
28	24.0	13.0	12.0	13.0	17.0	18.0	20.0	27.0	31.0	28.0	30.0	29.0
29	24.0	13.0	12.0	12.0	17.0	17.0	22.0	27.0	30.0	31.0	30.0	29.0
30	23.0	12.0	11.0	12.0	---	---	20.0	27.0	31.0	31.0	30.0	28.0
31	22.0	---	11.0	11.0	---	---	---	27.0	---	---	30.0	---
MEAN	23.5	16.0	12.0	12.5	11.0	16.5	20.0	24.5	28.5	31.5	30.0	29.5

## 08041500 VILLAGE CREEK NEAR KOUNTZE, TX

LOCATION.--Lat 30°23'52", long 94°15'48", Hardin County, Hydrologic Unit 12020006, at downstream side of bridge on Farm Road 418, 1.6 mi (2.6 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.1 mi (5.0 km) upstream from Cypress Creek, 3.4 mi (5.5 km) northeast of Kountze, and 4.3 mi (6.9 km) downstream from Beech Creek.

DRAINAGE AREA.--860 mi<sup>2</sup> (2,227 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to September 1927, October 1927 to November 1929 (discharge measurements only), April 1939 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 25.12 ft (7.657 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 30, 1939, nonrecording gage at site 1.6 mi (2.6 km) downstream at different datum. Apr. 30, 1939, to Sept. 30, 1966, water-stage recorder at site 2,000 ft (610 m) downstream at present datum.

REMARKS.--Water-discharge records good. Small diversions above station.

AVERAGE DISCHARGE.--44 years, 839 ft<sup>3</sup>/s (23.76 m<sup>3</sup>/s), 13.25 in/yr (337 mm/yr), 607,900 acre-ft/yr (750 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,200 ft<sup>3</sup>/s (1,900 m<sup>3</sup>/s) Nov. 26, 1940, gage height, 27.6 ft (8.41 m), former site, from floodmark, from rating curve extended above 32,000 ft<sup>3</sup>/s (906 m<sup>3</sup>/s); minimum not determined, probably occurred during period of no gage-height record Sept. 16 to Oct. 3, 1956; minimum daily, 16 ft<sup>3</sup>/s (0.45 m<sup>3</sup>/s) Oct. 1, 2, 1956.

Flood of May 27, 1929, reached a stage of about 32 ft (9.8 m) at site 2,000 ft (610 m) downstream at present datum; stage was determined on basis of information by engineers of Gulf, Colorado, and Santa Fe Railway Co. for site 1.6 mi (2.6 km) downstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1884, about 34 ft (10.4 m) in August 1915 at site 2,000 ft (610 m) downstream at present datum; stage was determined on basis of information by engineers of Gulf, Colorado, and Santa Fe Railway Co. for site 1.6 mi (2.6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,180 ft<sup>3</sup>/s (260 m<sup>3</sup>/s) Mar. 31 at 1900 hours, gage height, 18.01 ft (5.489 m); minimum, 59 ft<sup>3</sup>/s (1.67 m<sup>3</sup>/s) Aug. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	491	2400	888	1130	1050	714	8110	2230	523	155	118	69
2	456	2790	765	1040	1140	927	6160	1190	471	147	113	83
3	428	3310	680	941	1190	1060	4830	912	435	143	102	86
4	401	3420	600	921	1110	1060	3480	846	404	139	94	79
5	374	2550	565	975	1030	939	2390	746	377	134	90	78
6	352	1410	579	1060	968	916	1650	630	353	129	89	109
7	332	804	598	1000	919	904	1210	555	332	123	89	142
8	316	639	572	888	927	850	1030	502	314	119	90	149
9	306	600	508	812	1800	752	974	464	299	115	88	197
10	296	640	480	767	3420	710	908	457	288	112	85	194
11	289	630	484	742	4630	660	804	472	289	111	89	158
12	281	566	570	858	5280	623	865	439	291	108	98	138
13	271	497	1010	842	5360	605	1110	406	280	105	86	124
14	263	439	1450	761	4680	584	1720	463	254	103	80	114
15	257	401	1850	682	3450	546	2170	723	236	100	79	106
16	252	377	2290	624	2500	503	2590	1610	224	97	79	98
17	249	360	2630	579	2050	619	2490	4570	216	95	78	93
18	246	352	2430	565	1840	856	1890	5670	208	92	75	90
19	244	380	1840	557	1700	939	1210	6670	202	89	73	121
20	244	460	1170	1020	1490	925	863	6150	186	94	72	141
21	242	430	842	2270	1300	1260	735	4730	203	101	71	146
22	278	667	765	3320	1170	1690	653	3900	262	102	70	211
23	438	1400	767	5600	1100	1690	586	3970	327	107	68	189
24	582	2090	910	6270	1020	1510	537	3280	306	101	66	152
25	623	2780	1130	5330	923	1270	519	2280	297	102	64	139
26	508	3460	1320	4300	830	1170	915	1440	260	103	62	129
27	438	3670	1500	3350	716	1300	1830	933	220	101	62	120
28	383	2860	1460	2380	662	2690	3230	749	196	100	60	113
29	348	1870	1340	1680	640	5010	3970	771	177	104	59	107
30	346	1190	1230	1250	---	7220	3560	753	166	108	60	114
31	1440	---	1160	1070	---	8890	---	604	---	120	66	---
TOTAL	11974	43442	34383	53584	54895	49392	62989	59115	8596	3459	2475	3789
MEAN	386	1448	1109	1729	1893	1593	2100	1907	287	112	79.8	126
MAX	1440	3670	2630	6270	5360	8890	8110	6670	523	155	118	211
MIN	242	352	480	557	640	503	519	406	166	89	59	69
CFSM	.45	1.68	1.29	2.01	2.20	1.85	2.44	2.22	.33	.13	.09	.15
IN.	.52	1.88	1.49	2.32	2.37	2.14	2.72	2.56	.37	.15	.11	.16
AC-FT	23750	86170	68200	106300	108900	97970	124900	117300	17050	6860	4910	7520

CAL YR 1979	TOTAL	757076	MEAN	2074	MAX	44600	MIN	161	CFSM	2.41	IN	32.75	AC-FT	1502000
WTR YR 1980	TOTAL	388093	MEAN	1060	MAX	8890	MIN	59	CFSM	1.23	IN	16.79	AC-FT	769800



## NECHES RIVER BASIN

08041500 VILLAGE CREEK NEAR KOUNTZE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1967 to current year. Water temperatures: November 1967 to September 1970.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 16...	1230	377	90	12.0	16	7	4.1	1.3	9.2
JAN 11...	1100	719	84	12.0	14	6	4.4	.8	9.2
MAR 18...	1230	910	87	17.5	15	9	4.0	1.2	9.9
MAY 05...	1600	718	71	21.5	15	2	4.0	1.1	8.7
JUN 11...	1110	288	86	21.0	18	7	4.9	1.4	9.7
JUL 22...	1500	103	100	25.0	18	5	5.2	1.3	11
SEP 03...	1510	85	83	27.0	15	6	4.2	1.2	8.0

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
NOV 16...	1.0	1.0	10	0	1.9	17	.1	15	55
JAN 11...	1.1	.8	10	0	1.4	18	.1	14	54
MAR 18...	1.1	.9	7	0	3.2	20	.1	11	54
MAY 05...	1.0	.8	15	0	2.4	14	.0	12	50
JUN 11...	1.0	1.0	14	0	1.2	18	.1	14	57
JUL 22...	1.1	1.3	16	0	2.4	20	.1	13	62
SEP 03...	.9	1.4	12	0	2.2	15	.1	12	50

## NECHES RIVER BASIN

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08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX

LOCATION.--Lat 30°06'21", long 94°20'04", Jefferson-Hardin County line, Hydrologic Unit 12020007, on right bank at downstream side of bridge on county road 5.1 mi (8.2 km) southeast of Sour Lake.

DRAINAGE AREA.--336 mi<sup>2</sup> (870 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--Water-discharge records fair. No known diversions. Low flow for period March through September usually sustained by drainage from ricefields. National Weather Service gage-height telemeter at this station.

AVERAGE DISCHARGE.--13 years, 472 ft<sup>3</sup>/s (13.37 m<sup>3</sup>/s), 342,000 acre-ft/yr (422 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft<sup>3</sup>/s (708 m<sup>3</sup>/s) Apr. 22, 1979, elevation, 34.29 ft (10.452 m); minimum daily, 0.38 ft<sup>3</sup>/s (0.011 m<sup>3</sup>/s) Nov. 5, 1978.  
Maximum stage since at least 1917, that of Apr. 22, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,000 ft<sup>3</sup>/s (170 m<sup>3</sup>/s) Jan. 24 at 1400 hours, 25 at 0400 hours, elevation, 28.81 ft (8.781 m); no flow Oct. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	472	1000	195	160	1500	79	4450	881	126	23	16	8.4
2	215	1100	137	162	1120	94	3750	1060	106	17	11	7.4
3	129	1130	101	159	772	106	3070	937	89	14	7.6	6.8
4	89	1070	81	152	469	116	2500	590	68	13	12	6.8
5	67	908	66	145	297	121	2070	323	62	15	27	311
6	52	756	53	141	226	112	1690	333	51	26	62	2940
7	41	618	42	140	199	101	1300	389	51	17	40	3070
8	32	417	37	139	193	91	875	405	47	14	21	2560
9	26	222	33	136	948	84	446	307	42	14	9.7	2180
10	20	140	28	126	1240	77	220	149	47	25	4.8	1890
11	16	120	24	110	1490	70	158	68	46	28	3.8	1590
12	12	109	21	97	1680	65	152	45	42	27	11	1220
13	8.6	91	21	86	1900	55	195	37	36	36	9.0	776
14	7.0	70	31	78	2010	47	285	55	33	41	6.6	341
15	4.7	53	168	69	1900	41	311	61	42	53	6.4	112
16	3.8	41	288	61	1690	40	323	446	47	54	6.6	55
17	2.7	32	342	56	1470	80	312	2230	38	35	5.0	36
18	1.8	26	361	64	1200	138	290	3730	30	26	11	27
19	.99	21	391	77	917	215	262	4510	36	29	14	153
20	.28	16	412	118	661	256	218	4650	27	33	4.2	164
21	.00	13	386	702	484	325	176	4350	26	47	2.3	72
22	1.5	29	313	1730	378	375	122	3900	30	47	1.8	33
23	6.9	137	233	4120	303	355	107	3290	36	59	1.6	18
24	8.3	225	198	5830	233	346	83	2660	35	58	1.3	12
25	3.4	311	151	5900	178	395	77	2160	31	42	1.3	12
26	2.5	349	142	5250	140	427	63	1730	30	36	1.6	21
27	2.4	351	138	4220	110	1070	36	1260	28	37	6.4	13
28	2.5	340	135	3350	87	2570	82	805	24	52	16	8.3
29	2.3	315	145	2700	69	3960	316	432	25	60	65	9.0
30	55	261	150	2240	---	4620	619	229	25	33	50	377
31	863	---	153	1870	---	4790	---	158	---	23	13	---
TOTAL	2148.67	10271	4976	40188	23864	21221	24558	42180	1356	1034	449.0	18029.7
MEAN	69.3	342	161	1296	823	685	819	1361	45.2	33.4	14.5	601
MAX	863	1130	412	5900	2010	4790	4450	4650	126	60	65	3070
MIN	.00	13	21	56	69	40	36	37	24	13	1.3	6.8
AC-FT	4260	20370	9870	79710	47330	42090	48710	83660	2690	2050	891	35760
CAL YR 1979	TOTAL	429449.67	MEAN	1177	MAX	24600	MIN	.00	AC-FT	851800		
WTR YR 1980	TOTAL	190275.37	MEAN	520	MAX	5900	MIN	.00	AC-FT	377400		

## NECHES RIVER BASIN

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1968 to current year.

WATER TEMPERATURES: February 1968 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1968-79): Maximum daily, 11,600 micromhos Mar. 23, 1968; minimum daily, 34 micromhos June 12, 1975, July 28, 1979.

WATER TEMPERATURES (1968-76): Maximum daily, 37.0°C Sept. 15, 1972; minimum daily, 2.0°C Jan. 11, 1973.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 08...	1830	30	155	6.9	23.0	35	2	11	1.8	19
DEC 07...	1500	41	207	--	--	39	18	12	2.2	25
JAN 24...	1700	6000	66	--	--	14	5	4.1	.9	7.5
FEB 06...	1630	217	169	--	12.5	30	10	9.4	1.5	21
MAR 20...	1500	264	240	--	17.5	45	22	14	2.4	26
APR 21...	1800	159	165	--	--	35	16	11	1.9	14
MAY 05...	1230	302	118	--	22.5	23	3	7.4	1.2	13
JUN 11...	1450	47	194	--	23.5	42	18	13	2.3	19

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 08...	1.4	1.8	40	0	6.9	26	.1	8.1	94
DEC 07...	1.7	2.2	26	0	9.9	45	.0	7.2	116
JAN 24...	.9	1.4	11	0	3.1	12	.1	3.9	38
FEB 06...	1.7	1.7	24	0	8.9	32	.1	5.8	92
MAR 20...	1.7	2.2	28	0	10	44	.1	5.5	118
APR 21...	1.0	4.3	24	0	16	25	.1	6.8	91
MAY 05...	1.2	1.6	24	0	5.3	20	.0	4.2	65
JUN 11...	1.3	1.8	29	0	24	24	.2	12	111

## NECHES RIVER BASIN

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08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	246	65	60	---	---	---	---
2	114	---	160	205	---	---	80	---	---	---	---	---
3	120	---	168	225	131	---	---	---	191	---	---	---
4	128	---	175	236	149	286	---	86	152	---	---	---
5	---	---	186	240	160	228	---	112	---	---	---	---
6	---	---	195	214	169	233	---	---	---	---	---	---
7	150	---	207	---	166	293	---	---	186	---	---	---
8	155	143	215	258	183	---	---	89	174	---	---	---
9	157	160	---	201	---	---	---	---	---	---	---	---
10	169	168	---	---	96	---	---	---	182	---	---	---
11	---	247	---	235	69	---	---	179	201	---	---	---
12	194	---	285	244	---	308	---	181	209	---	---	---
13	209	---	295	281	74	327	---	---	---	---	---	---
14	220	188	325	---	67	355	---	202	---	---	---	---
15	231	191	312	---	---	---	156	---	219	---	---	---
16	238	---	---	269	---	---	135	86	269	---	---	---
17	239	---	---	---	72	328	---	---	217	---	---	---
18	247	224	177	---	---	---	123	---	196	---	---	---
19	256	---	135	292	---	203	---	47	217	---	---	---
20	266	255	---	---	116	197	117	55	---	---	---	---
21	---	---	---	140	---	180	165	63	207	---	---	---
22	300	240	---	63	---	170	176	---	192	---	---	---
23	311	72	---	74	152	160	---	---	---	---	---	---
24	465	---	---	68	---	---	---	---	194	---	---	---
25	512	70	---	66	165	151	403	---	197	---	---	---
26	---	---	---	---	---	---	---	---	211	---	---	---
27	---	80	197	65	187	---	---	---	219	---	---	---
28	277	---	---	---	201	80	---	---	---	---	---	---
29	---	---	250	---	227	---	87	150	---	---	---	---
30	---	---	230	---	---	65	---	---	210	---	---	---
31	---	---	---	107	---	71	---	151	---	---	---	---
MEAN	236	170	220	183	140	216	151	112	202	---	---	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	17.0	20.0	---	---	---	---	---
2	23.0	---	---	11.0	---	---	20.5	---	---	---	---	---
3	22.0	---	---	11.0	11.0	---	---	---	28.5	---	---	---
4	22.0	---	---	11.5	10.0	16.0	---	23.0	17.0	---	---	---
5	---	---	---	16.0	15.0	16.0	---	24.0	---	---	---	---
6	---	---	---	13.0	12.5	16.0	---	---	---	---	---	---
7	23.0	---	---	---	---	18.5	---	---	31.5	---	---	---
8	23.0	---	---	12.0	13.5	18.5	---	23.0	28.5	---	---	---
9	23.0	---	---	12.0	---	---	---	---	---	---	---	---
10	---	---	---	---	8.0	---	---	---	29.0	---	---	---
11	---	---	---	---	9.0	---	---	26.0	30.5	---	---	---
12	22.5	---	---	15.5	---	23.5	---	26.0	28.5	---	---	---
13	23.0	---	---	---	14.0	21.0	---	---	---	---	---	---
14	---	---	---	---	---	20.0	---	26.0	---	---	---	---
15	20.0	---	---	---	---	---	17.5	---	30.0	---	---	---
16	---	---	---	19.0	---	---	19.0	23.0	31.0	---	---	---
17	---	---	---	---	10.0	19.0	---	---	31.0	---	---	---
18	---	---	---	---	---	---	20.0	---	32.0	---	---	---
19	---	---	---	16.5	---	17.5	---	25.0	31.0	---	---	---
20	---	---	---	---	13.0	17.5	23.0	---	---	---	---	---
21	---	---	---	18.0	---	16.5	---	24.5	29.5	---	---	---
22	---	---	---	17.0	---	18.0	25.0	---	31.0	---	---	---
23	---	---	---	16.0	---	20.0	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	31.5	---	---	---
25	---	---	---	---	19.0	18.5	---	---	33.0	---	---	---
26	---	---	---	---	---	---	---	---	32.0	---	---	---
27	---	---	---	15.0	16.0	---	---	---	31.5	---	---	---
28	---	---	---	---	17.0	20.0	---	---	---	---	---	---
29	---	---	13.5	---	17.0	---	22.0	17.0	---	---	---	---
30	---	---	14.0	---	---	18.0	---	---	31.5	---	---	---
31	---	---	---	10.0	---	---	---	17.0	---	---	---	---
MEAN	22.5	---	14.0	14.0	13.0	18.5	21.0	23.0	30.0	---	---	---

## TAYLOR BAYOU BASIN

08042000 TAYLOR BAYOU NEAR LABELLE, TX

LOCATION.--Lat 29°52'30", long 94°09'34", Jefferson County, Hydrologic Unit 12040201, near center of stream at downstream side of bridge on county road, 0.7 mi (1.1 km) south of LaBelle, 6.0 mi (9.7 km) upstream from Hillebrandt Bayou, 7.2 mi (11.6 km) upstream from State Highway 73, and 11.2 mi (18.0 km) upstream from salt-water gates and barge locks. Distances are measured along rectified channel.

DRAINAGE AREA.--262 mi<sup>2</sup> (679 km<sup>2</sup>).

PERIOD OF RECORD.--April 1954 to current year, complete records for storms of 1.0 inch (25.4 mm) or more runoff, except for the period Sept. 10-22, 1961.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4.63 ft (1.411 m) below National Geodetic Vertical Datum of 1929, determined by several comparisons of water surface with auxiliary water-stage recorder 7.2 mi (11.6 km) downstream during times of no flow and ideal weather conditions.

REMARKS.--Records poor. Discharge is computed using fall as a factor. Discharge for recessions of large rises with insufficient fall are estimated. Small rises with insufficient fall are not computed. Low flow is regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for rice irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,590 ft<sup>3</sup>/s (272 m<sup>3</sup>/s) Sept. 22, 1963, and Apr. 23, 1979; maximum gage height, 11.78 ft (3.591 m) Sept. 20, 1963 (backwater from Hillebrandt Bayou); minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.31 ft (0.704 m) July 17, 1954. Maximum stage since at least 1941, that of Sept. 20, 1963, and Apr. 23, 1979. Flood of Sept. 13, 1961 (Hurricane Carla), reached a stage of 11.51 ft (3.508 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1941 reached a stage of 11.3 ft (3.44 m), from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,050 ft<sup>3</sup>/s (171 m<sup>3</sup>/s) Mar. 30 at 2400 hours; maximum gage height, 9.74 ft (2.969 m) Sept. 8 at 1500 hours; minimum discharge not determined (affected by tides and pumping); minimum gage height, 4.47 ft (1.362 m) Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---		---	4490	---				---
2				---		---	2940	---				---
3				---		---	1900	---				---
4				---		---	1000	---				---
5				---		---	500	---				300
6				---		---		---				2720
7				---		---		---				4580
8				---		---		---				5580
9				---		---		---				5880
10				---		---		---				5670
11				---		---		---				4980
12				---		---		---				3660
13				---		---		---				2120
14				---		---		---				500
15				---		---		500				---
16				---		---		1510				---
17				---		---		3070				---
18				---		---		4230				---
19				---		---		3990				---
20				300		---		4010				---
21				2940		---		3580				---
22				4060		---		2630				---
23				5150		---		1430				---
24				4570		---		300				---
25				2680		---		---				---
26				1200		---		---				---
27				600		1050		---				---
28				---		4800		---				---
29				---		5300		---				---
30				---		5470		---				---
31				---		5810		---				---
TOTAL				---		---	---	---				---
MEAN				---		---	---	---				---
MAX				---		---	---	---				---
MIN				---		---	---	---				---
AC-FT				---		---	---	---				---

CAL YR 1979 TOTAL - MEAN - MAX - MIN - AC-FT -  
WTR YR 1980 TOTAL - MEAN - MAX - MIN - AC-FT -

## TAYLOR BAYOU BASIN

359

08042500 HILLEBRANDT BAYOU NEAR LOVELL LAKE, TX

LOCATION.--Lat 29°55'44", long 94°06'35", Jefferson County, Hydrologic Unit 12040201, near center of stream at downstream side of bridge on county road, 1.3 mi (2.1 km) southeast of Lovell Lake, and 4.4 mi (7.1 km) upstream (along rectified channel) from Taylor Bayou.

DRAINAGE AREA.--128 mi<sup>2</sup> (332 km<sup>2</sup>).

PERIOD OF RECORD.--April 1954 to current year, complete records for storms of 1.0 inch (25.4 mm) or more runoff, except for the period Sept. 11-18, 1961.

GAGE.--Water-stage recorder. Auxiliary water-stage recorder 3.0 mi (4.8 km) downstream. Datum of gage is 4.63 ft (1.411 m) below National Geodetic Vertical Datum of 1929, determined by comparisons of water surface with Taylor Bayou near LaBelle, auxiliary gage 5.6 mi (9.0 km) downstream, during times of no flow and ideal weather conditions. Prior to Aug. 28, 1963, auxiliary water-stage recorder on Taylor Bayou 1.2 mi (1.9 km) downstream from Hillebrandt Bayou, nonrecording gages on Taylor Bayou 2.3 and 5.2 mi (3.7 and 8.4 km) downstream from Hillebrandt Bayou.

REMARKS.--Records poor. Discharge computed using fall as a factor. Discharge for recessions of large rises with insufficient fall are estimated. Small rises with insufficient fall are not computed. Low flow is regulated by drainage from ricefields and operation of saltwater gates and barge locks. An unknown amount of water is diverted above and below gage for rice irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft<sup>3</sup>/s (425 m<sup>3</sup>/s) Sept. 18, 1963; maximum gage height, 12.34 ft (3.761 m) Sept. 19, 1963; minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.33 ft (0.710 m) July 17, 1954.

Maximum stage since 1941, 12.34 ft (3.761 m) Sept. 19, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,760 ft<sup>3</sup>/s (248 m<sup>3</sup>/s) Sept. 6 at 2400 hours; maximum gage height, 10.57 ft (3.222 m) Sept. 7 at 0400 hours; minimum discharge not determined (affected by tides and pumping); minimum gage height, about 4.5 ft (1.37 m) Nov. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				---		---		---				---
2				---		---		---				---
3				---		---		---				---
4				---		---		---				---
5				---		---		---				300
6				---		---		---				6740
7				---		---		---				7720
8				---		---		---				5120
9				---		---		---				3360
10				---		---		---				1990
11				---		---		---				1020
12				---		---		---				600
13				---		---		---				300
14				---		---		---				---
15				---		---		---				---
16				---		---		300				---
17				---		---		2000				---
18				---		---		1500				---
19				---		---		1000				---
20				100		---		600				---
21				980		---		200				---
22				1730		---		---				---
23				1620		---		---				---
24				400		---		---				---
25				---		---		---				---
26				---		100		---				---
27				---		3310		---				---
28				---		5310		---				---
29				---		3460		---				---
30				---		2130		---				---
31				---		500		---				---
TOTAL				---		---		---				---
MEAN				---		---		---				---
MAX				---		---		---				---
MIN				---		---		---				---
AC-FT				---		---		---				---
CAL YR 1979	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		
WTR YR 1980	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		



## 08042650 NORTH CREEK SUBWATERSHED NO. 28-A NEAR JERMYN, TX

LOCATION.--Lat 33°14'52", long 98°19'19", Jack County, Hydrologic Unit 12030101, near center of earthfill dam on unnamed tributary of North Creek, 0.2 mi (0.3 km) upstream from North Creek, and 4.0 mi (6.4 km) southeast of Jermyrn.

DRAINAGE AREA.--6.82 mi<sup>2</sup> (17.66 km<sup>2</sup>).

PERIOD OF RECORD.--March 1972 to September 1980 (discontinued).

GAGE.--Water-stage recorder and flat-crested weir on concrete drop inlet. Datum of gage is 1,090.39 ft (332.351 m) Soil Conservation Service datum. Prior to Oct. 5, 1972, staff gage at same datum.

REMARKS.--Records poor. The pool is formed by a rolled earthfill dam 1,800 ft (549 m) long with a 100-foot-wide (30 m) earthen spillway at the left end of dam. The crest of emergency spillway is at gage height 33.5 ft (10.21 m). The dam was completed in March 1972, and storage began May 12, 1972. The outlet structure consists of a 2.5- by 7.5-foot (0.8 by 2.3 m) uncontrolled concrete drop-inlet structure that is connected to a 30-inch (762 mm) concrete outlet pipe. The drop-inlet structure is also equipped with a 12-inch-diameter (305 mm) slide gate near the bottom of the tower with invert at a gage height of 8.61 ft (2.62 m). The crest of the drop inlet is at gage height 18.12 ft (5.52 m). The capacity of pool at crest of emergency spillway is 1,940 acre-ft (2.39 hm<sup>3</sup>), the capacity at crest of the drop inlet is 245 acre-ft (302,000 m<sup>3</sup>), and the capacity at the crest of the controlled outlet pipe is 24 acre-ft (29,600 m<sup>3</sup>). The capacity table below 18.12 ft (5.52 m) was computed using the average-end-area method from a surface area table based on a survey of Mar. 14, 1972. The capacity table above 18.12 ft (5.52 m) was computed using the average-end-area method and based on an area table furnished by the Soil Conservation Service.

AVERAGE INFLOW.--8 years (water years 1973-80), 506 acre-ft/yr (624,000 m<sup>3</sup>/yr), 1.39 in/yr (35 mm/yr).

AVERAGE OUTFLOW.--8 years (water years 1973-80), 272 acre-ft/yr (335,000 m<sup>3</sup>/yr), 0.75 in/yr (19 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum inflow, 1,430 ft<sup>3</sup>/s (40.5 m<sup>3</sup>/s), average for 5-minute interval, Oct. 30, 1974, computed from change in pool contents and adjusted for rainfall on pool surface during time of peak inflow; no inflow at times each year. Maximum outflow, 96.2 ft<sup>3</sup>/s (2.72 m<sup>3</sup>/s) Oct. 30, 1974, gage height, 22.80 ft (6.949 m); no outflow most of time each year.

EXTREMES FOR CURRENT YEAR.--Maximum inflow, 238 ft<sup>3</sup>/s (6.74 m<sup>3</sup>/s) average for 5-minute interval, May 15 at 1540 hours, computed as explained above, no other peak above base of 200 ft<sup>3</sup>/s (5.66 m<sup>3</sup>/s); no inflow at times. No outflow during water year.

## POOL WATER BUDGET, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.
TOTAL INFLOW 1/	3.0	0.1	4.0	2.2	3.9	0	0	82.6	0	0.1	5.0	154
TOTAL OUTFLOW	0	0	0	0	0	0	0	0	0	0	0	0
(†)	-16.1	-14.6	-2.5	-7.2	-5.3	-11.3	-12.9	+75.8	-27.4	-26.3	-18.9	+148
(‡)	23.9	22.0	21.1	20.6	20.3	19.2	17.6	21.0	24.1	20.9	18.4	17.6
(††)	2.42	.58	2.90	1.35	1.17	.93	.82	6.74	0	.72	.53	6.78
CAL YR 1979	INFLOW 206		OUTFLOW 0		† -60.4		‡ 28.9		†† 28.70			
WTR YR 1980	INFLOW 255		OUTFLOW 0		† +81.3		‡ 20.6		†† 24.94			

1/ Inflow adjusted for rainfall on pool and pool losses.

† Change in contents, in acre-feet.

‡ Mean surface area, in acres.

†† Rainfall, in inches.

## TRINITY RIVER BASIN

361

08042700 NORTH CREEK NEAR JACKSBORO, TX

LOCATION.--Lat 33°16'57", long 98°17'53", Jack County, Hydrologic Unit 12030101, near left bank on downstream side of bridge on U.S. Highway 281, 1.7 mi (2.7 km) upstream from Henderson Creek, 8.4 mi (13.5 km) upstream from mouth, and 9.5 mi (15.3 km) northwest of Jacksboro.

DRAINAGE AREA.--21.6 mi<sup>2</sup> (55.9 km<sup>2</sup>).

PERIOD OF RECORD.--August 1956 to September 1980 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,016.33 ft (309.78 m) State Department of Highways and Public Transportation datum.

REMARKS.--Records fair. No diversions above station. Five rain gages (two nonrecording and three recording) are operated in the basin. At end of year, flow from 16.3 mi<sup>2</sup> (42.2 km<sup>2</sup>) above this station was partly controlled by five floodwater-retarding structures with a total detention capacity of 3,940 acre-ft (4.86 hm<sup>3</sup>). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years (water years 1957-70) prior to completion of floodwater-retarding structures, 5.75 ft<sup>3</sup>/s (0.163 m<sup>3</sup>/s), 3.62 in/yr (92 mm/yr), 4,170 acre-ft/yr (5.14 hm<sup>3</sup>/yr); 10 years (water years 1971-80) regulated, 1.82 ft<sup>3</sup>/s (0.052 m<sup>3</sup>/s), 1.14 in/yr (29 mm/yr), 1,320 acre-ft/yr (1.63 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,990 ft<sup>3</sup>/s (198 m<sup>3</sup>/s) Apr. 28, 1957, gage height, 24.45 ft (7.452 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, that of Apr. 18, 1957. Significant floods occurred in April 1915, from information by local resident, and on May 3, 1956, which reached a stage of 21.58 ft (6.578 m), from floodmark, discharge 5,700 ft<sup>3</sup>/s (161 m<sup>3</sup>/s), from rating curve.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,320 ft<sup>3</sup>/s (37.4 m<sup>3</sup>/s) May 20 at 2015 hours, gage height, 14.61 ft (4.453 m); no flow for many days.

REVISIONS.--The maximum discharges for some years have been revised as shown in the following tables. They supersede figures published in WSP 1632 and 1712, open-file reports, and the reports for 1959-63 and 1970-78.

Water Year	Date	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Water Year	Date	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
1959	June 26	2,120	60.0	1963	Nov. 26	410	11.6
1960	Oct. 3	3,900	110		Apr. 28	940	26.6
1961	Jan. 7	660	18.7	1970	Apr. 30	1,270	36.0
	Mar. 17	1,750	49.6	1972	May 12	1,740	49.3
	July 16	2,110	59.8	1973	July 30	317	8.98
1962	Oct. 2	460	13.0	1974	Aug. 29	487	13.8
	June 1	520	14.7	1975	Oct. 30	988	28.0
	July 10	3,100	87.8	1976	Sept. 19	870	24.6
	July 16	380	10.8	1977	May 23	1,550	43.9
	Sept. 27	800	22.7	1978	Apr. 9	1,120	31.7
	Sept. 7	710	20.1				
			10.67				3.252

Revised daily discharges for water years 1959-63 and 1970-78 in cubic feet per second for high-water periods in these years are given below. They figures supersede those published in WSP 1632 and 1712, open-file reports, and the reports for 1959-63 and 1970-78.

June 26, 1959.....	495	Apr. 27, 1963.....	142	Nov. 1, 1974.....	172
Oct. 3.....	1,120	28.....	165	May 2, 1975.....	156
Jan. 7, 1961.....	240	Dec. 29, 1969.....	137	June 9.....	24
8.....	54			10.....	172
Mar. 16.....	27	Apr. 25, 1970.....	162	July 25.....	72
17.....	370	30.....	383	Aug. 26.....	75
18.....	55				
July 16.....	356	May 12, 1972.....	324	Apr. 19, 1976.....	32
Oct. 2.....	85	July 29, 1973.....	50	Aug. 29.....	19
June 1, 1962.....	96	30.....	60	Sept. 19.....	219
9.....	134	Oct. 12.....	73	Oct. 29.....	92
10.....	724				
July 16.....	41	Apr. 21, 1974.....	42	Mar. 27, 1977.....	284
27.....	242	Aug. 29.....	28	May 21.....	42
Sept. 6.....	162	30.....	50	23.....	332
7.....	124	Oct. 30.....	196	Apr. 9, 1978.....	129
8.....	82	31.....	230	10.....	124
Nov. 26.....	144				

## TRINITY RIVER BASIN

08042700 NORTH CREEK NEAR JACKSBORO, TX--Continued

MONTH	TOTAL	MEAN	MAXIMUM	MINIMUM	CFSM	IN.	ACRE-Feet
June 1959.....	549.40	18.3	495	0	0.85	0.95	1,090
1959 WTR YR.....	1,007.40	2.76	495	0	.13	1.73	2,000
October 1959.....	1,215.00	39.2	1,120	0	1.82	2.09	2,410
1960 WTR YR.....	1,802.00	4.92	1,120	0	.228	3.10	3,570
January 1961.....	310.00	10.0	240	0	.463	.53	615
March.....	474.00	15.3	370	0	.708	.82	940
July.....	409.60	13.2	356	0	.611	.70	812
1961 WTR YR.....	1,374.20	3.76	370	0	.174	2.37	2,730
October 1961.....	86.30	2.78	85	0	.129	.15	171
June.....	1,027.10	34.2	724	0	1.58	1.77	2,040
July.....	296.00	9.55	242	0	.442	.51	587
September.....	455.50	15.2	162	0	.704	.78	903
1962 WTR YR.....	1,992.20	5.46	724	0	.25	3.43	3,950
November 1962.....	174.40	5.82	144	0	.27	.30	346
April.....	319.10	10.6	165	0	.491	.55	633
1963 WTR YR.....	747.50	2.04	165	0	.094	1.28	1,480
December 1969.....	155.48	5.02	137	0	.23	.27	308
April.....	584.48	19.5	383	0	.90	1.01	1,160
1970 WTR YR.....	875.15	2.35	383	0	.11	1.48	1,700
May 1972.....	468.66	15.1	324	0			930
1972 WTR YR.....	582.98	1.59	324	0			1,160
July 1973.....	110.96	3.58	60	0	.17	.19	220
1973 WTR YR.....	168.17	.46	60	0	.02	.29	334
October 1973.....	110.11	3.55	73	0	.16	.19	218
April.....	47.18	1.57	42	0	.07	.08	94
August.....	90.9	2.93	50	0	.14	.16	180
1974 WTR YR.....	381.84	1.05	73	0	.05	.66	757
October 1974.....	566.89	18.3	230	0	.84	.98	1,120
November.....	270.88	9.03	172	.02	.42	.47	537
May.....	490.03	15.8	156	.28	.73	.84	972
June.....	252.61	8.42	172	.23	.39	.44	501
July.....	97.86	3.16	72	.04	.15	.17	194
August.....	114.87	3.71	75	.04	.17	.20	228
1975 WTR YR.....	1,961.38	5.37	230	0	.25	3.38	3,890
April 1976.....	40.35	1.34	32	0	.06	.07	80
August.....	23.2	.75	19	0	.03	.04	46
September.....	285.93	9.52	219	0	.44	.49	566
1976 WTR YR.....	395.93	1.08	219	0	.05	.68	785
October 1976.....	152.39	4.92	92	0	.23	.26	302
March.....	394.95	12.7	284	.30	.59	.68	783
May.....	498.02	16.1	332	.43	.75	.86	988
1977 WTR YR.....	1,247.54	3.42	332	0	.16	2.15	2,470
April 1978.....	326.72	10.9	129	.06	.50	.56	648
1978 WTR YR.....	388.34	1.06	129	0	.05	.67	770

## TRINITY RIVER BASIN

363

08042700 NORTH CREEK NEAR JACKSBORO, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	.00	.00	.00	.00	.09	.07	.29	.34	.00	.00	.00		
2	.00	.00	.00	.00	.00	.05	.18	3.0	.37	.00	.00	.00		
3	.00	.00	.00	.00	.00	.13	.17	.33	.31	.00	.00	.00		
4	.00	.00	.00	.00	.00	.21	.08	.06	.15	.00	.00	.00		
5	.00	.00	.00	.00	.00	.19	.07	.05	.06	.00	.00	.00		
6	.00	.00	.00	.00	.00	.15	.11	1.6	.03	.00	.00	.00		
7	.00	.00	.00	.00	.00	.22	.11	1.1	.02	.00	.00	.00		
8	.00	.00	.00	.00	.72	.20	.05	.35	.01	.00	.00	.00		
9	.00	.00	.00	.00	.41	.21	.03	.18	.01	.00	.00	.00		
10	.00	.00	.00	.00	.21	.23	.07	.05	.01	.00	.00	.00		
11	.00	.00	.00	.00	.15	.26	.11	.02	.00	.00	.00	.00		
12	.00	.00	.00	.00	.10	.27	.10	.02	.00	.00	.00	.00		
13	.00	.00	.00	.00	.07	.20	.27	.00	.00	.00	.00	.00		
14	.00	.00	.00	.00	.06	.07	.17	.00	.00	.00	.00	.00		
15	1.4	.00	.00	.00	.08	.06	.12	62	.00	.00	.00	.00		
16	.11	.00	.00	.00	.11	.11	.10	3.8	.00	.00	.00	.00		
17	.00	.00	.00	.00	.13	.06	.06	.77	.00	.00	.00	.00		
18	.00	.00	.00	.00	.15	.02	.06	.40	.00	.00	.00	.00		
19	.00	.00	.00	.00	.15	.03	.09	.38	.00	.00	.00	.00		
20	.00	.00	.00	.00	.11	.05	.07	89	.00	.00	.00	.00		
21	.00	.00	.00	.67	.10	.02	.07	7.4	.00	.00	.00	.00		
22	.00	.00	.00	.76	.08	.03	.05	1.1	.00	.00	.00	.00		
23	.00	.00	.00	.11	.07	.06	.03	.62	.00	.00	.00	.00		
24	.00	.00	.00	.00	.07	.04	.07	.59	.00	.00	.00	.00		
25	.00	.00	.00	.00	.08	.03	.14	.59	.00	.00	.00	.00		
26	.00	.00	.00	.00	.07	.06	.21	.53	.00	.00	.00	.00		
27	.00	.00	.00	.00	.13	.21	.06	.57	.00	.00	.00	4.1		
28	.00	.00	.90	.00	.16	.39	.00	1.3	.00	.00	.00	122		
29	.00	.00	.33	.00	.17	.15	.00	.68	.00	.00	.00	25		
30	.00	.00	.00	.00	---	.11	.00	.55	.00	.00	.00	7.2		
31	.00	---	.00	.00	---	.07	---	.40	---	.00	.00	---		
TOTAL	1.51	.00	1.23	1.54	3.38	3.98	2.72	177.73	1.31	.00	.00	158.30		
MEAN	.049	.000	.040	.050	.12	.13	.091	5.73	.044	.000	.000	5.28		
MAX	1.4	.00	.90	.76	.72	.39	.27	89	.37	.00	.00	122		
MIN	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00		
CFSM	.002	.000	.002	.002	.006	.006	.004	.27	.002	.000	.000	.24		
IN.	.00	.00	.00	.00	.01	.01	.00	.31	.00	.00	.00	.27		
AC-FT	3.0	.00	2.4	3.1	6.7	7.9	5.4	353	2.6	.00	.00	314		
CAL YR 1979	TOTAL	175.32	MEAN	.48	MAX	35	MIN	.00	CFSM	.02	IN	.30	AC-FT	348
WTR YR 1980	TOTAL	351.70	MEAN	.96	MAX	122	MIN	.00	CFSM	.04	IN	.61	AC-FT	698

## TRINITY RIVER BASIN

08042800 WEST FORK TRINITY RIVER NEAR JACKSBORO, TX

LOCATION.--Lat 33°17'36", long 98°04'43", Jack County, Hydrologic Unit 12030101, near left bank on downstream side of bridge on State Highway 59, 4 mi (6 km) downstream from Big Cleveland Creek, 7 mi (11 km) upstream from Carroll Creek, 7 mi (11 km) northeast of Jacksboro, and at mile 660 (1,060 km).

DRAINAGE AREA.--683 mi<sup>2</sup> (1,769 km<sup>2</sup>).

PERIOD OF RECORD.--March 1956 to current year.

Water-quality records: October 1976 to September 1978.

GAGE.--Water-stage recorder. Datum of gage is 869.28 ft (264.96 m) State Department of Highways and Public Transportation datum. Sept. 20, 1960, to May 30, 1961, nonrecording gage at same site and datum.

REMARKS.--Records good. At end of year, flow from 70.9 mi<sup>2</sup> (183.6 km<sup>2</sup>) above this station was partly controlled by 21 floodwater-retarding structures with a combined detention capacity of 19,780 acre-ft (24.4 hm<sup>3</sup>). Tarrant County Water Control and Improvement District gage-height telemeter located at station.

AVERAGE DISCHARGE.--24 years (water years 1957-80), 91.4 ft<sup>3</sup>/s (2.588 m<sup>3</sup>/s), 1.82 in/yr (46 mm/yr), 66,220 acre-ft/yr (81.6 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,100 ft<sup>3</sup>/s (994 m<sup>3</sup>/s) Apr. 27, 1957, gage height, 32.10 ft (9.784 m), from floodmark; no flow at times each year.  
Maximum stage since at least 1900, that of Apr. 27, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1941 reached a stage of 30 ft (9.1 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,630 ft<sup>3</sup>/s (74.5 m<sup>3</sup>/s) Sept. 30 at 0215 hours, gage height, 19.98 ft (6.090 m), no other peak above base of 1,200 ft<sup>3</sup>/s (34.0 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	.00	.00	10	1.2	.17	.00	.00	556	.00	.00	.00		
2	.00	.00	.00	14	.90	.14	.00	.00	243	.00	.00	.00		
3	.00	.00	.00	6.7	.62	.11	.00	.00	18	.00	.00	.00		
4	.00	.00	.00	3.7	.51	.10	.00	.00	7.6	.00	.00	.00		
5	.00	.00	.00	2.3	.42	.07	.00	.00	4.1	.00	.00	.00		
6	.00	.00	.00	1.4	.33	.05	.00	18	2.6	.00	.00	.00		
7	.00	.00	.00	.94	.33	.04	.00	40	1.6	.00	.00	.00		
8	.00	.00	.00	.82	3.7	.03	.00	166	1.2	.00	.00	.00		
9	.00	.00	.00	.73	5.9	.02	.00	71	.97	.00	.00	.00		
10	.00	.00	.00	.55	6.3	.01	.00	42	.79	.00	.00	.00		
11	.00	.00	.00	.38	9.7	.01	.00	31	.64	.00	.00	.00		
12	.00	.00	.00	.28	23	.01	.00	14	.52	.00	.00	.00		
13	.00	.00	.00	.20	24	.00	.00	7.6	.41	.00	.00	.00		
14	.00	.00	.00	.16	13	.00	.00	4.6	.36	.00	.00	.00		
15	.00	.00	.00	.05	8.6	.00	.00	47	.52	.00	.00	.00		
16	.00	.00	.00	.04	6.7	.00	.00	683	.46	.00	.00	.00		
17	.00	.00	.00	.03	5.8	.00	.00	880	.39	.00	.00	.00		
18	.00	.00	.00	.02	5.5	.00	.00	1000	.33	.00	.00	.00		
19	.00	.00	.00	.02	4.9	.00	.00	638	.23	.00	.00	.00		
20	.00	.00	.00	.03	3.7	.00	.00	74	.16	.00	.00	.00		
21	.00	.00	.00	.27	3.0	.00	.00	241	.08	.00	.00	.00		
22	.00	.00	.00	3.0	2.4	.00	.00	509	.03	.00	.00	.00		
23	.00	.00	.00	2.2	1.4	.00	.00	510	.01	.00	.00	.00		
24	.00	.00	.00	1.1	.90	.00	.00	123	.00	.00	.00	.00		
25	.00	.00	.00	.65	.72	.00	.00	32	.00	.00	.00	.00		
26	.00	.00	.00	2.4	.56	.00	.00	13	.00	.00	.00	.00		
27	.00	.00	.00	4.7	.34	.00	.00	5.8	.00	.00	.00	.00		
28	.00	.00	.00	4.0	.27	.00	.00	5.5	.00	.00	.00	347		
29	.00	.00	.00	2.9	.21	.00	.00	111	.00	.00	.00	1470		
30	.00	.00	.00	1.9	---	.00	.00	370	.00	.00	.00	2440		
31	.00	---	.00	1.5	---	.00	---	461	---	.00	.00	---		
TOTAL	.00	.00	.00	66.97	134.91	.76	.00	6097.50	840.00	.00	.00	4257.00		
MEAN	.000	.000	.000	2.16	4.65	.025	.000	197	28.0	.000	.000	142		
MAX	.00	.00	.00	14	24	.17	.00	1000	556	.00	.00	2440		
MIN	.00	.00	.00	.02	.21	.00	.00	.00	.00	.00	.00	.00		
CFSM	.000	.000	.000	.003	.007	.000	.000	.29	.04	.000	.000	.21		
IN.	.00	.00	.00	.00	.01	.00	.00	.33	.05	.00	.00	.23		
AC-FT	.00	.00	.00	133	268	1.5	.00	12090	1670	.00	.00	8440		
CAL YR 1979	TOTAL	10372.28	MEAN	28.4	MAX	855	MIN	.00	CFSM	.04	IN	.56	AC-FT	20570
WTR YR 1980	TOTAL	11397.14	MEAN	31.1	MAX	2440	MIN	.00	CFSM	.05	IN	.62	AC-FT	22610

## 08043000 BRIDGEPORT RESERVOIR ABOVE BRIDGEPORT, TX

LOCATION.--Lat 33°13'22", long 97°49'54", Wise County, Hydrologic Unit 12030101, at left end of Bridgeport Dam on West Fork Trinity River, 4.6 mi (7.4 km) west of Bridgeport, 13 mi (21 km) upstream from Big Sandy Creek, and at mile 626 (1,007 km).

DRAINAGE AREA.--1,111 mi<sup>2</sup> (2,877 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1932 to current year (prior to October 1950, monthend figures only).

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 26, 1944, nonrecording gages at various sites in vicinity of present gage at present datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 2,040 ft (622 m) long. The dam was completed in December 1931 and storage began Apr. 1, 1932. The original dam was 1,900 ft (580 m) long, but was lengthened to the present length (2,040 ft or 622 m) in 1971-72. The original service spillway was eliminated during construction (1971-72), and a new spillway with approach and discharge channels was built through natural ground 2,800 ft (850 m) from the left end of dam. The new spillway is 90 ft (27 m) wide and has eight vertical lift gates that are 11.25 by 22 ft (3.43 by 7 m). The controlled outlet works consist of a 48-inch-diameter (1,219 mm) and an 18-inch-diameter (457 mm) pipe encased in a concrete conduit extending through the dam. In addition, a controlled 60-inch-diameter (1,524 mm) steel pipe extends through the service spillway wall to the spillway discharge basin. Flow is affected at times by discharge from the flood-detention pools of 25 flood-water-retarding structures with a combined detention capacity of 21,720 acre-ft (26.8 hm<sup>3</sup>). These structures control runoff from 80.3 mi<sup>2</sup> (208.0 km<sup>2</sup>) above the reservoir. For elevations of outlet works, see table below. Capacity tables are based on surveys made in 1956 and 1968. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	874.0	-
Crest of spillway.....	866.0	902,000
Top of gates.....	842.0	469,300
Top of conservation pool.....	836.0	387,000
Crest of spillway.....	820.0	212,400
Lowest gated outlet (invert, at spillway).....	810.0	133,200
Lowest gated outlet (invert).....	751.4	0

COOPERATION.--Daily elevation and monthly diversion records furnished by Tarrant County Water Control and Improvement District No. 1. Capacity table furnished by Freese and Nichols, Consulting Engineers, for Tarrant County Water Control and Improvement District No. 1.

EXTREMES (at 0730) FOR PERIOD OF RECORD.--Maximum contents observed, 407,600 acre-ft (503 hm<sup>3</sup>) Apr. 29, 30, 1942, elevation, 836.2 ft (254.87 m); maximum elevation, 836.55 ft (254.980 m) May 27, 1977; minimum contents since first appreciable storage in 1935, 7,170 acre-ft (8.84 hm<sup>3</sup>) Oct. 12-16, 1956.

EXTREMES (at 0730) FOR CURRENT YEAR.--Maximum contents observed, 168,000 acre-ft (207 hm<sup>3</sup>) Oct. 1, elevation, 814.73 ft (248.330 m); minimum observed, 79,150 acre-ft (97.6 hm<sup>3</sup>) Sept. 25, 26, elevation, 801.01 ft (244.148 m).

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

801.0	79,100	809.0	126,400
803.0	89,780	811.0	140,200
805.0	101,200	815.0	170,200
807.0	113,400		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 0730

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168000	150800	145700	142900	136200	134400	122700	112800	116100	94940	86230	81860
2	167400	150200	145700	142700	135900	134300	122100	112700	116400	94150	86120	81700
3	166700	149700	145600	142400	135700	134100	121800	112900	116800	93300	85850	81600
4	166000	149100	145500	142100	135500	134100	121600	112500	116500	92460	85690	81540
5	165400	148500	145500	141900	135200	133900	121700	112000	115600	91670	85470	81440
6	164800	147900	145500	141700	135100	133900	121600	111700	115000	91000	85260	81340
7	164400	147400	145300	141400	134800	133900	121100	111700	113900	90160	85100	81180
8	163900	146800	145200	141200	134800	133900	120700	111700	113100	89400	84990	81080
9	163100	147400	145100	140900	135000	133900	120200	112000	112300	89720	84880	81020
10	162400	147200	145000	140700	134900	133800	119800	112100	111500	89560	84720	80970
11	161700	147100	145000	140500	134700	133800	119300	112200	110600	89450	84620	80920
12	161200	147100	145000	140200	134700	133800	119000	112300	110000	89280	84560	80820
13	160600	147000	145500	139900	134700	133700	119100	112000	108900	89120	84510	80660
14	160000	147000	145500	139700	134700	133600	119100	111600	108100	88960	84400	80560
15	159300	146900	145400	139500	134800	133500	118900	111500	107200	88740	84240	80500
16	159400	146800	145300	139200	134800	133500	118400	112300	106400	88520	84030	80400
17	159000	146800	145200	139100	134900	133500	118000	112800	105600	88350	83870	80240
18	158500	146700	145000	138800	134900	130800	117600	114200	104800	88180	83770	80090
19	158000	146600	145000	138500	135000	130100	117100	116100	104100	87960	83610	79930
20	157400	146600	145000	138400	134900	129700	116800	117000	103200	87800	83450	79780
21	156900	147000	144900	138500	134900	128900	116400	117200	102400	87690	83340	79620
22	156400	146900	145000	138600	134800	128100	116100	117100	101700	87530	83240	79410
23	155600	146800	144700	138300	134800	127300	115700	117400	100900	87360	83080	79310
24	155100	146600	144500	138200	134800	126600	115200	117900	100300	87150	83020	79260
25	154500	146500	144200	137900	134800	125700	115100	117900	99680	86930	82970	79150
26	153900	146300	143800	137700	134600	124800	114700	117700	98860	86770	82810	79150
27	153300	146100	143600	137300	134600	124800	114300	117300	98110	86610	82650	79360
28	153000	146100	143200	137000	134600	124700	113900	117100	97350	86820	82440	80350
29	152400	146000	143700	136900	134600	124300	113500	116400	96430	86770	82440	80140
30	151800	145800	143500	136600	---	124000	113100	115900	95630	86610	82230	88620
31	151400	---	143200	136400	---	123100	---	116000	---	86450	82070	---
MAX	168000	150800	145700	142900	136200	134400	122700	117900	116800	94940	86230	88620
MIN	151400	145800	143200	136400	134600	123100	113100	111500	95630	86450	82070	79150
(†)	812.55	811.79	811.43	810.46	810.20	808.51	806.96	807.41	804.04	802.39	801.57	802.79
(+)	-17100	-5600	-2600	-6800	-1800	-11500	-10000	+2900	-20370	-9180	-4380	+6550
(††)	359	322	298	293	252	263	426	304	488	640	585	423

CAL YR 1979 MAX 204800 MIN 128500 + +14400 †† 3450  
WTR YR 1980 MAX 168000 MIN 79150 + -79880 †† 4650

† Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial uses.



## TRINITY RIVER BASIN

08043000 BRIDGEPORT RESERVOIR ABOVE BRIDGEPORT, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE, WATER (DEG C)	HARDNESS (MG/L AS $\text{CaCO}_3$ )	HARDNESS, NONCARBONATE (MG/L AS $\text{CaCO}_3$ )	CALCIUM DIS-SOLVED (MG/L AS $\text{Ca}$ )	MAGNESIUM, DIS-SOLVED (MG/L AS $\text{Mg}$ )	SODIUM, DIS-SOLVED (MG/L AS $\text{Na}$ )	SODIUM ADSORPTION RATIO
JAN 09...	1120	380	8.5	140	12	42	7.3	22	.8

DATE	POTASSIUM, DIS-SOLVED (MG/L AS $\text{K}$ )	BICARBONATE (MG/L AS $\text{HCO}_3$ )	CARBONATE (MG/L AS $\text{CO}_3$ )	SULFATE DIS-SOLVED (MG/L AS $\text{SO}_4$ )	CHLORIDE, DIS-SOLVED (MG/L AS $\text{CL}$ )	FLUORIDE, DIS-SOLVED (MG/L AS $\text{F}$ )	SILICA, DIS-SOLVED (MG/L AS $\text{SiO}_2$ )	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
JAN 09...	5.4	150	0	23	36	.3	5.9	216

## TRINITY RIVER BASIN

367

08044000 BIG SANDY CREEK NEAR BRIDGEPORT, TX

LOCATION.--Lat 33°13'54", long 97°41'40", Wise County, Hydrologic Unit 12030101, on downstream side of bridge on U.S. Highway 380, 1.9 mi (3.1 km) upstream from Greathouse Branch, 4.0 mi (6.4 km) east of Bridgeport, and 4.4 mi (7.1 km) upstream from mouth.

DRAINAGE AREA.--333 mi<sup>2</sup> (862 km<sup>2</sup>).

PERIOD OF RECORD.--October 1936 to current year.

REVISED RECORDS.--WSP 1148: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 727.44 ft (221.724 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since May 1, 1956, flow from 100 mi<sup>2</sup> (259 km<sup>2</sup>) above station is affected at times by storage in Lake Amon G. Carter 30 mi (48 km) upstream, capacity 15,240 acre-ft (18.8 hm<sup>3</sup>) at elevation 920.0 ft (280.42 m), spillway crest. Records furnished by city of Bowie show that during the current year 1,070 acre-ft (1.32 hm<sup>3</sup>) was diverted from Lake Amon G. Carter for municipal use and 67 acre-ft (82,600 m<sup>3</sup>) of sewage effluent was discharged into tributaries above station. Flow was also affected at times by discharge from 15 flood-detention pools of floodwater-retarding structures with a combined capacity of 9,750 acre-ft (12.0 hm<sup>3</sup>). These structures control runoff from 38.8 mi<sup>2</sup> (100.5 km<sup>2</sup>) between this station and Lake Amon G. Carter. Tarrant County Water Control and Improvement District No. 1 operates a gage-height telemeter at this station.

AVERAGE DISCHARGE.--44 years, 69.2 ft<sup>3</sup>/s (1.960 m<sup>3</sup>/s), 50,140 acre-ft/yr (61.8 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,000 ft<sup>3</sup>/s (1,500 m<sup>3</sup>/s) June 10, 1941, gage height, 15.69 ft (4.782 m), from floodmark, from rating curve extended above 22,000 ft<sup>3</sup>/s (623 m<sup>3</sup>/s); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887 occurred in 1908 and 1915 and reached about the same stage as that of June 10, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 422 ft<sup>3</sup>/s (12.0 m<sup>3</sup>/s) Sept. 29 at 1400 hours, gage height, 5.97 ft (1.820 m); no flow Oct. 1 to Jan. 1, May 4 to Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.94	2.2	1.2	.03	.00	.00	.00	.00
2	.00	.00	.00	.23	.94	1.9	.94	.01	.00	.00	.00	.00
3	.00	.00	.00	.24	.94	1.9	.85	.01	.00	.00	.00	.00
4	.00	.00	.00	.15	1.2	2.0	2.6	.00	.00	.00	.00	.00
5	.00	.00	.00	.15	1.2	2.1	2.2	.00	.00	.00	.00	.00
6	.00	.00	.00	.20	1.2	2.2	1.2	.00	.00	.00	.00	.00
7	.00	.00	.00	.19	1.0	2.1	.85	.00	.00	.00	.00	.00
8	.00	.00	.00	.22	1.9	2.2	.58	.00	.00	.00	.00	.00
9	.00	.00	.00	.30	4.6	2.2	.50	.00	.00	.00	.00	.00
10	.00	.00	.00	.30	6.2	2.3	.43	.00	.00	.00	.00	.00
11	.00	.00	.00	.36	5.3	2.4	.30	.00	.00	.00	.00	.00
12	.00	.00	.00	.43	4.2	2.5	.30	.00	.00	.00	.00	.00
13	.00	.00	.00	.50	4.2	2.5	.67	.00	.00	.00	.00	.00
14	.00	.00	.00	.50	4.4	2.5	1.5	.00	.00	.00	.00	.00
15	.00	.00	.00	.50	3.8	2.2	1.6	.00	.00	.00	.00	.00
16	.00	.00	.00	.58	3.4	2.3	1.2	.00	.00	.00	.00	.00
17	.00	.00	.00	.67	3.1	2.4	.76	.00	.00	.00	.00	.00
18	.00	.00	.00	.67	2.9	2.6	.58	.00	.00	.00	.00	.00
19	.00	.00	.00	.67	2.9	2.3	.50	.00	.00	.00	.00	.00
20	.00	.00	.00	.67	2.9	2.2	.36	.00	.00	.00	.00	.00
21	.00	.00	.00	1.3	2.7	2.1	.30	.00	.00	.00	.00	.00
22	.00	.00	.00	2.2	2.5	2.1	.25	.00	.00	.00	.00	.00
23	.00	.00	.00	2.1	2.3	2.1	.16	.00	.00	.00	.00	.00
24	.00	.00	.00	1.3	2.2	1.8	.20	.00	.00	.00	.00	.00
25	.00	.00	.00	1.0	2.0	1.4	.16	.00	.00	.00	.00	.00
26	.00	.00	.00	.94	1.8	1.3	.05	.00	.00	.00	.00	.00
27	.00	.00	.00	.76	1.7	1.0	.05	.00	.00	.00	.00	.00
28	.00	.00	.00	.76	1.8	1.4	.25	.00	.00	.00	.00	.00
29	.00	.00	.00	.76	2.1	1.6	.12	.00	.00	.00	.00	53
30	.00	.00	.00	.94	--	1.6	.05	.00	.00	.00	.00	376
31	.00	--	.00	.94	--	1.4	--	.00	--	.00	.00	227
TOTAL	.00	.00	.00	20.53	76.32	62.8	20.71	.05	.00	.00	.00	656.00
MEAN	.000	.000	.000	.66	2.63	2.03	.69	.002	.000	.000	.000	21.9
MAX	.00	.00	.00	2.2	6.2	2.6	2.6	.03	.00	.00	.00	376
MIN	.00	.00	.00	.00	.94	1.0	.05	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	41	151	125	41	.10	.00	.00	.00	1300
CAL YR 1979	TOTAL	15429.80	MEAN	42.3	MAX	2300	MIN	.00	AC-FT	30600		
WTR YR 1980	TOTAL	836.41	MEAN	2.29	MAX	376	MIN	.00	AC-FT	1660		

## TRINITY RIVER BASIN

08044500 WEST FORK TRINITY RIVER NEAR BOYD, TX

LOCATION.--Lat 33°05'07", long 97°33'30", Wise County, Hydrologic Unit 12030101, on right bank at downstream side of highway embankment, 10 ft (3 m) right of right abutment of bridge on Farm Road 730, 0.6 mi (1.0 km) northeast of Boyd, 3.5 mi (5.6 km) downstream from Boggy Creek, and at mile 602 (969 km).

DRAINAGE AREA.--1,725 mi<sup>2</sup> (4,468 km<sup>2</sup>).

PERIOD OF RECORD.--January 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 660.57 ft (201.342 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 14, 1954, water-stage recorder at site 2.2 mi (3.5 km) downstream at datum 5.48 ft (1.670 m) lower.

REMARKS.--Records fair. During the current year, sustained flows were the result of releases for water supply from Bridgeport Reservoir (station 08043000) 25 mi (40 km) upstream from this station, drainage area 1,111 mi<sup>2</sup> (2,877 km<sup>2</sup>). In addition, flow from 100 mi<sup>2</sup> (259 km<sup>2</sup>) is affected by storage in Lake Amon G. Carter, capacity 15,240 acre-ft (18.8 hm<sup>3</sup>), on Big Sandy Creek. Flow is also affected at times by 32 floodwater-detention structures with a combined detention capacity of 22,780 acre-ft (28.1 hm<sup>3</sup>). These structures control runoff from 84.1 mi<sup>2</sup> (217.8 km<sup>2</sup>) in the Big Sandy and Salt Creeks drainage basins. Several observations of water temperature were made during the year. Tarrant County Water Control and Improvement District No. 1 gage-height telemeter at station.

AVERAGE DISCHARGE.--33 years, 212 ft<sup>3</sup>/s (6.004 m<sup>3</sup>/s), 153,600 acre-ft/yr (189 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,300 ft<sup>3</sup>/s (773 m<sup>3</sup>/s) Oct. 5, 1959, gage height, 22.17 ft (6.757 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, about 25 ft (7.6 m) in May 1908, present site and datum, from information by local residents, who also reported a flood of about the same gage height between 1870-80. A flood in April 1942 reached a stage of 20.6 ft (6.28 m), present site and datum, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,160 ft<sup>3</sup>/s (32.9 m<sup>3</sup>/s) Sept. 30 at 0100 hours, gage height, 15.08 ft (4.596 m); no flow Aug. 3 to Sept. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	216	238	3.0	119	120	6.2	232	141	275	307	.62	.00
2	217	229	3.0	119	120	5.9	231	145	275	307	.16	.00
3	218	227	3.1	119	121	5.8	230	65	275	307	.00	.00
4	219	225	3.5	118	121	5.8	164	73	275	306	.00	.00
5	220	226	3.6	118	121	8.8	63	130	303	305	.00	.00
6	223	227	3.5	118	121	7.3	15	131	333	304	.00	.00
7	221	225	12	118	121	7.0	85	108	334	303	.00	.00
8	223	231	6.3	118	195	6.6	135	17	334	302	.00	.00
9	222	140	4.6	118	217	6.3	138	7.3	334	182	.00	.00
10	229	15	4.2	118	144	6.2	139	6.5	334	13	.00	.00
11	229	6.6	4.1	120	138	6.2	140	5.2	335	3.8	.00	.00
12	226	5.3	7.4	118	98	6.3	142	4.6	341	3.4	.00	.00
13	224	4.6	12	118	24	6.5	149	11	345	3.0	.00	.00
14	225	4.3	9.3	118	16	6.3	70	127	345	2.6	.00	.00
15	229	4.0	8.0	119	13	6.2	12	113	343	2.1	.00	.00
16	241	3.8	5.9	120	12	6.2	80	18	345	1.6	.00	.00
17	231	3.5	4.7	120	11	6.2	139	8.4	346	1.4	.00	.00
18	230	3.5	4.4	120	10	309	140	7.6	344	1.4	.00	.00
19	230	3.4	4.2	120	9.8	448	140	7.2	345	1.7	.00	.00
20	232	3.2	4.2	120	9.1	413	140	27	348	2.0	.00	.00
21	231	3.7	4.5	125	8.6	413	141	267	352	.38	.00	.00
22	232	4.6	4.7	157	7.9	417	141	274	350	.27	.00	.00
23	234	16	52	148	7.6	422	141	270	349	.22	.00	.00
24	232	5.6	188	126	7.0	425	142	259	336	.19	.00	.00
25	228	4.3	180	124	6.9	421	143	275	313	.14	.00	.00
26	225	4.1	180	122	6.4	423	142	275	308	.35	.00	.00
27	227	3.9	178	120	6.2	283	142	275	307	.30	.00	.38
28	229	3.5	181	119	6.2	244	142	275	307	.46	.00	.49
29	228	3.2	167	120	6.2	235	141	275	307	1.9	.00	998
30	287	3.1	126	121	---	232	141	275	307	.97	.00	998
31	281	---	122	121	---	232	---	275	---	.78	.00	---
TOTAL	7139	2077.2	1494.2	3779	1804.9	5026.8	4000	4147.8	9745	2664.96	.78	2045.38
MEAN	230	69.2	48.2	122	62.2	162	133	134	325	86.0	.025	68.2
MAX	287	238	188	157	217	448	232	275	352	307	.62	998
MIN	216	3.1	3.0	118	6.2	5.8	12	4.6	275	.14	.00	.00
AC-FT	14160	4120	2960	7500	3580	9970	7930	8230	19330	5290	1.5	4060
CAL YR 1979	TOTAL	54081.10	MEAN	148	MAX	2670	MIN	2.8	AC-FT	107300		
WTR YR 1980	TOTAL	43925.02	MEAN	120	MAX	998	MIN	.00	AC-FT	87130		

## 08045000 EAGLE MOUNTAIN RESERVOIR ABOVE FORT WORTH, TX

LOCATION.--Lat 32°52'39", long 97°28'29", Tarrant County, Hydrologic Unit 12030101, at right end of main section (left) of Eagle Mountain Dam on West Fork Trinity River, 11.8 mi (19.0 km) northwest of Fort Worth, and at mile 583.3 (938.5 km).

DRAINAGE AREA.--1,970 mi<sup>2</sup> (5,102 km<sup>2</sup>).

PERIOD OF RECORD.--February 1934 to current year (prior to October 1950, monthend figures only).

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Nonrecording gage read once daily. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Feb. 24, 1943, nonrecording gages at several sites within 1.0 mi (1.6 km) of present site at present datum.

REMARKS.--The reservoir is formed by two sections of rolled earthfill and a concrete spillway separated by high natural ground. The total length of the dam, including spillway, is 4,800 ft (1,500 m). The dam was completed Oct. 24, 1932, and storage began Feb. 28, 1934. The emergency spillway is a 1,300-foot-wide (400 m) cut through natural ground located between the two sections of earthfill that make up the dam. The original service spillway, located in the section to the right of the main dam, contains a concrete spillway with four 25-foot (8 m) bays, three are equipped with vertical lift gates and the fourth is left open. In 1971, a side-channel spillway was constructed. The newest spillway is located 300 ft (90 m) to the left of the original service spillway and has six 11.25- by 22-foot-wide (3.43 by 7 m) roller lift gates. The main section of the dam contains the outlet works that consist of two concrete conduits with two 48-inch-diameter (1,219 mm) valves in each conduit. The reservoir is used for flood control and for part of the municipal water supply for the city of Fort Worth. Capacities are based on a survey made in 1968. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08044500. For storage above the reservoir, see REMARKS for West Fork Trinity River near Boyd (station 08044500). Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	682.0	-
Crest of spillway.....	676.0	558,000
Top of gates (new side-channel spillway).....	659.0	295,400
Crest of (old service) spillway (top of conservation pool).....	649.1	190,400
Crest of spillway (new side-channel spillway).....	637.0	99,120
Lowest gated outlet (invert).....	599.9	94

COOPERATION.--Daily elevation and monthly diversion records furnished by Tarrant County Water Control and Improvement District No. 1. Capacity table furnished by Freese and Nichols, Consulting Engineers, for Tarrant County Water Control and Improvement District No. 1.

EXTREMES (at 0700) FOR PERIOD OF RECORD.--Maximum contents observed, 333,500 acre-ft (411 hm<sup>3</sup>) Apr. 26, 1942, elevation, 659.9 ft (201.14 m); minimum observed since first appreciable storage in 1935, 57,690 acre-ft (71.1 hm<sup>3</sup>) Nov. 19, 20, 1956.

EXTREMES (at 0700) FOR CURRENT YEAR.--Maximum contents observed, 167,900 acre-ft (207 hm<sup>3</sup>) Nov. 9, 10, elevation, 646.55 ft (197.068 m); minimum observed, 116,500 acre-ft (144 hm<sup>3</sup>) Sept. 26, elevation, 639.69 ft (194.978 m).

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

639.0	111,900	646.0	163,300
642.0	132,600	647.0	171,700
645.0	155,300		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166400	167700	163400	159700	161000	158900	158000	158500	160600	160900	145600	125700
2	166300	167800	163100	159700	160800	158500	158000	158900	160500	160900	144700	125100
3	166100	167800	163100	159800	160700	158100	158500	159200	160500	160800	143900	124500
4	165800	167600	162000	160000	160600	157700	158900	159300	160300	160800	143000	123900
5	165600	167600	161600	160200	160600	157300	159100	159400	160000	160700	142300	123400
6	165600	167600	161100	160300	160500	157200	158700	159500	159800	160600	141600	122800
7	165600	167600	160600	160500	160300	156700	158600	159500	159700	160600	141000	122000
8	165400	167600	160200	160300	160300	156400	158200	159700	159700	160400	140300	122100
9	165600	167900	159700	160200	161500	156300	158100	160600	159900	160300	139700	121900
10	165400	167900	159200	160200	161000	156100	158000	160500	160000	160200	139000	121700
11	165300	167600	158900	160100	162300	155800	158100	160300	160100	159900	138400	121400
12	165200	167300	159400	160200	162600	155500	157900	160200	160100	159700	137900	120800
13	165200	167100	159300	160100	162800	155300	158300	159900	160000	158600	137300	120300
14	165100	166800	159000	160000	162700	155000	158500	159700	159900	158000	136600	120000
15	165000	166600	158900	159900	162700	154600	158600	160200	159800	157300	136000	119800
16	166300	166400	158900	160000	162500	154200	158500	160400	159800	156500	135300	119400
17	166400	166100	158900	159900	162200	153900	158300	160700	159900	156000	134800	119100
18	166600	165900	158700	159800	161900	153500	158100	160700	160200	155400	134200	118800
19	166600	165700	158700	159700	161500	153500	158100	161000	160400	154800	133600	118400
20	166500	165500	158700	159700	161400	154000	158100	160600	160400	154200	133100	118100
21	166400	165600	158500	160300	161100	154400	158000	160600	160300	153500	132500	117600
22	167100	165400	158300	161000	160700	154600	158000	160500	160300	153000	131900	117300
23	166800	165100	158300	161400	160500	155000	157900	160500	160600	152500	131400	117100
24	166700	164800	158600	161600	160300	155400	157900	160400	160700	151900	130700	116900
25	166700	164600	158900	161700	160200	155700	158700	160600	160800	151200	130100	116600
26	166600	164600	158600	161500	159800	156100	158900	160500	161000	149900	129500	116500
27	166600	164600	158500	161400	159500	156500	158600	160500	161000	149300	128900	116700
28	166700	164500	158500	161200	159300	157600	158500	161000	161100	148700	128200	116900
29	166700	164400	159300	161300	159100	158100	158400	160800	161000	147800	127600	119600
30	166700	164000	159300	161200	---	158100	158400	160600	161000	147200	127000	122300
31	167700	---	159500	161200	---	157800	---	160700	---	146300	126300	---
MAX	167700	167900	163400	161700	162800	158900	159100	161000	161100	160900	145600	125700
MIN	165000	164000	158300	159700	159100	153500	157900	158500	159700	146300	126300	116500
(†)	646.53	646.08	645.53	645.74	645.48	645.32	645.39	645.68	645.72	643.85	641.12	640.54
(+)	+1300	-3700	-4500	+1700	-2100	-1300	+600	+2300	+300	-14700	-20000	-4000
(††)	341	247	263	231	195	235	295	295	536	727	700	470
CAL YR	1979	MAX	192900	MIN	157000	+	-4300	††	4070			
WTR YR	1980	MAX	167900	MIN	116500	+	-4410	††	4540			

† Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial use.

## TRINITY RIVER BASIN

08045400 LAKE WORTH ABOVE FORT WORTH, TX

PERIOD OF RECORD.--Chemical analyses: January 1970 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
SEP 08...	0900	418	22.0	130	17	38	9.0	30	1.1

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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)
SEP 08...	6.8	140	0	27	43	.3	5.5	229

## 08045800 LAKE WEATHERFORD NEAR WEATHERFORD, TX

LOCATION.--Lat 32°46'21", long 97°40'28", Parker County, Hydrologic Unit 12030102, in pumphouse 168 ft (51 m) upstream from right end of dam on Clear Fork Trinity River, 2.4 mi (3.9 km) downstream from Hays Branch, 3.9 mi (6.3 km) upstream from Squaw Creek, and 7.3 mi (11.7 km) east of Weatherford.

DRAINAGE AREA.--109 mi<sup>2</sup> (282 km<sup>2</sup>).

PERIOD OF RECORD.--June 1976 to May 1980 (discontinued).

Water-quality records: Chemical analyses: October 1978 to September 1979.

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

REMARKS.--The lake is formed by a rolled earthfilled dam 4,055 ft (1,236 m) long. The dam was completed and deliberate impoundment began in March 1957. The service spillway is a semi-circular drop inlet with a crest length of 162 ft (49 m) located 550 ft (168 m) to the right of the pumphouse. The drop inlet discharges into a 9- by 9-foot (3 by 3 m) concrete conduit that extends 425 ft (130 m) under the dam. The emergency spillway is an uncontrolled excavated split-level cut channel located at the right end of dam. The low-flow outlet works consist of an 18-inch-diameter (457 mm) concrete pipe with a valve control assembly. At end of year, flow from 43.9 mi<sup>2</sup> (113.7 km<sup>2</sup>) above this station was partly affected at times by discharge from the flood-detention pools of 22 floodwater-retarding structures with a combined detention capacity of 11,000 acre-ft (13.6 hm<sup>3</sup>). Records furnished by the city of Weatherford show that 1,030 acre-ft (1.27 hm<sup>3</sup>) was diverted from the lake for municipal use during the period October to April and 869 acre-ft (1.07 hm<sup>3</sup>) of sewage effluent was returned to a tributary downstream from 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.....	914.0	-
Crest of spillway.....	903.0	28,530
Invert of drop inlet (spillway).....	896.0	19,070
Invert of lowest gated outlet pipe.....	857.0	88

COOPERATION.--Records of diversions were furnished by the city of Weatherford. The capacity table is based on an April 1973 report by the Soil Conservation Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 23,560 acre-ft (29.0 hm<sup>3</sup>) Mar. 27, 1977, elevation, 899.65 ft (274.213 m), from high-water mark; minimum, 12,880 acre-ft (15.9 hm<sup>3</sup>) Jan. 9, 10, 1979, elevation, 889.99 ft (271.269 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents during period October to May, 18,920 acre-ft (23.3 hm<sup>3</sup>) May 6, elevation, 895.87 ft (273.061 m); minimum, 17,350 acre-ft (21.4 hm<sup>3</sup>) Dec. 10-12, elevation, 894.44 ft (272.625 m).

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

894.0	16,890
895.0	17,960
896.0	19,070

CONTENTS, IN ACRE-FEET, OCTOBER 1979 TO MAY 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18140	17860	17470	17700	18070	18410	18330	18640				
2	18100	17850	17460	17700	18070	18390	18460	18820				
3	18070	17830	17450	17680	18070	18360	18590	18830				
4	18020	17800	17440	17670	18070	18390	18590	18840				
5	17980	17800	17440	17650	18080	18360	18570	18840				
6	17960	17760	17420	17650	18070	18360	18570	18910				
7	17930	17750	17420	17630	18060	18360	18560	18910				
8	17890	17740	17400	17620	18220	18350	18550	---				
9	17850	17740	17400	17620	18320	18350	18540	---				
10	17820	17720	17390	17610	18340	18350	18510	---				
11	17810	17710	17400	17610	18380	18350	18540	---				
12	17760	17700	17510	17600	18390	18410	18550	---				
13	17730	17690	17500	17600	18400	18340	18600	---				
14	17700	17680	17500	17620	18410	18320	18600	---				
15	17890	17670	17490	17610	18440	18310	18600	---				
16	17900	17650	17490	17600	18430	18330	18600	---				
17	17890	17640	17470	17590	18430	18310	18590	---				
18	17870	17640	17460	17580	18430	18290	18570	---				
19	17860	17630	17460	17590	18440	18280	18570	---				
20	17850	17640	17460	17780	18450	18280	18570	---				
21	17870	17670	17490	17900	18450	18270	18560	---				
22	17830	17620	17490	17970	18460	18230	18540	---				
23	17820	17600	17620	18050	18450	18280	18530	---				
24	17800	17590	17620	18090	18460	18240	18600	---				
25	17770	17580	17620	18080	18450	18230	18660	---				
26	17740	17550	17630	18070	18440	18220	18640	---				
27	17720	17540	17620	18070	18440	18330	18630	---				
28	17710	17510	17710	18070	18440	18350	18620	---				
29	17670	17500	17720	18080	18470	18350	18620	---				
30	17880	17490	17720	18090	---	18330	18620	---				
31	17880	---	17710	18080	---	18310	---	---				
MAX	18140	17860	17720	18090	18470	18410	18660	---				
MIN	17670	17490	17390	17580	18060	18220	18330	---				
(†)	894.93	894.57	894.77	895.11	895.47	895.32	895.60	---				
(‡)	-300	-390	+220	+370	+390	-160	+310	---				
(††)	163	125	127	129	128	204	151	---				

CAL YR 1979 MAX 20950 MIN 12880 † - †† -  
WTR YR 1980 MAX - MIN - † - †† -

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by the city of Weatherford.



## TRINITY RIVER BASIN

08045850 CLEAR FORK TRINITY RIVER NEAR WEATHERFORD, TX

LOCATION.--Lat 32°44'25", long 97°39'06", Parker County, Hydrologic Unit 12030102, near left end of bridge on weigh station exit road associated with Interstate Highway 20, 150 ft (46 m) downstream from Squaw Creek, 2.8 mi (4.5 km) downstream from Lake Weatherford Dam on the Clear Fork Trinity River, 3.8 mi (6.1 km) upstream from South Fork Trinity River, and 8.5 mi (13.7 km) east of county courthouse in Weatherford.

DRAINAGE AREA.--121 mi<sup>2</sup> (313 km<sup>2</sup>).

PERIOD OF RECORD.--May to September 1980.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 810.00 ft (246.888 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Records good. Flow is regulated by Lake Weatherford (see station 08045800). Records furnished by the city of Weatherford show that 2,520 acre-ft (3.11 hm<sup>3</sup>) was diverted from Lake Weatherford for municipal use and that 1,500 acre-ft (1.85 hm<sup>3</sup>) was returned to the South Fork Trinity River, a tributary downstream from this stations. Several observations of water temperature were obtained during the period May to September.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 112 ft<sup>3</sup>/s (3.17 m<sup>3</sup>/s) May 20, 1980, gage height, 10.89 ft (3.31 m); minimum, 0.29 ft<sup>3</sup>/s (0.008 m<sup>3</sup>/s) Aug. 27, 28, Sept. 1-6, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period May to September, 112 ft<sup>3</sup>/s (3.17 m<sup>3</sup>/s) May 20 at 2315 hours, gage height, 10.89 ft (3.319 m); minimum, 0.29 ft<sup>3</sup>/s (0.008 m<sup>3</sup>/s) Aug. 27, 28, Sept. 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, MAY TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								3.5	5.7	1.9	.58	.30
2								5.0	5.2	1.8	.55	.30
3								4.2	4.9	1.6	.57	.30
4								3.8	4.6	1.5	.60	.30
5								3.5	4.2	1.5	.61	.30
6								3.4	3.9	1.3	.60	.30
7								3.8	3.5	1.3	.57	.79
8								6.1	3.4	1.3	.55	4.0
9								4.1	3.2	1.3	.52	1.7
10								4.0	3.1	1.1	.58	1.2
11								4.2	3.0	1.1	.55	.94
12								4.8	2.8	1.1	.57	.90
13								4.9	2.7	.97	.58	.81
14								7.8	2.6	.91	.57	.75
15								11	2.5	.92	.49	.77
16								8.7	2.5	.87	.48	.75
17								6.1	2.5	.80	.44	.73
18								5.2	2.4	.75	.42	.78
19								5.7	2.3	.70	.43	.73
20								12	2.3	.77	.42	.68
21								18	2.4	.70	.40	.70
22								12	2.3	.71	.38	.70
23								12	2.3	.66	.36	.69
24								11	2.2	.64	.36	.76
25								11	2.1	.61	.35	.83
26								9.7	2.2	.63	.34	1.2
27								8.4	2.1	.64	.29	3.2
28								7.8	1.9	.63	.33	2.8
29								7.8	1.9	.60	.38	39
30								7.2	1.9	.59	.35	1.6
31								6.6	---	.53	.34	---
TOTAL								223.3	88.6	30.43	14.56	68.81
MEAN								7.20	2.95	.98	.47	2.29
MAX								18	5.7	1.9	.61	.39
MIN								3.4	1.9	.53	.29	.30
AC-FT								443	176	60	29	136

WTR YR 1980 TOTAL - MEAN - MAX - MIN - AC-FT -

08046500 BENBROOK LAKE NEAR BENBROOK, TX

LOCATION.--Lat 32°39'02", long 97°26'54", Tarrant County, Hydrologic Unit 12030102, in intake structure of Benbrook Dam on Clear Fork Trinity River, 2.5 mi (4.0 km) south of Benbrook, 3.5 mi (5.6 km) upstream from Marys Creek, and 14.6 mi (23.5 km) upstream from mouth.

DRAINAGE AREA.--429 mi<sup>2</sup> (1,111 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1952 to current year. Prior to October 1970, published as Benbrook Reservoir.

REVISED RECORDS.--WSP 1922: Drainage area.

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

REMARKS.--The lake is formed by a rolled earthfill dam 9,130 ft (2,780 m) long, including a 500-foot (150 m) uncontrolled off-channel concrete-gravity spillway with a 100-foot (30 m) notch in center of ogee weir section. The outlet works consist of a 13.0-foot-diameter (4.0 m) concrete conduit controlled by two 6.5- by 13.0-foot (2.0 by 4.0 m) broome-type gates and two 30-inch (762 mm) steel pipes controlled by slide gates. Deliberate impoundment began Sept. 29, 1952. From August 1950 to Sept. 28, 1952, the lake was operated as a detention basin only. The capacity table is based on a survey made in 1945. The lake was built for flood control, navigation, and low-flow regulation. Corps of Engineers gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	747.0	-
Crest of spillway.....	724.0	258,600
Crest of notch in spillway.....	710.0	164,800
Top of conservation storage.....	694.0	88,250
Crest of intake to wet wells (inverts).....	656.0	6,550
Lowest gated outlet (invert).....	622.0	12

COOPERATION.--Records of elevations and contents furnished by the Corps of Engineers and reviewed by the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 185,000 acre-ft (228 hm<sup>3</sup>) June 6, 1957, elevation, 713.35 ft (217.429 m); minimum since lake first filled in 1957, 64,630 acre-ft (79.7 hm<sup>3</sup>) Sept. 15, 1964, elevation, 687.18 ft (209.452 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 93,880 acre-ft (116 hm<sup>3</sup>) May 22 at 2400 hours, elevation, 695.49 ft (211.985 m); minimum, 74,180 acre-ft (91.5 hm<sup>3</sup>) Sept. 25 at 2200 hours, elevation, 690.08 ft (210.336 m).

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

690.0	73,900	694.0	88,250
692.0	80,890	696.0	95,990

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86090	84860	83980	85830	89120	89200	89470	88400	92220	86500	81620	77980
2	86010	84780	83940	86010	89010	89280	90730	88740	91950	86390	81440	77880
3	85830	84710	83940	86010	88820	89350	91530	88860	91640	86160	81180	77740
4	85750	84640	83940	86010	88670	89390	91490	88970	91410	85980	80960	77600
5	85640	84600	83910	86050	88440	89390	91380	89010	91110	85790	80760	77350
6	85570	84450	83870	86090	88250	89510	91220	89160	90800	85640	80640	77210
7	85490	84450	83870	86090	88210	89540	91150	89430	90500	85460	80500	77070
8	85380	84490	83870	86120	88550	89620	90800	89580	90160	85310	80360	77000
9	85190	84450	83870	86090	88860	89700	90610	89740	89930	85160	80290	76970
10	85160	84420	83870	86160	89090	89770	90380	89810	89580	84970	80180	76930
11	85080	84340	83910	86160	89160	89890	90040	89890	89320	84820	80080	76860
12	84970	84340	84340	86160	89160	89890	89890	89960	88940	84640	80040	76720
13	84860	84340	84380	86200	89050	90000	90420	90040	88590	84420	79970	76520
14	84780	84340	84420	86200	88970	89930	90460	90350	88250	84230	79860	76380
15	85160	84310	84450	86270	88820	89740	90380	90920	88020	84020	79720	76210
16	85340	84270	84380	86310	88710	89510	90270	91340	87910	83870	79650	76040
17	85380	84270	84380	86350	88630	89280	90040	91300	87800	83720	79470	75830
18	85340	84270	84380	86390	88780	88970	89890	91070	87760	83510	79370	75620
19	85310	84270	84380	86460	88900	88780	89740	91070	87730	83360	79260	75450
20	85270	84340	84380	86460	89010	88440	89580	91300	87540	83220	79150	75210
21	85190	84340	84520	86910	89120	88290	89390	93750	87580	83070	79080	75030
22	85080	84310	84640	88100	89120	88170	89160	93990	87500	82850	78940	74860
23	85040	84270	84930	88550	88970	88170	88970	93830	87500	82710	78910	74650
24	84970	84230	85380	88780	88900	88170	89090	93830	87470	82560	78800	74520
25	84900	84200	85420	88860	88940	88290	89200	93710	87430	82450	78620	74340
26	84820	84160	85490	88940	89010	88360	89050	93550	87350	82340	78480	74270
27	84750	84120	85490	89010	89090	88630	88820	93360	87240	82270	78370	74550
28	84670	84090	85530	89120	89160	89120	88630	93240	87020	82200	78410	74900
29	84640	84020	85680	89240	89240	89320	88480	93000	86910	82090	78340	75970
30	84930	84020	85830	89350	---	89350	88400	92770	86650	81980	78230	76170
31	84930	---	85790	89320	---	89390	---	92490	---	81910	78090	---
MAX	86090	84860	85830	89350	89240	90000	91530	93990	92220	86500	81620	77980
MIN	84640	84020	83870	85830	88210	88170	88400	88400	86650	81910	78090	74270
(†)	693.11	692.86	693.34	694.28	694.26	694.30	694.04	695.11	693.59	692.28	691.21	690.66
(‡)	-1270	-910	+1770	+3530	-80	+150	-990	+4090	-5840	-4740	-3820	-1920

CAL YR 1979 MAX 117600 MIN 67610 † +18010  
WTR YR 1980 MAX 93990 MIN 74270 ‡ -10030

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## TRINITY RIVER BASIN

08046500 BENBROOK LAKE NEAR BENBROOK, TX--Continued

## WATER-QUALITY RECORDS

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

323858097265601 BENBROOK LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)
FEB										
05...	0830	1.0	324	8.1	7.0	1.30	10.2	85	130	14
05...	0832	10	324	8.1	7.0	--	10.2	85	--	--
05...	0833	20	324	8.1	7.0	--	10.2	85	--	--
05...	0834	30	324	8.1	7.0	--	10.2	85	--	--
05...	0835	40	324	8.1	7.0	--	10.2	85	--	--
05...	0836	50	324	8.1	7.0	--	10.2	85	--	--
05...	0837	61	324	7.9	7.0	--	10.2	85	130	12
MAY										
05...	0945	1.0	346	8.5	21.5	1.40	10.0	115	140	21
05...	0947	10	346	8.5	21.0	--	9.8	111	--	--
05...	0948	20	354	8.4	19.0	--	8.4	92	--	--
05...	0949	30	359	8.1	17.5	--	6.4	68	--	--
05...	0950	40	362	7.9	16.0	--	5.1	53	--	--
05...	0951	50	370	7.7	15.0	--	2.3	23	--	--
05...	0952	61	370	7.6	15.0	--	1.7	17	150	21
AUG										
21...	1140	1.0	305	8.8	30.0	.90	8.8	119	110	16
21...	1142	10	305	8.5	28.5	--	7.4	97	--	--
21...	1144	20	309	8.3	28.0	--	6.4	83	--	--
21...	1146	30	309	8.0	28.0	--	5.4	70	--	--
21...	1148	35	309	8.0	28.0	--	5.2	68	--	--
21...	1150	40	309	7.9	28.0	--	4.9	64	--	--
21...	1152	45	313	7.7	27.5	--	3.9	50	--	--
21...	1154	50	412	7.4	22.0	--	.1	1	--	--
21...	1156	56	427	7.6	20.5	--	.1	1	170	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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
FEB									
05...	43	5.2	15	.6	3.7	140	0	26	18
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	42	5.3	15	.6	3.7	140	0	25	18
MAY									
05...	46	5.9	16	.6	3.6	140	2	27	17
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	51	6.0	15	.5	3.7	160	0	24	17
AUG									
21...	34	5.7	17	.7	3.9	100	6	24	21
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	57	6.2	16	.5	4.2	230	0	4.4	14

## TRINITY RIVER BASIN

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## BENBROOK LAKE NEAR BENBROOK, TX--Continued

323858097265601 BENBROOK LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
05...	.2	3.1	183	.15	.62	.77	.020	20	<1
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.09	.65	.74	.020	10	0
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	3.0	181	.10	.60	.70	.010	<10	6
MAY									
05...	.2	.4	187	.01	.72	.73	.020	30	10
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.04	.82	.86	.010	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.09	.98	1.1	.010	140	30
05...	--	--	--	--	--	--	--	--	--
05...	--	7.1	203	.08	1.2	1.3	.030	500	210
AUG									
21...	.3	6.2	167	.00	.92	.92	.040	<10	7
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	.00	1.1	1.1	.040	40	60
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	.00	3.3	3.3	.520	340	2100
21...	--	13	230	.00	3.6	3.6	.650	380	1500

323908097273401 BENBROOK LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
05...	0905	1.0	324	8.1	7.0	10.2	85
05...	0906	10	324	8.1	7.0	10.2	85
05...	0907	20	324	8.1	7.0	10.2	85
05...	0908	30	324	8.1	7.0	10.1	84
05...	0909	40	324	8.1	7.0	10.1	84
05...	0910	54	324	8.1	7.0	10.1	84
MAY							
05...	1015	1.0	344	8.4	21.5	10.0	115
05...	1016	10	344	8.5	20.5	10.2	115
05...	1017	20	354	8.5	19.0	8.5	93
05...	1018	30	361	8.0	17.5	6.2	66
05...	1019	36	361	8.0	16.5	5.5	57
AUG							
21...	1225	1.0	305	8.8	30.0	9.3	126
21...	1227	10	307	8.5	28.5	7.2	95
21...	1229	20	307	8.4	28.5	7.0	92
21...	1231	30	310	8.1	28.0	5.4	70
21...	1233	35	310	8.0	28.0	5.0	65

## TRINITY RIVER BASIN

## BENBROOK LAKE NEAR BENBROOK, TX--Continued

323735097274701 BENBROOK LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)
FEB									
05...	1050	1.0	324	8.1	7.0	1.10	9.9	82	120
05...	1052	10	324	8.1	7.0	--	9.9	82	--
05...	1053	20	324	8.1	7.0	--	9.9	82	--
05...	1054	30	324	8.1	7.0	--	9.9	82	--
05...	1055	40	324	8.1	7.0	--	9.9	82	--
05...	1056	44	324	8.1	7.0	--	9.9	82	130
MAY									
05...	1035	1.0	344	8.4	21.5	1.50	10.2	117	140
05...	1036	10	347	8.4	20.5	--	9.8	110	--
05...	1037	20	358	8.2	18.0	--	6.8	73	--
05...	1038	30	361	7.9	17.5	--	5.5	59	--
05...	1039	40	368	7.7	16.5	--	2.8	29	--
05...	1040	43	370	7.6	16.5	--	1.7	18	150
AUG									
21...	1250	1.0	306	8.7	30.5	.80	9.0	122	110
21...	1252	10	309	8.4	28.0	--	6.9	90	--
21...	1254	20	309	8.2	28.0	--	6.3	82	--
21...	1256	30	314	7.8	28.0	--	4.4	57	--
21...	1258	40	318	7.6	28.0	--	3.0	39	110

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
05...	9	41	5.3	14	.5	3.7	140	0	23
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	14	43	5.3	14	.5	3.8	140	0	25
MAY									
05...	20	45	5.8	14	.5	3.5	140	1	31
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	16	49	6.0	14	.5	3.5	160	0	26
AUG									
21...	14	34	5.5	17	.7	3.9	100	7	25
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	12	35	5.5	16	.7	3.9	120	0	24

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
05...	18	2.9	177	.08	.63	.71	.020	<10	<1
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.04	.66	.70	.020	10	0
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	18	3.1	181	.12	.66	.78	.030	<10	<1
MAY									
05...	17	.3	187	.01	.73	.74	.030	<10	<3
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.05	.70	.75	.010	20	10
05...	--	--	--	.07	.88	.95	.010	30	50
05...	--	--	--	--	--	--	--	--	--
05...	17	3.2	198	.07	1.2	1.3	.020	10	150
AUG									
21...	22	6.2	170	.00	.78	.78	.030	<10	<1
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	.00	1.0	1.0	.030	10	0
21...	--	--	--	.00	1.0	1.0	.050	20	10
21...	23	6.7	173	.00	1.3	1.3	.080	<10	70

## TRINITY RIVER BASIN

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## BENBROOK LAKE NEAR BENBROOK, TX--Continued

323628097275101 BENBROOK LAKE SITE CR

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
05...	1010	1.0	328	8.2	7.0	10.4	87
05...	1011	10	328	8.2	7.0	10.4	87
05...	1012	25	328	8.2	7.0	10.4	87
MAY							
05...	1135	1.0	348	8.2	22.5	9.7	113
05...	1136	10	354	8.1	20.0	7.8	87
05...	1137	20	367	7.7	18.0	3.6	39
05...	1138	23	367	7.6	18.0	3.3	35
AUG							
21...	1440	1.0	308	8.8	30.0	10.4	141
21...	1442	10	316	8.4	27.5	6.7	86
21...	1444	20	322	8.0	27.5	4.9	63
21...	1446	23	322	8.0	27.5	4.8	62

323629097280901 BENBROOK LAKE SITE CL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
05...	1020	1.0	330	8.2	7.0	10.4	87
05...	1021	10	330	8.2	7.0	10.4	87
05...	1022	22	330	8.2	7.0	10.4	87
MAY							
05...	1120	1.0	345	8.3	21.5	10.1	116
05...	1121	10	356	8.0	20.0	6.8	76
05...	1122	21	368	7.6	18.0	2.2	24
AUG							
21...	1420	1.0	308	8.9	29.5	10.4	139
21...	1422	10	316	8.5	28.0	7.4	96
21...	1424	21	322	8.1	27.0	5.3	67

323652097291901 BENBROOK LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CaCO3)
FEB									
05...	0935	1.0	336	8.2	7.5	.90	10.6	90	130
05...	0938	10	336	8.2	7.0	--	10.6	88	--
05...	0939	20	336	8.2	7.0	--	10.6	88	--
05...	0940	29	336	8.2	7.0	--	10.6	88	140
MAY									
05...	1105	1.0	355	8.4	21.0	1.20	9.5	108	140
05...	1107	10	361	7.9	19.5	--	5.7	63	--
05...	1108	20	361	7.8	18.5	--	5.0	54	140
05...	1109	27	372	7.6	18.0	--	3.0	32	150
AUG									
21...	1340	1.0	307	8.7	29.5	.60	9.4	125	110
21...	1342	10	316	8.0	27.5	--	5.5	71	--
21...	1344	20	316	8.1	27.5	--	5.5	71	--
21...	1346	24	316	8.1	27.5	--	5.4	69	110



## TRINITY RIVER BASIN

## BENBROOK LAKE NEAR BENBROOK, TX--Continued

323652097291901 BENBROOK LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
05...	11	45	5.3	15	.6	3.7	150	0	25
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	14	46	5.3	15	.6	3.7	150	0	25
MAY									
05...	17	47	5.8	16	.6	3.4	150	1	24
05...	--	--	--	--	--	--	--	--	--
05...	--	48	5.7	15	.5	3.4	--	--	--
05...	18	50	6.0	16	.6	3.5	160	0	23
AUG									
21...	14	35	5.6	17	.7	4.0	110	4	26
21...	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--
21...	15	36	5.6	17	.7	3.9	120	0	25

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
05...	19	3.2	190	.21	.65	.86	.050	10	<1
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.11	.58	.69	.030	10	0
05...	19	3.3	191	.13	.69	.82	.050	<10	5
MAY									
05...	17	.4	189	.00	.46	.46	.030	<10	<3
05...	--	--	--	.02	.64	.66	.020	30	10
05...	--	--	--	.05	.74	.79	.020	<10	--
05...	17	2.5	197	.05	.93	.98	.020	<10	9
AUG									
21...	22	6.1	174	.00	1.3	1.3	.040	<10	<1
21...	--	--	--	.00	.99	.99	.060	10	0
21...	--	--	--	.00	1.6	1.6	.070	10	0
21...	22	6.7	175	.00	1.3	1.3	.080	<10	10

TRINITY RIVER BASIN  
BENBROOK LAKE NEAR BENBROOK, TX--Continued

379

323858097265601 BENBROOK LAKE SITE AC  
PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	FEB 5,80 0831	MAY 5,80 0946	AUG 21,80 1141
TOTAL CELLS/ML	9600	3300	130000
DIVERSITY: DIVISION	1.6	1.2	0.1
..CLASS	1.6	1.2	0.1
..ORDER	1.6	1.4	0.4
...FAMILY	1.7	1.6	1.0
....GENUS	2.2	2.6	1.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	440	5	280	8	*	0
....CHLORELLA	1700#	18	20	1	--	-
....CHODATELLA	--	-	40	1	--	-
....DICTYOSPHAERIUM	--	-	--	-	*	0
....KIRCHNERIELLA	380	4	--	-	*	0
...OOCYSTIS	--	-	200	6	--	-
....SELENASTRUM	--	-	100	3	*	0
....TETRAEDRON	--	-	--	-	*	0
....TREUBARIA	--	-	20	1	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	20	1	--	-
....SCENEDESMUS	--	-	180	5	--	-
....TETRASTRUM	220	2	160	5	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	40	1	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARUM	--	-	--	-	*	0
....STAUSTRUM	--	-	--	-	*	0
CHRYSTOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	3300#	34	120	4	--	-
....MELOSIRA	220	2	--	-	--	-
..PENNALES						
...FRAGILARIACEAE						
....SYNEDRA	--	-	--	-	*	0
...NAVICULACEAE						
....NAVICULA	--	-	40	1	--	-
...NITZSCHACEAE						
....NITZSCHIA	--	-	--	-	*	0
.CHRYSTOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	40	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	1100	1
....ANACYSTIS	3300#	34	1700#	52	3100	2
....COCCOCHLORIS	--	-	320	10	--	-
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	6800	5
....APHANIZOMENON	--	-	--	-	12000	10
...OSCILLATORIA						
....LYNGBYA	--	-	--	-	8200	6
....OSCILLATORIA	--	-	--	-	93000#	73
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	1100	1
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	55	1	--	-	--	-

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

## TRINITY RIVER BASIN

BENBROOK LAKE NEAR BENBROOK, TX--Continued

323652097291901 BENBROOK LAKE SITE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	FEB 5,80 0936	MAY 5,80 1106	AUG 21,80 1341			
TOTAL CELLS/ML	5800	6200	830000			
DIVERSITY: DIVISION	1.0	1.6	0.1			
..CLASS	1.0	1.6	0.1			
...ORDER	1.0	1.9	0.3			
...FAMILY	1.3	2.4	1.0			
...GENUS	2.3	3.4	1.8			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...COELASTRACEAE						
...COELASTRUM	--	-	200	3	*	0
...OOCYSTACEAE						
...ANKISTRODESMUS	1000#	18	200	3	*	0
...CHLORELLA	1300#	23	50	1	--	-
...CHODATELLA	50	1	*	0	--	-
...DICTYOSPHAERIUM	--	-	--	-	*	0
...KIRCHNERIELLA	500	9	400	6	*	0
...OOCYSTIS	--	-	200	3	*	0
...SELENASTRUM	--	-	130	2	*	0
...SCENEDESMACEAE						
...SCENEDESMUS	350	6	600	10	--	-
...TETRASPORALES						
...COCCOMYXACEAE						
...ELAKATOTHRIX	--	-	--	-	*	0
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	-	100	2	--	-
...VOLVOCAEAE						
...GONIUM	--	-	400	6	--	-
...ZYGNEATALES						
...DESMIDIACEAE						
...COSMARIUM	--	-	--	-	*	0
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCEAEAE						
...CYCLOTELLA	2200#	39	350	6	*	0
...MELOSIRA	200	3	150	2	--	-
...PENNALES						
...FRAGILARIACEAE						
...SYNEDRA	50	1	--	-	*	0
...NITZSCHIAEAE						
...NITZSCHIA	--	-	*	0	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
...CHROOMONAS	--	-	330	5	--	-
...CRYPTOMONADACEAE						
...CRYPTOMONAS	--	-	50	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	--	-	800	13	8300	1
...ANACYSTIS	--	-	1900#	31	22000	3
...COCCOCHLORIS	--	-	300	5	--	-
...HORMOGONALES						
...NOSTOCAEAE						
...ANABAENOPSIS	--	-	--	-	150000#	18
...OSCILLATORIAEAE						
...LYNGBYA	--	-	--	-	200000#	24
...OSCILLATORIA	--	-	--	-	440000#	53
...SPIRULINA	--	-	--	-	*	0
...RIVULARIAEAE						
...RAPHIDIOPSIS	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## TRINITY RIVER BASIN

381

08047000 CLEAR FORK TRINITY RIVER NEAR BENBROOK, TX

LOCATION.--Lat 32°39'54", long 97°26'30", Tarrant County, Hydrologic Unit 12030102, on left bank 1.5 mi (2.4 km) downstream from Benbrook Dam, 1.7 mi (2.7 km) southeast of Benbrook, 2.9 mi (4.7 km) upstream from Marys Creek, and 13.1 mi (21.1 km) upstream from mouth.

DRAINAGE AREA.--4.31 mi<sup>2</sup> (1,116 km<sup>2</sup>).

PERIOD OF RECORD.--July 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 604.22 ft (184.166 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Records good. Flow regulated by Benbrook Lake (station 08046500) since September 1952. Diversion 1.0 mi (1.6 km) upstream for Pecan Valley Golf Course. Several observations of water temperature were made during the year. A gage-height telemeter was installed at this station by the Corps of Engineers on Nov. 29, 1977.

AVERAGE DISCHARGE.--5 years (water years 1948-52) prior to regulation by Benbrook Lake, 105 ft<sup>3</sup>/s (2,974 m<sup>3</sup>/s), 76,070 acre-ft/yr (93.8 hm<sup>3</sup>/yr); 27 years (water years 1953-79) regulated, unadjusted, 66.5 ft<sup>3</sup>/s (1,883 m<sup>3</sup>/s), 48,180 acre-ft/yr (59.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,900 ft<sup>3</sup>/s (2,350 m<sup>3</sup>/s) May 17, 1949, gage height, 28.72 ft (8.754 m), from rating curve extended above 11,000 ft<sup>3</sup>/s (312 m<sup>3</sup>/s) on basis of velocity-area studies and slope-area measurement of 82,900 ft<sup>3</sup>/s (2,350 m<sup>3</sup>/s); no flow at times most years. Maximum discharge since construction of Benbrook Dam in 1952, 4,710 ft<sup>3</sup>/s (133 m<sup>3</sup>/s) May 7, 1979, gage height, 11.27 ft (3.435 m); maximum gage height, 12.20 ft (3.719 m) Apr. 7, 1977.  
Maximum stage since at least 1922, that of May 17, 1949.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,710 ft<sup>3</sup>/s (133 m<sup>3</sup>/s) May 7, gage height, 11.27 ft (3.435 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	17	.39	.35	137	.93	1.5	18	148	22	47	9.1
2	16	18	.39	.39	137	.81	4.8	22	148	23	47	9.5
3	16	17	.39	.37	137	.85	44	21	148	28	49	23
4	16	18	.39	.39	137	.74	137	20	133	33	32	49
5	16	17	.39	.39	137	.81	138	20	146	33	8.9	60
6	16	18	.39	.39	137	.87	142	20	145	34	8.8	53
7	16	12	.39	.32	55	.97	142	19	145	34	19	55
8	16	.43	.39	.35	1.8	.77	142	19	145	38	8.1	30
9	17	.48	.39	.39	.78	.84	142	19	144	45	8.5	11
10	17	.49	.39	.39	.79	.62	142	19	143	46	8.9	10
11	17	.49	.39	.39	61	.47	143	18	143	46	9.2	9.5
12	17	.50	3.4	.39	137	.44	144	18	144	46	9.2	46
13	17	.56	.42	.39	137	.47	149	18	144	47	9.6	60
14	17	.62	.39	.39	137	37	144	20	144	47	9.1	61
15	23	.30	.39	.39	137	136	145	22	72	48	8.6	62
16	18	.26	.39	.39	137	137	145	57	23	46	8.6	62
17	18	.26	.39	.39	96	136	145	139	16	35	8.6	62
18	17	.31	.39	.39	.84	137	145	139	6.7	27	8.1	67
19	17	.32	.42	.39	.69	136	145	64	8.0	28	8.1	70
20	17	.32	.47	.39	.81	137	145	20	9.0	28	7.6	69
21	17	.32	.50	.57	1.0	136	145	139	8.9	18	6.4	69
22	17	.38	.99	6.5	39	80	145	319	9.6	19	7.7	58
23	17	.39	7.8	.39	131	.49	145	265	9.3	20	8.3	58
24	17	.39	.38	.37	93	.34	154	143	9.2	18	9.0	57
25	17	.39	.32	.37	.48	.45	145	144	8.9	25	13	57
26	17	.39	.34	.39	.28	.47	145	144	8.3	32	12	66
27	17	.39	.39	.39	.26	.97	145	145	30	8.8	18	37
28	17	.39	.60	.39	.20	2.2	145	145	60	8.2	7.7	8.6
29	17	.39	.40	.39	.82	.90	145	147	52	9.1	9.1	23
30	22	.39	.32	.39	---	.82	71	147	37	8.1	9.4	24
31	18	---	.32	79	---	1.1	---	147	---	30	9.1	---
TOTAL	533	26.16	23.31	96.78	1990.75	1089.33	3870.3	2597	2387.9	930.2	433.6	1375.7
MEAN	17.2	4.21	.75	3.12	68.6	35.1	129	83.8	79.6	30.0	14.0	45.9
MAX	23	18	7.8	79	137	137	154	319	148	48	49	70
MIN	16	.26	.32	.32	.20	.34	1.5	18	6.7	8.1	6.4	8.6
AC-FT	1060	250	46	192	3950	2160	7680	5150	4740	1850	860	2730
CAL YR 1979	TOTAL	48893.21	MEAN	134	MAX	4530	MIN	.05	AC-FT	96980		
WTR YR 1980	TOTAL	15454.03	MEAN	42.2	MAX	319	MIN	.20	AC-FT	30650		

## TRINITY RIVER BASIN

## 08047500 CLEAR FORK TRINITY RIVER AT FORT WORTH, TX

LOCATION.--Lat 32°43'56", long 97°21'31", Tarrant County, Hydrologic Unit 12030102, at Fort Worth pumping station on left bank, 240 ft (73 m) upstream from the Texas and Pacific Railway Co. bridge in Fort Worth, 830 ft (253 m) upstream from East-West Expressway bridge, 2.5 mi (4.0 km) upstream from mouth, 5 mi (8 km) downstream from Marys Creek, and 10 mi (16 km) downstream from Benbrook Dam.

DRAINAGE AREA.--518 mi<sup>2</sup> (1,342 km<sup>2</sup>).

PERIOD OF RECORD.--March 1924 to current year.

REVISED RECORDS.--WSP 1392: 1924-25, 1927. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 532.91 ft (162.431 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 3, 1970, various nonrecording and recording gages were located within 650 ft (198 m) of present site at different datums.

REMARKS.--Records fair. Flow largely regulated by Benbrook Lake (station 08046500). Records furnished by city of Fort Worth show 3,200 acre-ft (3.95 hm<sup>3</sup>) was pumped from pool behind dam during current year. Records furnished by the Benbrook Water and Sewage Authority show that 1,000 acre-ft (1.23 hm<sup>3</sup>) of water was diverted from the river upstream from station for municipal use. Several observations of water temperature were made during the year. National Weather Service gage-height telemeter is located at station.

AVERAGE DISCHARGE.--28 years (water years 1925-52) prior to regulation by Benbrook Lake, 112 ft<sup>3</sup>/s (3.172 m<sup>3</sup>/s), 81,140 acre-ft/yr (100 hm<sup>3</sup>/yr); 28 years (water years 1953-80) regulated, unadjusted, 96.4 ft<sup>3</sup>/s (2.730 m<sup>3</sup>/s), 69,840 acre-ft/yr (86.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107,000 ft<sup>3</sup>/s (3,030 m<sup>3</sup>/s) May 17, 1949, gage height, 28.20 ft (8.595 m), present datum, from rating curve extended above 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) on basis of contracted-opening measurement of 107,000 ft<sup>3</sup>/s (3,030 m<sup>3</sup>/s); no flow at times most years.  
Maximum stage since at least 1900, 28.20 ft (8.595 m) May 17, 1949, present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 25, 1922, reached a stage of 27.5 ft (8.38 m) present datum, discharge, 74,300 ft<sup>3</sup>/s (2,100 m<sup>3</sup>/s), by slope-area measurement of peak flow; data furnished by Fort Worth city engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,770 ft<sup>3</sup>/s (107 m<sup>3</sup>/s) Oct. 15 at 1715 hours, gage height, 11.43 ft (3.484 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	24	1.3	11	133	12	19	38	146	8.9	.00	.00
2	16	20	2.0	10	132	12	332	215	139	7.0	.00	.03
3	15	21	3.4	9.8	129	12	179	42	139	.00	.00	.07
4	14	23	4.1	9.6	124	13	169	36	124	.00	.70	.00
5	14	25	5.6	9.0	123	13	163	34	141	.00	1.9	.00
6	14	24	5.0	8.9	125	14	160	96	144	2.0	1.3	.00
7	15	27	5.0	8.0	90	13	159	47	153	10	1.0	28
8	15	18	4.7	7.6	91	14	155	113	152	9.8	7.4	200
9	14	10	3.5	8.9	51	15	156	41	149	6.7	3.3	26
10	14	6.9	3.0	8.1	38	16	157	36	142	6.2	2.9	14
11	16	4.5	2.8	7.4	56	17	159	34	140	.70	2.3	3.8
12	15	4.7	172	6.3	127	17	183	35	139	.25	2.0	.00
13	15	4.8	31	6.2	113	14	419	33	137	.17	1.6	.00
14	15	4.4	14	6.1	95	13	203	188	142	.00	.80	.00
15	456	4.8	9.3	6.3	94	125	175	356	104	.30	.02	.00
16	69	4.9	8.1	6.2	88	142	166	139	30	.92	.43	.00
17	29	3.1	7.6	6.2	77	144	162	186	19	.33	.43	.00
18	23	3.5	6.8	6.5	24	142	156	186	12	.00	.43	.00
19	20	2.7	6.0	6.9	17	140	156	133	4.0	.00	.43	.00
20	19	2.9	3.8	11	16	154	155	43	15	.00	.29	.00
21	18	8.6	4.7	73	14	155	150	113	1.7	.00	.00	.00
22	31	4.3	21	406	13	138	149	320	1.5	.00	.00	.00
23	23	4.0	328	60	49	39	150	298	2.8	1.2	.00	.00
24	22	2.8	46	35	49	20	254	160	.85	6.0	.00	.00
25	22	3.5	20	29	19	16	235	163	.15	4.9	.00	.29
26	22	2.9	13	25	11	17	169	161	.05	4.5	.00	8.8
27	20	2.1	9.2	22	11	101	165	163	1.4	40	.00	129
28	20	7.7	41	20	12	184	161	159	2.9	31	.00	9.6
29	20	3.5	37	32	12	79	157	148	22	21	.00	354
30	199	2.1	17	27	---	31	119	149	14	5.7	.00	3.0
31	33	---	12	49	---	23	---	149	---	.00	.00	---
TOTAL	1254	280.7	847.9	938.0	1933	1845	5292	4014	2218.35	167.57	27.23	776.59
MEAN	40.5	9.36	27.4	30.3	66.7	59.5	176	129	73.9	5.41	.88	25.9
MAX	456	27	328	406	133	184	419	356	153	40	7.4	354
MIN	14	2.1	1.3	6.1	11	12	19	33	.05	.00	.00	.00
AC-FT	2490	557	1680	1860	3830	3660	10500	7960	4400	332	54	1540
CAL YR 1979	TOTAL	68927.19	MEAN	189	MAX	4440	MIN	.99	AC-FT	136700		
WTR YR 1980	TOTAL	19594.34	MEAN	53.5	MAX	456	MIN	.00	AC-FT	38870		

## TRINITY RIVER BASIN

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## 08048000 WEST FORK TRINITY RIVER AT FORT WORTH, TX

LOCATION.--Lat 32°45'39", long 97°19'56", Tarrant County, Hydrologic Unit 12030102, on left bank 125 ft (38 m) upstream from Texas Electric Service Co.'s concrete dam, 980 ft (299 m) downstream from centerline of Paddock Viaduct (North Main Street) at Fort Worth, 2,600 ft (792 m) downstream from Clear Fork Trinity River, and at mile 556.8 (895.9 km).

DRAINAGE AREA.--2,615 mi<sup>2</sup> (6,773 km<sup>2</sup>).

PERIOD OF RECORD.--October 1920 to current year. Gage-height records collected in this vicinity since 1910 are contained in reports of the National Weather Service.

Water-quality records: Chemical and biochemical analyses: October 1967 to September 1976.

REVISED RECORDS.--WSP 1392: 1925. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete dam control with angle-iron-crested notch for flow below 50 ft<sup>3</sup>/s (1.42 m<sup>3</sup>/s). Datum of gage is 519.24 ft (158.264 m) Texas Reclamation Department datum. Prior to Aug. 22, 1954, at site 1,200 ft (366 m) upstream at same datum. Aug. 22, 1954, to Oct. 15, 1955, at site 2,000 ft (610 m) upstream at same datum.

REMARKS.--Records good. Flow is largely regulated by Lake Worth on the West Fork Trinity River and by Benbrook Lake (station 08046500) on the Clear Fork Trinity River. At times, flow is sustained by releases from the flood-detention pool of Benbrook Lake. Records furnished by the city of Fort Worth show that during the year 96,420 acre-ft (119 hm<sup>3</sup>) was diverted above station and that 32,550 acre-ft (40.1 hm<sup>3</sup>) was diverted from Cedar Creek Reservoir for municipal and industrial uses. Many small diversions above station. National Weather Service and gage-height telemeter is located at station.

AVERAGE DISCHARGE.--60 years, 360 ft<sup>3</sup>/s (10.20 m<sup>3</sup>/s) 260,800 acre-ft/yr (322 hm<sup>3</sup>/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 85,000 ft<sup>3</sup>/s (2,410 m<sup>3</sup>/s), Apr. 25, 1922, gage height, 23.95 ft (7.300 m), site then in use, by slope-area measurement of peak flow by city engineer of Fort Worth; maximum gage height, 25.91 ft (7.897 m) May 17, 1949, site then in use, discharge, 64,300 ft<sup>3</sup>/s (1,820 m<sup>3</sup>/s); no flow at times.

Maximum stage since at least 1866, that of May 17, 1949. Maximum stages have been affected by levee construction, levee breaks, and channel rectification.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,320 ft<sup>3</sup>/s (179 m<sup>3</sup>/s) Oct. 15 at 1830 hours, gage height, 3.84 ft (1.170 m); no flow July 16-24, Aug. 4-7, Aug. 27 to Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	30	9.7	19	178	21	25	217	157	13	1.5	.00
2	20	25	8.9	19	185	20	478	679	155	11	.52	.00
3	21	24	8.8	21	185	20	314	77	155	7.2	.07	.00
4	18	24	9.5	21	185	22	168	55	140	3.9	.00	.00
5	17	23	11	20	186	22	177	53	147	2.2	.00	.00
6	16	23	11	19	193	22	177	95	146	1.2	.00	.00
7	17	25	11	17	166	21	174	92	141	1.3	.00	6.6
8	18	28	13	16	232	20	162	253	141	6.2	.27	235
9	16	31	17	16	132	20	162	63	141	5.2	1.6	66
10	15	18	20	18	98	20	169	43	141	4.3	2.5	29
11	16	11	23	18	93	23	176	39	148	3.6	4.2	23
12	19	9.0	364	16	199	26	213	42	146	1.9	5.0	13
13	18	9.9	74	16	198	20	580	40	145	1.0	5.8	8.4
14	18	10	23	16	195	19	240	202	147	.74	3.7	9.0
15	850	9.5	18	16	192	101	203	604	124	.24	2.4	9.1
16	188	9.0	16	17	195	159	193	198	36	.00	1.6	9.2
17	38	9.4	15	18	187	160	189	207	25	.00	1.6	8.2
18	28	9.9	16	19	72	162	177	202	19	.00	7.1	8.1
19	23	11	16	20	41	162	177	164	15	.00	4.3	7.4
20	20	10	17	25	39	162	177	52	33	.00	2.7	7.2
21	18	17	17	243	37	155	177	116	20	.00	2.1	8.7
22	52	16	38	791	34	154	176	346	12	.00	1.3	8.4
23	28	12	671	119	131	54	173	343	10	.00	.92	7.3
24	24	11	105	45	170	32	255	195	9.0	.00	.91	6.7
25	21	11	32	35	65	23	370	182	6.3	.22	.60	15
26	20	10	24	30	30	25	195	177	4.5	.52	.05	34
27	19	9.7	18	26	27	131	185	170	3.6	12	.00	412
28	19	11	95	25	26	322	193	166	2.5	22	.00	74
29	19	12	88	43	26	112	193	157	7.5	21	.00	1770
30	369	11	29	32	---	40	171	155	18	11	.00	126
31	68	---	22	33	---	29	---	155	---	4.8	.00	---
TOTAL	2054	470.4	1840.9	1789	3697	2279	6419	5539	2395.4	134.52	50.74	2901.30
MEAN	66.3	15.7	59.4	57.7	127	73.5	214	179	79.8	4.34	1.64	96.7
MAX	850	31	671	791	232	322	580	679	157	22	7.1	1770
MIN	15	9.0	8.8	16	26	19	25	39	2.5	.00	.00	.00
AC-FT	4070	933	3650	3550	7330	4520	12730	10990	4750	267	101	5750
CAL YR 1979	TOTAL	107262.20	MEAN	294	MAX	5200	MIN	8.8	AC-FT	212800		
WTR YR 1980	TOTAL	29570.26	MEAN	80.8	MAX	1770	MIN	.00	AC-FT	58650		



## TRINITY RIVER BASIN

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX

LOCATION.--Lat 32°45'06", long 97°17'21", Tarrant County, Hydrologic Unit 12030102, at downstream side of bridge on Beach Street, 1,700 ft (518 m) downstream from Sycamore Creek, 0.9 mi (1.4 km) downstream from Riverside Drive bridge, 2.6 mi (4.2 km) east of the Tarrant County Courthouse, and at mile 549.6 (884.3 km).

DRAINAGE AREA.--2,685 mi<sup>2</sup> (6,954 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 478.70 ft (145.908 m) State Department of Highways and Public Transportation datum.

REMARKS.--Water-discharge records good. Flow is largely regulated by Lake Worth on the West Fork Trinity River and by Benbrook Lake (station 08046500) on the Clear Fork Trinity River. At times, flow is sustained by releases from the flood-detention pool of Benbrook Lake. There are many diversions upstream from this station for municipal, industrial, and other uses. For diversions by city of Fort Worth, see West Fork Trinity River at Fort Worth (station 08048000).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,800 ft<sup>3</sup>/s (532 m<sup>3</sup>/s) Mar. 27, 1977, gage height, 34.27 ft (10.445 m); minimum, 0.84 ft<sup>3</sup>/s (0.024 m<sup>3</sup>/s) July 25, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1866 probably occurred in May 1949, stage and discharge unknown. Maximum stages have been affected by levee construction, levee breaks, and channel rectification.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,480 ft<sup>3</sup>/s (184 m<sup>3</sup>/s) Sept. 29 at 1300 hours, gage height, 17.55 ft (5.349 m); minimum daily, 2.0 ft<sup>3</sup>/s (0.057 m<sup>3</sup>/s) July 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	44	17	37	167	37	40	273	158	16	7.2	11
2	18	36	16	34	182	36	589	1740	155	12	5.1	13
3	19	31	16	34	175	36	626	97	153	11	4.8	14
4	19	32	17	35	168	37	183	65	144	8.3	5.4	13
5	17	31	17	33	169	36	185	56	146	5.6	4.8	11
6	17	30	17	32	168	36	174	114	150	5.0	6.5	11
7	17	31	17	31	157	36	172	165	148	4.2	4.7	20
8	18	39	17	30	350	35	157	508	150	4.6	4.6	478
9	19	43	20	29	189	34	158	105	152	7.1	60	161
10	17	30	24	31	146	35	161	64	152	6.3	14	38
11	17	21	27	32	126	33	163	56	153	4.6	15	25
12	20	17	718	30	195	34	215	68	151	3.8	29	20
13	21	18	141	28	197	33	1030	61	149	2.8	17	15
14	20	18	51	28	193	33	272	251	146	2.2	15	14
15	1290	17	40	28	189	87	198	1690	142	2.3	44	15
16	493	15	31	29	195	158	184	404	53	3.4	12	17
17	63	15	27	29	185	154	174	207	31	3.4	10	17
18	44	15	27	29	98	151	166	199	25	2.7	15	16
19	36	16	27	28	59	153	166	177	21	2.9	29	15
20	32	17	26	44	54	153	165	79	86	3.5	19	16
21	29	34	32	440	52	150	164	122	31	6.8	17	15
22	72	25	87	1500	48	149	164	305	19	5.0	17	14
23	41	19	1320	192	111	88	168	314	15	2.8	13	15
24	33	18	175	102	161	54	273	188	15	2.7	13	15
25	29	17	62	76	88	40	558	169	13	2.0	15	77
26	26	17	45	68	49	42	188	164	12	2.8	16	82
27	26	17	38	62	42	262	175	162	11	6.8	11	849
28	25	15	146	61	42	573	170	170	11	36	14	206
29	26	17	137	104	41	186	166	158	10	34	17	3890
30	600	18	54	77	---	64	158	157	17	19	17	382
31	105	---	43	64	---	46	---	159	---	11	13	---
TOTAL	3228	713	3432	3377	3996	3001	7362	8447	2619	240.6	485.1	6485
MEAN	104	23.8	111	109	138	96.8	245	272	87.3	7.76	15.6	216
MAX	1290	44	1320	1500	350	573	1030	1740	158	36	60	3890
MIN	17	15	16	28	41	33	40	56	10	2.0	4.6	11
AC-FT	6400	1410	6810	6700	7930	5950	14600	16750	5190	477	962	12860
CAL YR 1979	TOTAL	143861.1	MEAN 394	MAX 6320	MIN 9.1	AC-FT 285300						
WTR YR 1980	TOTAL	43385.7	MEAN 119	MAX 3890	MIN 2.0	AC-FT 86060						

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1976 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1976 to current year.

pH: October 1976 to current year.

WATER TEMPERATURES: October 1976 to current year.

DISSOLVED OXYGEN: October 1976 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1976.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,000 micromhos Nov. 6, 1978; minimum, 142 micromhos Aug. 12, 1979.

pH: Maximum, 9.8 units Aug. 8, Sept. 2, 1980; minimum, 7.0 units Sept. 16, 1977.

WATER TEMPERATURES: Maximum, 38.0°C July 14, 16, 1978; minimum, 0.5°C Jan. 11, 19, 20, 1978, Jan. 8, 14, 1979.

DISSOLVED OXYGEN: Maximum, 19.3 mg/L Sept. 20, 1980; minimum, 0.0 mg/L on several days during 1977 and 1980.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,580 micromhos Sept. 8; minimum, 156 micromhos Oct. 15.

pH: Maximum, 9.8 units Aug. 8, Sept. 2; minimum, 7.1 units Nov. 22, 25, Dec. 12, 17.

WATER TEMPERATURES: Maximum, 37.5°C June 27, July 7; minimum, 2.0°C Dec. 17.

DISSOLVED OXYGEN: Maximum, 19.3 mg/L Sept. 20; minimum, 0.0 mg/L on several days during August and September.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW- INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)
OCT										
24...	0930	32	500	7.4	17.0	6.5	68	2.6	150	25
NOV										
16...	0900	15	600	7.7	10.0	11.4	101	1.5	190	31
DEC										
13...	0930	116	496	7.7	7.0	11.3	93	11	170	35
JAN										
18...	0850	28	738	7.7	10.0	10.0	89	2.2	210	31
FEB										
14...	1345	195	448	7.9	9.5	11.0	96	2.0	180	31
MAR										
04...	0915	37	650	7.9	9.5	10.6	95	3.5	210	26
APR										
16...	1600	189	445	7.9	19.5	--	--	--	170	40
MAY										
15...	1355	2550	210	7.9	20.0	7.3	81	14	71	4
JUN										
11...	1150	152	400	8.0	26.0	6.5	80	2.5	140	13
JUL										
23...	1400	3.1	870	9.0	32.5	18.4	256	4.2	160	15
AUG										
27...	1425	15	574	8.8	31.5	18.1	245	1.2	120	31
SEP										
18...	1340	14	610	8.6	30.0	17.0	227	6.7	150	18

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT										
24...	52	4.3	36	1.3	5.7	150	0	65	33	.4
NOV										
16...	63	7.2	53	1.7	6.5	190	0	63	57	.4
DEC										
13...	60	5.9	35	1.2	5.3	170	0	64	31	.3
JAN										
18...	72	7.8	59	1.8	18	220	0	100	56	.4
FEB										
14...	62	5.9	24	.8	5.3	180	0	43	28	.4
MAR										
04...	69	8.4	52	1.6	9.9	220	0	69	55	.3
APR										
16...	59	5.9	21	.7	4.7	160	0	41	24	.3
MAY										
15...	25	2.1	13	.7	3.7	82	0	20	14	.2
JUN										
11...	45	5.7	25	.9	4.1	150	0	32	31	.3
JUL										
23...	48	9.7	110	3.8	9.5	140	18	79	130	.7
AUG										
27...	34	9.4	66	2.6	6.0	92	10	62	86	.8
SEP										
18...	47	8.7	63	2.2	8.4	150	7	63	73	1.0

## TRINITY RIVER BASIN

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SILICA, DIS- SOLVED (MG/L AS SIO <sub>2</sub> )	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, NO <sub>2</sub> +NO <sub>3</sub> 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 24...	5.5	276	.48	.160	.64	.730	.97	1.7	.150
NOV 16...	2.5	346	.28	.020	.30	.070	.83	.90	.060
DEC 13...	4.1	289	.47	.080	.55	.360	1.3	1.7	.200
JAN 18...	3.0	425	.30	.080	.38	.120	1.4	1.5	.050
FEB 14...	2.7	260	.39	.030	.42	.390	.71	1.1	.130
MAR 04...	1.8	374	.52	.050	.57	.800	.80	1.6	.270
APR 16...	2.8	238	.40	.010	.41	.230	.87	1.1	.110
MAY 15...	5.2	124	.46	.040	.50	.340	2.7	3.0	.130
JUN 11...	3.7	221	.09	.010	.10	.060	1.0	1.1	.070
JUL 23...	7.1	481	.16	.020	.18	.120	1.9	2.0	.330
AUG 27...	3.8	323	.03	.000	.03	.030	.96	.99	.060
SEP 18...	1.8	347	.02	.050	.07	.880	1.6	2.5	.580

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	3228	397	225	1960	26	226	39	336	140
NOV.	1979	713	583	330	635	56	108	59	113	180
DEC.	1979	3432	453	257	2380	35	324	45	414	150
JAN.	1980	3377	372	211	1920	25	227	36	330	130
FEB.	1980	3996	483	274	2960	38	406	48	514	160
MAR.	1980	3001	477	271	2190	38	306	47	382	160
APR.	1980	7362	393	223	4440	25	503	38	759	140
MAY	1980	8447	416	236	5380	28	649	41	925	150
JUNE	1980	2619	431	245	1730	30	214	42	298	150
JULY	1980	240.6	688	389	253	77	50	70	46	190
AUG.	1980	485.1	587	333	436	55	72	59	77	180
SEPT	1980	6485	317	180	3150	21	362	31	539	120
TOTAL		43385.7	**	**	27400	**	3450	**	4730	**
WTD. AVG.		119	413	234	**	29	**	40	**	150

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	470	450	406	428	674	640	652	494	464	479
2	---	---	480	410	404	408	692	648	666	502	486	494
3	---	---	490	442	404	428	700	662	685	532	502	522
4	---	---	500	524	434	471	722	692	703	632	528	594
5	524	---	506	538	462	490	718	680	698	622	584	601
6	518	502	510	512	482	497	700	664	683	600	582	590
7	530	506	516	696	486	548	706	660	682	592	562	575
8	518	494	507	964	526	735	720	682	699	636	562	593
9	564	508	533	720	514	600	734	678	709	614	570	594
10	550	532	539	550	468	486	692	676	682	712	612	654
11	542	522	530	520	476	492	782	676	717	702	622	672
12	560	526	540	542	514	526	728	---	600	728	616	677
13	550	522	534	624	542	569	542	---	520	662	618	635
14	540	526	531	622	548	575	572	512	541	676	646	661
15	528	156	428	588	534	556	520	510	514	710	636	668
16	282	254	265	610	566	581	548	518	532	736	646	689
17	336	284	312	640	604	620	580	550	559	728	656	691
18	344	330	339	638	612	630	610	558	591	722	652	688
19	374	346	364	656	632	642	584	556	566	666	654	659
20	392	364	376	698	618	636	588	582	584	1090	626	701
21	408	364	390	1400	614	852	580	500	567	650	178	303
22	608	384	438	986	712	810	590	466	502	---	---	280
23	438	384	407	728	576	618	478	196	333	---	---	300
24	494	410	446	688	572	601	398	334	384	---	---	350
25	444	410	425	696	646	664	436	396	418	---	---	370
26	570	420	461	682	642	658	448	434	440	---	---	400
27	450	416	430	824	624	678	460	440	450	---	---	420
28	450	416	442	850	640	724	486	300	423	---	---	450
29	460	440	449	670	646	657	380	318	353	---	---	430
30	528	266	388	676	652	662	428	384	408	---	---	450
31	404	366	384	---	---	---	470	428	447	---	---	460
MONTH	608	156	449	1400	404	595	782	196	558	1090	178	537

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	500	706	---	640	530	512	520	---	---	430
2	552	436	510	---	---	645	554	306	515	---	---	420
3	434	410	419	---	---	650	332	260	299	---	---	430
4	426	406	413	---	---	655	346	308	332	---	---	440
5	434	404	413	---	---	670	400	344	382	---	---	430
6	432	416	421	---	---	675	402	394	399	---	---	440
7	498	418	445	---	---	680	418	396	407	---	---	450
8	946	360	504	---	---	690	418	406	413	412	362	376
9	652	482	524	---	---	695	446	410	429	724	370	502
10	580	512	536	---	---	700	448	412	428	588	500	528
11	738	540	624	712	674	705	462	422	433	554	502	520
12	638	508	551	724	696	710	694	410	466	776	494	601
13	516	446	485	708	660	676	400	264	317	662	538	604
14	446	432	438	784	---	700	444	326	370	672	260	554
15	436	426	431	564	---	550	522	362	423	384	166	295
16	460	420	435	586	518	549	458	412	425	596	296	417
17	422	410	414	506	416	443	482	418	436	562	412	471
18	510	416	460	424	396	411	508	426	454	494	464	475
19	524	500	513	418	392	403	656	418	476	588	448	493
20	530	508	521	410	390	401	438	408	419	810	516	584
21	538	516	524	412	388	402	408	400	404	676	488	583
22	532	516	524	406	388	399	406	392	400	520	432	451
23	532	442	481	726	396	480	408	400	404	444	404	420
24	500	450	486	654	464	520	412	326	395	464	430	443
25	528	442	474	532	468	497	386	342	365	458	432	445
26	984	530	641	554	522	532	376	362	369	452	420	436
27	740	564	604	534	214	433	404	372	394	458	432	446
28	688	578	636	---	---	420	414	---	400	532	428	474
29	670	552	629	---	---	400	---	---	410	466	420	445
30	---	---	---	---	---	450	---	---	420	472	---	430
31	---	---	---	524	448	494	---	---	---	436	---	420
MONTH	984	360	502	784	214	557	694	260	410	810	166	466

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	420	598	514	549	594	558	580	646	606	624
2	---	---	430	586	532	567	612	354	575	636	618	626
3	---	---	420	586	558	572	612	576	598	668	640	650
4	---	---	430	604	556	575	616	582	601	836	686	800
5	438	---	420	634	582	605	618	578	601	864	754	814
6	---	---	410	660	616	638	640	604	620	814	692	752
7	---	---	400	686	638	665	664	632	646	808	678	727
8	---	---	390	796	690	740	678	650	664	1580	430	758
9	400	380	389	906	802	855	822	510	647	448	430	442
10	422	402	407	826	712	755	504	346	475	520	448	479
11	410	386	398	726	696	708	496	460	483	500	476	483
12	420	396	406	742	720	732	586	318	501	506	486	491
13	428	---	410	764	734	745	598	516	562	524	490	506
14	---	---	420	768	736	755	640	604	616	554	506	532
15	---	---	430	766	742	755	710	650	668	584	528	560
16	436	---	420	772	760	765	608	526	551	660	576	616
17	512	---	450	784	750	768	528	484	504	676	572	626
18	478	428	456	782	748	766	508	446	477	638	594	620
19	700	470	561	818	754	775	582	444	502	640	596	623
20	788	338	528	816	784	800	680	594	653	620	564	597
21	668	502	573	900	786	842	672	560	606	614	562	592
22	552	502	530	844	798	825	578	530	549	622	588	610
23	566	534	550	856	812	836	576	538	557	628	586	608
24	620	550	570	828	746	786	594	548	568	656	608	635
25	---	---	580	784	730	754	606	558	581	798	432	641
26	---	---	800	834	738	769	598	560	581	746	378	570
27	1210	---	895	890	810	866	620	542	583	416	274	342
28	1030	---	825	966	754	837	650	566	607	444	346	400
29	822	592	659	756	524	610	674	632	653	380	170	208
30	688	542	621	572	526	557	670	618	647	446	240	333
31	---	---	---	588	534	549	664	606	635	---	---	---
MONTH	1210	338	507	966	514	720	822	318	584	1580	170	576

## PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.2	7.3	7.7	7.4	7.2	7.3	7.8	7.3	7.5	7.7	7.5	7.6
2	---	---	7.7	7.5	7.2	7.4	7.8	7.3	7.5	7.7	7.5	7.6
3	---	---	---	7.5	7.2	7.4	8.0	7.3	7.5	7.8	7.6	7.7
4	---	---	---	7.6	7.2	7.4	7.9	7.3	7.5	7.7	7.5	7.6
5	8.1	---	7.7	7.8	7.3	7.5	7.9	7.3	7.5	7.5	7.4	7.5
6	8.2	7.4	7.8	7.8	7.4	7.6	7.8	7.4	7.5	7.7	7.4	7.5
7	8.2	7.4	7.8	7.7	7.4	7.5	7.8	7.3	7.5	7.7	7.5	7.6
8	8.4	7.5	7.9	7.8	7.2	7.5	7.8	7.3	7.5	7.7	7.5	7.6
9	8.0	7.5	7.7	7.5	7.3	7.4	7.7	7.3	7.5	8.1	7.4	7.7
10	8.2	7.5	7.8	7.9	7.2	7.5	7.8	7.4	7.6	7.6	7.5	7.5
11	8.3	7.6	7.9	7.9	7.4	7.6	7.9	7.4	7.6	7.9	7.5	7.7
12	8.3	7.5	7.9	7.9	7.3	7.5	7.5	7.1	7.3	7.9	7.5	7.7
13	8.3	7.5	7.8	8.0	7.3	7.6	7.6	7.3	7.4	7.9	7.4	7.6
14	8.2	7.5	7.9	8.0	7.3	7.6	7.4	7.3	7.4	7.9	7.4	7.7
15	7.9	7.5	7.7	8.1	7.3	7.6	7.4	7.2	7.3	8.1	7.5	7.7
16	7.7	7.5	7.6	8.1	7.3	7.6	7.3	7.2	7.3	8.4	7.5	7.8
17	7.5	7.4	7.4	8.1	7.3	7.6	7.7	7.1	7.4	8.5	7.8	8.1
18	7.5	7.4	7.5	8.2	7.4	7.7	7.7	7.5	7.6	8.6	7.9	8.2
19	7.5	7.4	7.5	8.1	7.4	7.6	7.8	7.6	7.7	8.4	7.9	8.1
20	7.5	7.4	7.4	7.7	7.4	7.5	7.8	7.6	7.7	8.1	7.6	7.9
21	7.6	7.4	7.5	7.4	7.2	7.3	7.8	7.6	7.7	8.5	7.9	8.2
22	7.5	7.2	7.4	7.5	7.1	7.2	7.8	7.6	7.7	---	---	---
23	7.5	7.3	7.4	7.6	7.2	7.4	8.0	7.6	7.7	---	---	---
24	7.4	7.3	7.3	7.7	7.2	7.4	7.9	7.7	7.8	---	---	---
25	7.5	7.2	7.3	7.5	7.1	7.3	7.7	7.6	7.6	---	---	---
26	7.7	7.4	7.5	7.7	7.2	7.4	7.7	7.5	7.6	---	---	---
27	7.8	7.5	7.7	8.0	7.4	7.6	7.6	7.5	7.6	---	---	---
28	7.8	7.5	7.7	7.9	7.3	7.5	7.7	7.5	7.6	---	---	---
29	7.8	7.4	7.7	7.8	7.3	7.5	7.7	7.6	7.6	---	---	---
30	7.7	7.4	7.5	7.8	7.3	7.5	7.7	7.5	7.6	---	---	---
31	7.5	7.3	7.4	---	---	---	7.7	7.5	7.6	---	---	---
MONTH	8.4	7.2	7.6	8.2	7.1	7.5	8.0	7.1	7.6	8.6	7.4	7.7

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	8.2	8.2	3.1	8.5	7.8	8.1	8.6	7.9	8.2	---	---	---
2	8.3	8.2	8.3	8.5	8.1	8.3	8.6	7.9	8.2	---	---	---
3	8.3	8.2	8.2	8.6	8.0	8.2	8.0	7.9	7.9	---	---	---
4	8.2	8.2	8.2	8.8	8.0	8.3	8.0	7.9	8.0	---	---	---
5	8.3	8.1	8.2	8.7	7.9	8.2	8.1	7.8	8.0	---	---	---
6	8.3	8.1	8.2	8.7	7.9	8.3	8.2	8.0	8.1	---	---	---
7	8.2	8.0	8.2	8.8	7.8	8.2	8.2	8.0	8.1	---	---	---
8	9.4	7.9	8.3	8.7	7.8	8.2	8.2	8.1	8.2	7.8	7.6	7.7
9	8.5	8.1	8.3	---	---	8.2	8.2	8.1	8.1	7.8	7.6	7.7
10	8.2	7.9	8.1	---	---	8.2	8.3	8.0	8.2	8.0	7.5	7.8
11	8.2	7.9	8.1	8.3	7.9	8.1	8.2	8.1	8.1	7.9	7.6	7.7
12	8.6	7.9	8.3	8.7	---	8.2	8.2	7.9	8.1	7.8	7.6	7.7
13	8.3	8.2	8.3	8.7	7.9	8.3	8.2	8.0	8.1	7.8	7.5	7.6
14	8.4	8.2	8.2	8.5	7.8	8.2	8.1	7.8	8.0	7.9	7.5	7.6
15	8.3	8.2	8.3	8.5	---	8.2	8.2	7.5	8.0	8.0	7.6	7.8
16	8.4	8.3	8.3	8.5	8.0	8.2	8.2	8.1	8.2	7.8	7.6	7.8
17	8.4	8.3	8.4	8.6	8.1	8.3	8.3	8.1	8.2	7.9	7.7	7.8
18	8.4	8.2	8.3	8.6	8.1	8.3	8.3	8.0	8.2	8.0	7.8	7.9
19	8.3	8.0	8.1	8.6	8.2	8.4	8.3	7.8	8.1	8.1	7.9	8.0
20	8.2	7.9	8.0	8.6	8.2	8.4	8.4	8.0	8.2	8.0	7.7	7.9
21	8.3	7.9	8.1	8.7	8.2	8.4	8.5	8.0	8.2	7.9	7.6	7.8
22	8.3	7.9	8.1	8.7	8.1	8.4	8.5	8.0	8.2	8.0	7.7	7.8
23	8.4	7.8	8.1	8.6	8.0	8.2	8.5	8.0	8.2	8.2	7.8	8.0
24	8.4	8.0	8.2	8.7	7.9	8.3	8.4	7.8	8.1	8.3	7.8	8.0
25	8.5	8.1	8.3	8.3	7.9	8.1	8.1	7.8	7.9	8.3	7.8	8.0
26	8.5	8.0	8.2	8.5	7.9	8.1	7.9	7.8	7.9	8.3	7.8	8.0
27	8.5	7.9	8.1	8.2	7.6	8.0	8.3	7.9	8.0	8.2	7.7	7.9
28	8.3	7.8	8.0	8.2	---	8.0	8.1	7.9	8.0	8.2	7.7	7.9
29	8.1	7.5	7.8	8.1	---	8.0	---	---	---	8.1	7.7	7.9
30	---	---	---	8.2	---	8.0	---	---	---	8.2	7.8	7.9
31	---	---	---	8.5	7.9	8.1	---	---	---	8.8	7.8	8.4
MONTH	9.4	7.5	8.0	8.8	7.6	8.2	8.6	7.5	8.1	8.8	7.5	7.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	8.8	7.2	8.5	9.1	7.7	8.4	9.4	7.3	8.2	9.7	7.4	8.6
2	8.8	8.0	8.4	9.1	7.5	8.2	9.6	7.3	8.3	9.8	7.4	8.6
3	9.0	---	8.5	9.0	7.6	8.2	9.5	7.3	8.1	9.7	7.4	8.4
4	---	---	8.5	9.1	7.5	8.2	9.4	7.2	8.2	8.5	7.3	7.7
5	---	---	---	9.3	7.5	8.2	9.7	7.2	8.3	8.8	7.2	7.8
6	---	---	---	9.2	7.5	8.2	9.6	7.3	8.4	9.1	7.3	8.1
7	---	---	---	9.3	7.4	8.2	9.7	7.2	8.4	8.9	7.4	8.0
8	---	---	---	9.1	7.4	8.1	9.8	7.2	8.4	7.5	7.4	7.5
9	8.6	8.1	8.4	9.0	7.4	8.1	8.4	7.4	7.8	7.7	7.5	7.6
10	8.5	7.8	8.1	9.1	7.5	8.2	8.8	7.4	8.0	7.7	7.4	7.5
11	8.6	7.8	8.1	9.1	7.5	8.1	8.9	7.4	7.9	7.9	7.3	7.5
12	8.5	7.7	8.1	9.1	7.4	8.1	9.0	7.4	7.9	8.5	7.3	7.7
13	8.6	---	7.9	9.2	7.3	8.1	8.7	7.4	7.8	9.1	7.3	8.0
14	8.7	---	8.0	9.2	7.3	8.1	9.3	7.3	8.7	9.4	7.4	8.2
15	8.7	---	8.0	9.3	7.3	8.1	7.8	7.3	7.5	9.4	7.4	8.2
16	8.5	---	7.9	9.4	7.3	8.2	8.1	7.3	7.6	9.4	7.4	8.2
17	8.6	---	7.9	9.5	7.3	8.2	8.6	7.3	7.8	9.4	7.4	8.2
18	8.7	---	8.0	9.6	7.3	8.3	9.0	7.3	8.0	9.4	7.4	8.2
19	8.7	7.6	8.1	9.5	7.3	8.3	9.3	7.4	8.3	9.6	7.4	8.4
20	8.4	7.4	7.8	9.4	7.3	8.3	9.5	7.4	8.3	9.6	7.4	8.4
21	8.7	7.7	8.1	8.8	7.3	8.1	9.5	7.4	8.4	9.5	7.4	8.3
22	8.9	7.5	8.1	9.1	7.3	8.1	9.6	7.3	8.4	9.3	7.4	7.9
23	9.1	7.5	8.2	9.3	7.3	8.2	9.7	7.3	8.3	9.5	7.4	8.3
24	9.5	---	8.0	9.4	7.3	8.2	9.7	7.3	8.5	9.2	7.4	8.0
25	9.5	---	8.7	9.7	7.3	8.3	9.7	7.3	8.3	7.7	7.4	7.5
26	9.5	7.7	8.5	9.6	7.3	8.2	9.6	7.3	8.4	7.7	7.3	7.5
27	9.4	7.5	8.4	9.3	7.3	8.0	9.6	7.3	8.4	7.7	7.6	7.6
28	9.1	7.5	8.1	8.9	7.4	8.1	8.6	7.4	7.8	7.6	7.5	7.6
29	9.1	7.5	8.2	8.8	7.4	7.9	9.4	7.4	8.3	8.1	7.6	8.0
30	8.9	7.5	8.0	8.8	7.3	7.9	9.4	7.4	8.3	9.5	7.6	8.3
31	---	---	---	9.1	7.3	8.0	9.6	7.3	8.4	---	---	---
MONTH	9.5	7.2	8.2	9.7	7.3	8.2	9.8	7.2	8.2	9.8	7.2	8.0



## TRINITY RIVER BASIN

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	11.0	4.5	8.5	13.5	5.5	8.5	19.0	15.0	17.0	---	---	---
2	7.0	4.0	5.5	7.5	2.5	5.0	20.5	17.0	19.0	---	---	---
3	9.5	5.0	7.0	9.5	5.0	7.5	19.0	15.5	17.0	---	---	---
4	10.5	7.0	8.5	15.5	9.0	12.0	19.0	14.5	16.5	---	---	---
5	12.0	9.0	10.0	13.5	9.5	11.5	18.5	15.5	17.0	---	---	---
6	12.0	8.5	10.0	14.0	9.0	12.0	20.5	15.5	17.5	---	---	---
7	9.5	8.0	9.0	19.0	14.5	16.5	22.5	17.5	19.5	---	---	---
8	8.0	6.0	7.0	17.5	13.5	15.0	20.5	15.5	18.0	---	---	---
9	6.0	4.0	4.5	---	---	---	21.5	16.5	18.5	24.0	18.5	21.0
10	6.5	3.0	5.0	---	---	---	20.5	16.5	18.5	26.5	20.5	23.5
11	7.5	4.0	6.0	---	---	---	21.5	17.0	19.0	27.0	23.0	25.0
12	8.0	5.0	6.5	18.5	13.5	16.0	17.5	13.0	14.5	27.5	23.0	25.5
13	10.0	6.0	8.0	17.0	13.5	15.5	13.0	9.5	11.0	25.5	23.5	24.5
14	10.5	8.5	9.5	17.5	12.0	14.5	14.5	10.0	12.0	25.0	22.0	23.0
15	13.0	9.0	11.5	---	---	---	18.0	11.5	14.5	22.5	20.0	21.0
16	8.5	6.0	7.5	18.0	15.5	16.5	20.0	14.0	17.0	25.0	19.0	21.5
17	8.0	5.0	6.5	17.0	13.5	15.0	20.5	16.5	18.0	25.5	22.0	24.0
18	9.5	5.0	7.5	16.5	12.0	14.0	20.5	16.5	18.0	27.0	22.5	24.5
19	13.5	7.5	11.0	16.0	12.5	14.0	22.0	17.0	19.5	26.5	23.0	24.5
20	15.5	10.0	13.0	17.5	13.5	15.0	23.0	17.5	20.0	28.0	22.0	24.5
21	16.0	12.0	14.5	18.5	13.0	15.5	23.5	18.5	20.5	26.0	22.5	24.0
22	17.0	12.5	15.0	17.0	13.5	15.0	23.0	18.5	20.5	26.0	22.5	24.0
23	15.0	12.0	14.0	18.0	14.5	15.5	24.0	18.5	21.0	26.0	21.0	23.0
24	16.0	11.5	13.5	16.0	11.0	14.0	22.0	19.5	20.5	27.5	22.0	24.5
25	14.0	10.0	12.0	14.5	12.5	13.0	22.0	19.0	20.0	30.0	24.5	27.0
26	13.0	8.5	11.0	15.5	12.0	14.0	18.5	15.5	16.5	30.5	25.5	28.0
27	15.0	9.5	12.5	15.5	13.5	14.5	19.5	15.5	17.0	29.0	26.5	27.5
28	17.5	12.5	15.5	---	---	---	---	---	---	30.0	25.5	27.5
29	18.0	14.0	16.0	---	---	---	---	---	---	28.5	25.5	27.0
30	---	---	---	---	---	---	---	---	---	28.5	25.0	26.5
31	---	---	---	18.0	13.5	15.5	---	---	---	29.5	25.0	27.0
MONTH	18.0	3.0	10.0	19.0	2.5	13.5	24.0	9.5	17.5	30.5	18.5	24.5

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

## OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	9.9	7.6	8.5	8.1	6.7	7.4	16.6	12.8	14.2	10.3	9.4	9.8
2	7.6	---	6.5	8.7	6.7	7.8	16.2	12.1	13.7	10.3	8.9	9.5
3	---	---	---	---	6.6	7.9	15.7	10.6	12.9	10.8	8.9	9.9
4	---	---	---	8.8	6.5	7.8	13.8	9.0	11.3	10.6	9.8	10.2
5	15.3	---	10.5	11.2	6.5	8.6	13.8	8.8	10.7	10.6	9.3	10.0
6	15.3	8.7	11.6	12.7	8.2	10.7	12.1	7.8	9.5	10.3	8.8	9.4
7	14.9	8.6	11.5	11.7	8.7	10.4	12.9	8.3	9.9	11.4	8.5	10.0
8	14.7	7.0	10.8	11.7	6.9	9.3	12.2	7.8	9.3	11.8	9.9	10.8
9	10.9	6.6	9.1	9.3	6.1	7.6	11.9	7.9	9.6	12.1	9.8	10.8
10	14.5	8.0	11.0	13.0	6.7	9.8	11.3	8.6	9.7	10.3	8.7	9.6
11	14.7	9.6	11.6	14.6	9.7	11.8	9.7	1.5	6.2	12.3	8.2	10.3
12	13.2	7.5	10.2	14.7	9.8	11.5	13.0	3.3	8.3	13.1	9.1	11.0
13	12.0	6.0	8.7	15.9	9.8	12.3	---	8.6	10.7	13.4	9.1	11.2
14	12.6	7.3	9.7	15.6	10.0	12.1	---	10.3	10.6	14.0	8.5	11.1
15	9.4	6.7	7.9	16.1	9.7	12.0	10.8	10.0	10.4	13.1	8.0	10.3
16	7.0	5.3	6.3	16.1	9.4	11.8	10.6	9.9	10.3	13.2	7.0	9.7
17	5.5	5.0	5.2	15.3	8.5	11.2	12.1	10.5	11.4	14.6	7.7	11.2
18	5.6	4.9	5.3	13.9	7.5	9.8	11.7	11.0	11.4	14.5	8.6	11.4
19	6.4	5.5	5.9	13.5	6.6	8.6	11.3	10.3	10.8	11.9	7.5	9.6
20	6.8	5.7	6.1	10.1	6.4	7.9	10.6	9.1	9.9	9.1	6.4	7.8
21	6.9	5.6	6.1	6.1	3.9	4.9	10.3	8.1	9.2	---	---	---
22	6.6	3.0	5.5	8.9	2.2	5.3	9.0	7.0	8.0	---	---	---
23	6.6	5.5	6.1	12.0	6.3	9.5	9.7	7.3	9.0	---	---	---
24	7.4	5.6	6.4	14.0	3.9	10.5	9.7	9.1	9.4	---	---	---
25	8.2	5.9	7.0	11.1	2.4	7.0	9.5	8.8	9.2	---	---	---
26	10.1	7.0	8.4	13.9	9.0	11.1	9.4	8.6	9.0	---	---	---
27	11.5	7.8	9.5	15.3	9.4	12.1	8.9	8.2	8.5	---	---	---
28	11.8	7.9	9.8	15.7	8.7	11.8	9.4	7.9	8.5	---	---	---
29	11.1	8.1	9.8	15.5	11.6	13.3	9.4	9.1	9.2	---	---	---
30	8.1	6.2	7.0	15.9	12.7	13.8	9.9	9.1	9.5	---	---	---
31	7.6	6.7	7.1	---	---	---	10.4	9.4	9.8	---	---	---
MONTH	15.3	3.0	8.2	16.1	2.2	9.9	16.6	1.5	10.0	14.6	6.4	10.2

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	12.6	---	---	12.9	4.6	8.2	12.7	7.4	9.9	---	---	---
2	12.7	11.8	12.3	13.9	9.5	11.3	13.2	---	9.3	---	---	---
3	12.1	10.9	11.5	13.8	9.4	11.2	8.2	7.2	7.8	---	---	---
4	10.9	10.4	10.7	13.8	7.8	10.4	8.8	7.2	8.0	---	---	---
5	11.0	10.2	10.5	13.7	6.6	9.9	9.2	7.6	8.3	---	---	---
6	11.1	10.1	10.5	12.8	7.5	9.8	8.7	7.7	8.1	---	---	---
7	10.8	10.0	10.3	12.0	5.5	8.4	8.7	7.5	8.0	---	---	---
8	11.2	9.0	10.4	9.7	4.9	7.1	9.0	7.8	8.4	---	---	---
9	11.7	11.2	11.4	9.4	5.9	7.8	9.1	7.6	8.3	9.0	6.4	7.6
10	11.7	10.8	11.4	---	---	---	9.2	7.2	8.2	10.0	5.6	7.7
11	11.2	10.6	10.9	11.2	3.7	6.4	8.7	7.4	7.9	9.3	5.7	7.4
12	11.5	10.6	11.1	14.5	7.7	10.7	8.7	7.4	8.1	7.4	5.1	6.1
13	12.0	10.7	11.2	15.4	7.6	11.9	10.0	8.5	9.5	5.8	3.8	4.6
14	11.1	10.1	10.7	15.8	12.0	13.7	9.9	9.1	9.6	5.9	2.8	4.5
15	11.1	8.3	9.9	13.5	11.9	12.8	9.9	8.3	9.3	7.3	5.3	6.0
16	11.2	8.3	10.3	14.3	11.3	12.9	9.7	7.9	8.8	6.8	6.2	6.6
17	12.4	10.7	11.6	12.4	8.9	10.4	9.6	7.5	8.4	7.0	5.9	6.5
18	12.0	10.3	11.2	11.3	8.6	9.7	9.7	7.2	8.3	7.4	6.2	6.7
19	11.4	9.2	10.3	11.3	8.7	9.8	10.5	7.0	8.6	7.9	6.3	7.0
20	11.9	8.7	10.1	11.0	8.7	9.6	10.7	7.2	8.8	8.3	6.4	7.2
21	12.0	8.1	9.8	11.8	8.6	9.9	10.8	7.0	8.7	8.4	6.3	7.3
22	12.1	7.9	9.7	11.4	8.8	10.0	10.7	6.9	8.6	8.4	6.8	7.6
23	11.7	7.2	9.4	10.9	8.8	9.3	11.0	7.0	8.7	8.9	7.1	7.9
24	11.4	8.4	9.6	12.3	7.9	9.9	9.7	6.3	8.1	9.0	6.6	7.6
25	12.6	8.9	10.3	11.2	8.9	9.8	8.5	7.1	7.8	9.1	5.8	7.2
26	13.2	8.5	10.7	12.8	8.3	10.3	8.6	7.0	7.9	8.2	5.0	6.4
27	13.4	8.2	10.5	9.4	6.9	8.1	10.2	7.9	9.0	4.6	3.0	3.8
28	11.5	6.2	8.7	9.7	7.8	8.6	---	---	---	3.0	2.0	2.5
29	9.3	1.6	5.6	---	7.3	8.7	---	---	---	2.0	1.3	1.6
30	---	---	---	10.7	8.6	9.9	---	---	---	2.9	1.1	2.0
31	---	---	---	13.5	8.4	11.5	---	---	---	3.2	1.6	2.2
MONTH	13.4	1.6	10.4	15.8	3.7	9.9	13.2	6.3	8.5	10.0	1.1	5.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	---	16.9	7.3	12.1	7.7	.3	4.1	14.8	.7	7.6
2	---	---	---	15.2	7.7	11.0	---	---	---	15.8	.7	7.6
3	---	---	---	14.9	5.1	9.8	---	---	---	15.9	1.4	7.9
4	---	---	---	16.8	4.4	9.7	---	---	---	13.3	.1	5.8
5	---	---	---	18.4	4.0	10.0	---	---	---	15.2	.1	6.7
6	---	---	---	18.4	4.0	10.3	---	---	---	15.7	.1	7.2
7	---	---	---	19.0	3.8	10.0	---	---	---	12.9	.1	5.7
8	---	---	---	17.9	3.5	9.8	---	---	---	6.8	.0	5.1
9	11.2	7.8	9.8	16.8	5.4	10.1	---	---	---	6.2	---	5.0
10	11.7	5.5	8.0	16.2	4.5	9.2	---	---	---	7.1	2.1	4.0
11	11.9	4.4	7.7	16.1	4.0	8.7	---	---	---	8.4	1.1	4.1
12	8.3	3.3	7.0	16.1	3.5	8.5	---	---	---	10.8	1.1	5.0
13	9.0	---	7.1	16.2	3.1	8.4	---	---	---	14.0	.3	6.0
14	9.7	---	7.4	16.4	2.9	8.5	16.0	---	5.1	16.8	.8	7.2
15	9.9	---	8.0	16.6	2.9	8.7	8.3	.0	3.1	17.6	.9	7.8
16	9.0	---	7.8	17.2	3.1	9.1	11.7	.0	4.6	17.7	.4	7.3
17	9.7	---	8.0	14.6	1.9	7.6	15.6	.0	6.4	18.4	.0	7.3
18	12.8	1.5	7.6	15.9	.7	7.8	16.8	.0	6.9	19.0	.0	7.3
19	12.8	5.7	8.8	19.1	.6	8.7	15.6	.2	7.6	18.9	.1	7.5
20	10.4	2.7	6.1	18.1	.5	8.2	16.6	.1	8.0	19.3	.0	7.7
21	14.6	4.7	9.2	13.9	.5	5.4	15.5	.5	7.0	18.9	.7	8.5
22	15.3	6.5	10.6	18.0	.2	6.6	13.7	.5	6.2	18.1	.8	5.8
23	16.7	7.9	11.5	18.7	.1	8.1	16.0	.0	6.8	18.7	.7	8.1
24	13.6	8.3	10.5	18.6	.2	7.4	15.4	.0	6.7	18.4	.5	6.8
25	11.4	6.7	8.8	17.7	.1	8.3	15.9	.0	6.4	6.3	.2	3.2
26	13.2	8.8	10.6	15.4	.1	5.5	16.4	.9	8.1	5.2	.0	2.7
27	14.3	8.6	11.1	13.3	.2	5.7	17.0	.2	8.1	6.6	5.1	6.0
28	13.3	6.2	9.4	8.0	1.2	5.1	10.2	.2	4.1	6.3	5.4	5.7
29	14.3	5.8	9.7	14.5	4.6	9.1	16.7	.8	7.8	8.1	5.6	7.8
30	13.4	5.6	10.1	13.9	1.5	8.0	16.4	1.9	8.7	7.8	5.9	7.0
31	---	---	---	12.3	.8	7.9	15.6	.8	8.1	---	---	---
MONTH	16.7	1.5	8.9	19.1	.1	8.5	17.0	.0	6.5	19.3	.0	6.4

## 08049200 LAKE ARLINGTON AT ARLINGTON, TX

LOCATION.--Lat 32°42'58", long 97°11'32", Tarrant County, Hydrologic Unit 12030102, in new pumphouse at right end of Arlington Dam on Village Creek near western boundary of Arlington, 1.5 mi (2.4 km) upstream from The Texas and Pacific Railway Co. bridge, and 7 mi (11 km) upstream from mouth.

DRAINAGE AREA.--143 mi<sup>2</sup> (370 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1957 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Sept. 9, 1957, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by a rolled earthfill dam 6,482 ft (1,976 m) long. The service spillway is a 10-foot-diameter (3 m) uncontrolled circular drop inlet. The emergency spillway is an 882-foot-wide (269 m) cut through natural ground near the right end of dam. The dam was completed and storage began Mar. 31, 1957. Capacities are based on a 1955 survey. The dam was built by city of Arlington to impound water for municipal and industrial uses. Records furnished by the Tarrant County Water Control and Improvement District No. 1 show that 51,310 acre-ft (63.3 hm<sup>3</sup>) was diverted from Cedar Creek Reservoir (station 08063010) into Lake Arlington during the current year. Water is circulated for cooling purposes from lake to generating plant of Texas Electric Service Co. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	572.0	
Crest of spillway.....	559.7	70,140
Crest of drop inlet (top of conservation pool).....	550.0	45,710
Lowest gated outlet (invert).....	505.0	180

COOPERATION.--Records of diversions furnished by city of Arlington, Texas Electric Service Co., and Tarrant County Water Control and Improvement District No. 1. Capacity table furnished by Freese and Nichols, Inc., Consulting Engineers, for the city of Arlington.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 60,580 acre-ft (74.7 hm<sup>3</sup>) May 4, 1979, elevation, 556.20 ft (169.530 m); minimum since lake first filled in April 1957, 18,110 acre-ft (22.3 hm<sup>3</sup>) Oct. 17, 1971, elevation, 534.27 ft (162.845 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 49,080 acre-ft (60.5 hm<sup>3</sup>) May 16 at 0500 hours, elevation, 551.50 ft (168.097 m); minimum, 23,430 acre-ft (28.9 hm<sup>3</sup>) Sept. 7, elevation, 538.07 ft (164.004 m).

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

538.0	23,320	550.0	45,710
542.0	29,950	552.0	50,240
546.0	37,390		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36290	32560	31020	34890	36300	36340	39480	42930	44300	36890	29110	23920
2	36090	32520	31130	34870	36250	36480	40010	43370	44230	36520	28970	23750
3	35840	32400	31220	34850	36230	36610	40610	43260	44080	36170	28880	23660
4	35650	32290	31360	34850	36170	36560	40810	43160	43820	35840	28760	23630
5	35440	32200	31490	34870	36150	36580	41020	43070	43560	35540	28730	23580
6	35250	32100	31610	34890	36150	36580	41180	43090	43390	35210	28490	23490
7	35040	32070	31690	34890	36130	36690	41310	42950	43120	34910	28310	23470
8	34890	32070	31780	34830	36230	36810	41370	43200	42880	34570	28140	23570
9	34720	31990	31890	34760	36290	36910	41490	43050	42710	34230	27970	23750
10	34570	31890	32010	34700	36270	36830	41540	42950	42480	33890	27850	23840
11	34400	31780	32100	34570	36230	36690	41600	42860	42210	33550	27730	23920
12	34270	31630	32760	34570	36150	36580	41790	42780	41930	33200	27580	23910
13	34060	31560	32930	34590	36130	36630	42460	42650	41660	33020	27410	23860
14	33890	31510	33040	34620	36210	36750	42650	42950	41350	32820	27190	23890
15	34060	31470	33170	34680	36190	36870	42730	48460	41080	32500	26970	23800
16	34020	31400	33200	34660	36250	37000	42780	48510	40790	32230	26790	23770
17	33930	31310	33310	34680	36270	37080	42760	47630	40540	31940	26600	23810
18	33910	31250	33390	34720	36190	37200	42800	47010	40260	31700	26420	23870
19	33800	31200	33420	34720	36230	37330	42800	46600	39990	31490	26170	23870
20	33650	31160	33350	34760	36190	37470	42760	46290	39930	31340	26040	23860
21	33420	31130	33530	35100	36090	37590	42650	46110	39750	31160	25820	23830
22	33350	30970	33700	36560	36000	37710	42480	45930	39580	31060	25630	23830
23	33260	30880	34570	36630	35880	37940	42400	45800	39360	30910	25460	23840
24	33150	30750	34590	36590	35900	38000	42710	45670	39100	30640	25270	23780
25	33050	30640	34530	36520	35860	38180	42880	45510	38800	30360	25030	23870
26	33020	30680	34590	36460	36020	38380	42780	45340	38520	30070	24790	24110
27	32830	30700	34680	36400	36060	38880	42690	45190	38160	29910	24550	24490
28	32670	30770	34810	36380	36150	39120	42590	45060	37810	29790	24390	24690
29	32600	30840	34910	36400	36250	39400	42610	44880	37530	29600	24340	28260
30	32720	30910	34950	36360	---	39420	42730	44660	37200	29350	24220	28740
31	32630	---	34970	36380	---	39560	---	44470	---	29230	24090	---
MAX	36290	32560	34970	36630	36300	39560	42880	48510	44300	36890	29110	28740
MIN	32600	30640	31020	34570	35860	36340	39480	42650	37200	29230	24090	23470
(†)	543.49	542.54	544.74	545.48	545.41	547.09	548.62	549.43	545.90	541.59	538.50	541.31
(+)	-3870	-1720	+4060	+1410	-130	+3310	+3170	+1740	-7270	-7970	-5140	+4650
(††)	3920	2850	2780	2750	2600	3100	3240	3420	5880	7790	7520	5460
CAL YR 1979	MAX	57050	MIN	30640	†	+3410	††	42730				
WTR YR 1980	MAX	48510	MIN	23470	†	-7760	††	51310				

† Elevation, in feet, at end of month.

† Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial use.

## TRINITY RIVER BASIN

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

## WATER-QUALITY RECORDS

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

324304097113601 LAKE ARLINGTON SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)
FEB										
05...	1250	1.0	284	8.0	10.0	.80	10.2	91	100	3
05...	1252	10	284	8.0	10.0	--	10.2	91	--	--
05...	1253	20	284	8.0	10.0	--	10.2	91	--	--
05...	1254	30	284	8.0	10.0	--	10.0	89	--	--
05...	1255	43	284	7.9	9.5	--	9.5	84	100	4
MAY										
05...	1400	1.0	300	8.4	26.0	.80	8.9	111	110	13
05...	1402	10	300	8.2	24.0	--	8.4	101	--	--
05...	1404	20	305	7.9	20.5	--	6.4	72	--	--
05...	1408	30	317	7.6	18.0	--	2.4	26	--	--
05...	1410	35	324	7.5	17.0	--	.8	8	--	--
05...	1412	42	324	7.5	17.0	--	.4	4	120	11
AUG										
18...	1315	1.0	319	8.0	30.5	1.00	6.6	89	110	9
18...	1317	10	319	8.0	30.5	--	6.5	88	--	--
18...	1319	20	319	8.0	30.5	--	6.5	88	--	--
18...	1321	29	319	8.0	30.0	--	6.0	80	110	11

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
FEB									
05...	34	3.9	16	.7	4.2	120	0	27	15
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	34	4.2	16	.7	4.2	120	0	27	15
MAY									
05...	35	4.7	17	.7	3.9	110	2	27	15
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	39	4.8	17	.7	4.0	130	0	28	15
AUG									
18...	35	4.9	19	.8	4.9	120	0	29	20
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	36	4.7	19	.8	4.7	120	0	29	20

## TRINITY RIVER BASIN

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## LAKE ARLINGTON AT ARLINGTON, TX--Continued

324304097113601 LAKE ARLINGTON SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
05...	.2	1.9	161	.10	.46	.56	.020	<10	<1
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.13	.56	.69	.020	20	0
05...	--	2.0	162	.08	.59	.67	.030	20	40
MAY									
05...	.2	1.5	161	.03	.99	1.0	.010	<10	2
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.08	.83	.91	.010	40	10
05...	--	--	--	.29	.98	1.3	.010	40	40
05...	--	--	--	--	--	--	--	--	--
05...	--	3.3	176	.37	.74	1.1	.020	50	420
AUG									
18...	.3	4.0	176	.00	.49	.49	.030	<10	2
18...	--	--	--	.00	.65	.65	.020	10	0
18...	--	--	--	.00	.63	.63	.020	10	0
18...	--	4.1	177	.00	.45	.45	.020	<10	20

324320097121101 LAKE ARLINGTON SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
05...	1315	1.0	284	8.0	9.5	10.2	90
05...	1316	10	284	8.0	9.5	10.1	89
05...	1317	20	284	8.0	9.5	10.0	88
05...	1318	32	284	8.0	9.5	9.8	87
MAY							
05...	1420	1.0	300	8.3	26.0	9.0	112
05...	1422	10	300	8.2	24.0	8.2	99
05...	1424	20	305	7.9	20.5	6.3	71
05...	1426	30	318	7.6	18.0	2.8	30
AUG							
18...	1250	1.0	319	8.0	30.0	6.3	84
18...	1252	10	319	8.0	30.0	6.2	83
18...	1254	20	319	7.9	30.0	6.2	83
18...	1256	24	319	7.9	30.0	6.1	81

324253097121801 LAKE ARLINGTON SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
05...	1325	1.0	284	8.0	10.0	10.2	91
05...	1326	10	284	8.0	10.0	10.2	91
05...	1327	20	284	8.0	10.0	10.2	91
05...	1328	30	284	8.0	9.5	10.1	89
05...	1329	38	284	8.0	9.5	10.0	88
MAY							
05...	1435	1.0	300	8.4	25.5	8.8	109
05...	1436	10	300	8.3	22.5	8.3	97
05...	1437	20	308	7.8	20.0	5.3	59
05...	1438	30	319	7.6	17.5	1.8	19
05...	1439	40	325	7.6	17.0	.4	4
AUG							
18...	1410	1.0	319	8.0	30.5	6.6	89
18...	1412	10	319	8.0	30.5	6.3	85
18...	1414	20	319	7.9	30.0	5.8	77
18...	1416	25	323	7.4	29.5	3.0	39
18...	1418	31	355	7.1	25.0	.1	1



## TRINITY RIVER BASIN

## LAKE ARLINGTON AT ARLINGTON, TX--Continued

324301097123301 LAKE ARLINGTON SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
05...	1335	1.0	284	8.1	10.5	10.2	93
05...	1336	10	284	8.0	10.0	10.2	91
05...	1337	20	284	8.0	10.0	10.2	91
05...	1338	30	284	8.0	9.5	10.0	88
MAY							
05...	1445	1.0	302	8.3	26.0	8.8	110
05...	1446	10	302	8.3	22.5	8.1	94
05...	1448	20	310	7.7	20.0	4.7	52
05...	1450	32	322	7.5	18.0	1.2	13
AUG							
18...	1605	1.0	319	8.0	31.0	6.9	93
18...	1607	10	319	8.0	30.5	6.4	86
18...	1609	20	319	7.8	30.0	5.6	75
18...	1611	24	319	7.7	30.0	5.2	69

324257097130301 LAKE ARLINGTON SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
05...	1345	1.0	286	7.9	14.0	9.4	92
05...	1346	12	286	7.9	14.0	9.4	92
MAY							
05...	1500	1.0	310	7.8	32.5	6.8	94
05...	1501	5.0	310	7.8	30.5	6.8	92
05...	1502	11	310	7.9	24.5	6.7	82
AUG							
18...	1450	1.0	319	7.9	36.0	6.5	94
18...	1452	10	319	7.9	36.0	6.5	94
18...	1454	15	319	7.9	36.5	6.5	96

324228097130301 LAKE ARLINGTON SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
05...	1400	1.0	284	7.9	13.5	9.5	92
05...	1401	10	284	8.0	11.5	9.8	91
05...	1402	15	284	8.0	10.0	9.6	86
MAY							
05...	1515	1.0	304	8.2	27.0	8.1	103
05...	1516	10	304	8.2	22.5	7.7	90
05...	1517	19	310	7.6	21.5	5.0	57
AUG							
18...	1505	1.0	319	7.9	33.0	6.4	89
18...	1507	5.0	319	7.8	32.0	6.1	84
18...	1509	11	319	7.8	30.0	5.3	71

TRINITY RIVER BASIN  
LAKE ARLINGTON AT ARLINGTON, TX--Continued

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324143097132201 LAKE ARLINGTON SITE EC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	HARD- NESS (MG/L AS CaCO3)
FEB									
05...	1415	1.0	284	8.2	10.0	.40	10.5	94	100
05...	1418	10	284	8.2	10.0	--	10.5	94	--
05...	1419	23	284	8.1	10.0	--	10.4	93	110
MAY									
05...	1525	1.0	301	8.4	25.5	.70	8.8	109	100
05...	1526	10	301	8.2	22.0	--	7.3	85	--
05...	1527	20	312	7.6	20.5	--	3.7	42	--
05...	1528	24	316	7.5	20.5	--	1.7	19	100
AUG									
18...	1525	1.0	312	8.2	29.5	.40	7.5	99	110
18...	1527	10	310	8.1	28.5	--	6.9	90	--
18...	1529	16	310	8.1	28.5	--	6.7	87	100

DATE	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
05...	6	35	4.2	16	.7	4.3	120	0	27
05...	--	--	--	--	--	--	--	--	--
05...	7	35	4.3	16	.7	4.2	120	0	27
MAY									
05...	11	34	4.7	16	.7	4.0	110	2	27
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	5	34	4.6	17	.7	3.9	120	0	27
AUG									
18...	8	35	4.7	19	.8	4.8	120	0	29
18...	--	--	--	--	--	--	--	--	--
18...	6	34	4.7	19	.8	4.7	120	0	29

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS Fe)	MANGA- NESE, DIS- SOLVED (UG/L AS Mn)
FEB									
05...	16	1.9	164	.08	.51	.59	.040	20	<1
05...	--	--	--	--	--	--	--	--	--
05...	16	2.0	164	.07	.59	.66	.050	20	<1
MAY									
05...	15	1.4	158	.01	.71	.72	.030	10	<3
05...	--	--	--	.03	.81	.84	.020	50	20
05...	--	--	--	--	--	--	--	--	--
05...	16	3.0	165	.06	.69	.75	.020	40	40
AUG									
18...	20	4.0	176	.00	.65	.65	.080	<10	1
18...	--	--	--	--	--	--	--	--	--
18...	20	4.0	175	.00	.71	.71	.050	<10	2

## TRINITY RIVER BASIN

## LAKE ARLINGTON AT ARLINGTON, TX--Continued

324133097130601 LAKE ARLINGTON SITE EL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
05...	1435	1.0	284	8.2	10.0	10.5	94
05...	1436	10	284	8.2	10.0	10.4	93
05...	1437	15	284	8.2	10.0	10.2	91
MAY							
05...	1540	1.0	301	8.4	26.0	8.8	110
05...	1541	10	301	8.2	22.0	7.6	88
05...	1542	18	311	7.8	21.5	5.5	63
AUG							
18...	1545	1.0	312	8.2	29.0	7.7	101
18...	1547	8.0	312	8.2	29.0	7.5	99

324041097134601 LAKE ARLINGTON SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
FEB									
05...	1500	1.0	296	8.1	10.5	.30	10.1	92	110
05...	1505	12	296	8.1	10.5	--	10.1	92	110
MAY									
05...	1600	1.0	300	8.6	24.0	.79	9.2	111	100
05...	1602	10	307	7.9	21.5	--	5.5	63	--
05...	1604	15	321	7.5	21.0	--	3.0	34	100

DATE	HARD- NESS, NONCAR- BONATE (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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
05...	10	36	4.5	17	.7	4.2	120	0	29
05...	7	35	4.4	16	.7	4.1	120	0	29
MAY									
05...	9	34	4.6	16	.7	4.0	110	3	27
05...	--	--	--	--	--	--	--	--	--
05...	6	34	4.7	19	.8	3.8	120	0	28

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
05...	17	2.5	169	.08	.61	.69	.040	40	5
05...	17	2.5	167	.12	.57	.69	.050	30	7
MAY									
05...	15	1.4	159	.01	.76	.77	.030	10	<3
05...	--	--	--	--	--	--	--	--	--
05...	16	3.1	168	.06	1.0	1.1	.030	30	20

## TRINITY RIVER BASIN

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## LAKE ARLINGTON AT ARLINGTON, TX--Continued

324304097113601 LAKE ARLINGTON SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)
FEB							
05...	1250	1.0	1	40	<1	0	0
05...	1252	10	--	--	--	--	--
05...	1253	20	--	--	--	--	--
05...	1254	30	--	--	--	--	--
05...	1255	43	1	40	<1	0	0
MAY							
05...	1400	1.0	1	50	<1	0	3
05...	1402	10	--	--	--	--	--
05...	1404	20	--	--	--	--	--
05...	1408	30	--	--	--	--	--
05...	1410	35	--	--	--	--	--
05...	1412	42	1	50	1	0	2
AUG							
18...	1315	1.0	2	30	<1	0	2
18...	1317	10	--	--	--	--	--
18...	1319	20	--	--	--	--	--
18...	1321	29	2	30	<1	0	1

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB							
05...	<10	0	<1	.0	0	0	<3
05...	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--
05...	20	--	0	--	--	--	--
05...	20	0	40	.0	0	0	<3
MAY							
05...	<10	0	2	.0	0	0	<3
05...	--	--	--	--	--	--	--
05...	40	--	10	--	--	--	--
05...	40	--	40	--	--	--	--
05...	--	--	--	--	--	--	--
05...	50	0	420	.2	0	0	<3
AUG							
18...	<10	0	2	.0	0	0	5
18...	10	--	0	--	--	--	--
18...	10	--	20	--	--	--	--
18...	<10	0	20	.0	0	0	10

## TRINITY RIVER BASIN

## LAKE ARLINGTON AT ARLINGTON, TX--Continued

324304097113601 LAKE ARLINGTON SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	FEB 5, 80 1251	MAY 5, 80 1401	AUG 18, 80 1316
TOTAL CELLS/ML	9800	2900	110000
DIVERSITY: DIVISION	1.5	1.4	0.2
..CLASS	1.5	1.4	0.2
...ORDER	1.8	1.8	0.8
...FAMILY	2.1	2.6	0.9
...GENUS	2.9	3.9	1.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE						
...SCHROEDERIA	--	-	--	-	*	0
...COELASTRACEAE						
...COELASTRUM	--	-	--	-	*	0
...HYDRODICTYACEAE						
...PEDIASTRUM	--	-	320	11	--	-
...OOCYSTACEAE						
...ANKISTRODESMUS	270	3	320	11	*	0
...CHLORELLA	2700#	28	51	2	--	-
...CHODATELLA	370	4	77	3	--	-
...CLOSTERIOPSIS	--	-	*	0	--	-
...DICTYOSPHAERIUM	--	-	130	4	--	-
...GLOEOACTINIUM	--	-	140	5	--	-
...KIRCHNERIELLA	800	8	--	-	--	-
...OOCYSTIS	--	-	26	1	--	-
...SELENASTRUM	--	-	51	2	--	-
...TETRAEDRON	110	1	--	-	--	-
...TREUBARIA	--	-	26	1	--	-
...SCENEDESMACEAE						
...CRUCIGENIA	--	-	--	-	*	0
...SCENEDESMUS	530	5	360	12	800	1
...TETRASTRUM	320	3	51	2	--	-
...TETRASPORALES						
...PALMELLACEAE						
...SPHAEROCYSTIS	--	-	64	2	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	-	26	1	*	0
...ZYGNEATALES						
...DESMIDIACEAE						
...COSMARIUM	--	-	--	-	*	0
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCACEAE						
...CYCLOTELLA	1800#	18	230	8	*	0
...MELOSIRA	110	1	26	1	--	-
...PENNALES						
...ACHNANTHACEAE						
...ACHNANTHES	--	-	26	1	--	-
...NITZSCHIA	53	1	150	5	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	--	-	410	14	3200	3
...ANACYSTIS	1100	11	170	6	14000	13
...COCCOCHLORIS	--	-	150	5	--	-
...GOMPHOSPHAERIA	--	-	51	2	--	-
...HORMOGONALES						
...NOSTOCACEAE						
...ANABAENA	1700#	17	--	-	--	-
...OSCILLATORIA						
...LYNGBYA	--	-	--	-	40000#	36
...OSCILLATORIA	--	-	--	-	50000#	45
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...TRACHELOMONAS	--	-	--	-	*	0
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...PERIDINIALES						
...GLENODINIACEAE						
...GLENODINIUM	--	-	26	1	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## TRINITY RIVER BASIN

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## LAKE ARLINGTON AT ARLINGTON, TX--Continued

324143097132201 LAKE ARLINGTON SITE EC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE	AUG 18,80
TIME	1526
TOTAL CELLS/ML	72000
DIVERSITY: DIVISION	0.6
..CLASS	0.6
..ORDER	1.4
...FAMILY	1.5
....GENUS	2.3

ORGANISM	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...COELASTRACEAE		
....COELASTRUM	980	1
...OOCYSTACEAE		
....ANKISTRODESMUS	570	1
...KIRCHNERIELLA	570	1
...SELENASTRUM	*	0
...TREUBARIA	*	0
...SCENEDESMACEAE		
....CRUCIGENIA	*	0
...SCENEDESMUS	650	1
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	*	0
CHRYSTOPHYTA		
..BACILLARIOPHYCEAE		
...CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	810	1
...MELOSIRA	*	0
...PENNALES		
...FRAGILARIACEAE		
....FRAGILARIA	*	0
...NAVICULACEAE		
....NAVICULA	*	0
...NITZSCHACEAE		
....NITZSCHIA	3000	4
...SURIRELLACEAE		
....SURIRELLA	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)		
..CYANOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM	6500	9
...ANACYSTIS	8200	11
...HORMOGONALES		
...OSCILLATORIACEAE		
....LYNGBYA	15000#	20
...OSCILLATORIA	34000#	48
EUGLENOPHYTA (EUGLENOIDS)		
..EUGLENOPHYCEAE		
...EUGLENALES		
...EUGLENACEAE		
....EUGLENA	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%



TRINITY RIVER BASIN  
LAKE ARLINGTON AT ARLINGTON, TX--Continued

324041097134601 LAKE ARLINGTON SITE FC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO MAY 1980

DATE TIME	FEB 5,80 1501	MAY 5,80 1601		
TOTAL CELLS/ML	1000	4600		
DIVERSITY: DIVISION	0.8	1.7		
..CLASS	0.8	1.7		
...ORDER	0.9	1.9		
....FAMILY	2.3	2.5		
.....GENUS	3.1	3.7		
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)				
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
....COELASTRACEAE				
.....COELASTRUM	240#	24	77	2
...HYDRODICTYACEAE				
....PEDIASTRUM	65	6	64	1
...MICRACTINIACEAE				
....GOLENKINIA	--	-	*	0
...OOCYSTACEAE				
....ANKISTRODESMUS	180#	18	490	11
...CHLORELLA	10	1	150	3
....CHODATELLA	--	-	64	1
...DICTYOSPHAERIUM	--	-	270	6
....KIRCHNERIELLA	120	11	--	-
...SELENASTRUM	--	-	51	1
....TETRAEDRON	25	2	*	0
...SCENEDESMACEAE				
....CRUCIGENIA	--	-	130	3
...SCENEDESMUS	140	14	410	9
....TETRASTRUM	20	2	310	7
...TETRASPORALES				
....PALMELLACEAE				
....SPHAEROCYSTIS	--	-	100	2
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE				
...CENTRALES				
....COSCINODISCACEAE				
.....CYCLOTELLA	25	2	570	12
...MELOSIRA	40	4	--	-
....SKELETONEMA	120	12	--	-
...PENNALES				
....NITZSCHIACEAE				
.....NITZSCHIA	20	2	77	2
CRYPTOPHYTA (CRYPTOMONADS)				
..CRYPTOPHYCEAE				
...CRYPTOMONADALES				
....CRYPTOCHRYSIDACEAE				
.....CHROOMONAS	--	-	90	2
...CRYPTOMONADACEAE				
....CRYPTOMONAS	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)				
..CYANOPHYCEAE				
...CHROOCOCCALES				
....CHROOCOCCACEAE				
.....AGMENELLUM	--	-	620	14
...ANACYSTIS	--	-	900#	20
....COCCOCHLORIS	--	-	64	1
EUGLENOPHYTA (EUGLENOIDS)				
..EUGLENOPHYCEAE				
...EUGLENALES				
....EUGLENACEAE				
.....EUGLENA	*	0	39	1
...PHACUS	10	1	--	-
....TRACHELOMONAS	--	-	26	1
PYRRHOPHYTA (FIRE ALGAE)				
..DINOPHYCEAE				
...PERIDINIALES				
....GLENODINIACEAE				
.....GLENODINIUM	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°45'46", long 96°59'42", Dallas County, Hydrologic Unit 12030102, on left bank at upstream side of bridge on Belt Line Road, 1.3 mi (2.1 km) northeast of Grand Prairie, 3.7 mi (6.0 km) upstream from Bear Creek, 6.5 mi (10.5 km) upstream from Mountain Creek, and at mile 514.6 (828.0 km).

DRAINAGE AREA.--3,065 mi<sup>2</sup> (7,938 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1925 to current year.

REVISED RECORDS.--WSP 628: 1925. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 410.42 ft (125.096 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 6, 1933, nonrecording gage at bridge on old channel 2,500 ft (762 m) southeast of present site at datum 2.56 ft (0.780 m) higher. Dec. 6, 1933, to May 24, 1956, water-stage recorder at site 440 ft (134 m) downstream from site of nonrecording gage at datum 2.56 ft (0.780 m) higher than present datum. May 25, 1956, to Apr. 18, 1957, nonrecording gage at site 1.5 mi (2.4 km) downstream at different datum. Apr. 19 to Aug. 13, 1957, nonrecording gage on bridge at present site and datum.

REMARKS.--Water-discharge records good. Flow is affected at times by three upstream reservoirs with a combined capacity of 248,600 acre-ft (307 hm<sup>3</sup>), of which 76,550 acre-ft (94.4 hm<sup>3</sup>) is for flood control. During the current year, 79,460 acre-ft (98.0 hm<sup>3</sup>) of sewage effluent was discharged into river upstream from this station by the city of Fort Worth. There are many diversions upstream from this station for municipal, industrial, and other uses. The river channel at this station was relocated and rectified in 1956. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--55 years (water years 1926-80), 538 ft<sup>3</sup>/s (15.24 m<sup>3</sup>/s), 389,800 acre-ft/yr (481 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,000 ft<sup>3</sup>/s (1,760 m<sup>3</sup>/s) May 17, 1949, gage height, 28.00 ft (8.534 m), site and datum then in use, from rating curve extended above 36,000 ft<sup>3</sup>/s (1,020 m<sup>3</sup>/s); minimum observed, 3.2 ft<sup>3</sup>/s (0.091 m<sup>3</sup>/s) June 6, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 30.6 ft (9.33 m) in May 1908, former site and datum, from information by local resident. Flood in April 1922 reached a stage of 29.0 ft (8.84 m) former site and datum, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,560 ft<sup>3</sup>/s (157 m<sup>3</sup>/s) Sept. 30 at 0400 hours, gage height, 14.67 ft (4.471 m); minimum daily, 105 ft<sup>3</sup>/s (2.97 m<sup>3</sup>/s) July 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	154	250	118	171	204	178	220	294	291	142	130	181
2	160	176	123	168	299	171	207	2480	294	143	121	192
3	149	155	117	163	308	168	1420	750	292	140	124	204
4	149	153	123	156	296	177	799	292	286	124	117	203
5	147	145	126	150	295	172	442	230	271	114	127	203
6	144	158	121	148	291	166	368	213	283	109	113	194
7	140	157	123	146	292	170	362	378	278	105	132	194
8	140	157	121	148	402	160	357	595	287	129	140	213
9	152	183	115	142	744	163	338	802	283	128	132	580
10	144	171	131	144	486	158	335	298	288	134	152	318
11	136	152	142	144	443	169	337	245	289	133	150	227
12	136	140	644	140	372	162	353	237	287	118	144	188
13	131	141	966	139	414	166	1140	255	283	122	147	157
14	132	135	261	131	392	157	1060	256	272	116	154	142
15	249	137	192	142	381	154	440	2150	269	125	158	134
16	1720	133	168	140	375	250	380	3400	250	118	168	144
17	309	121	148	140	392	308	355	1200	175	118	171	129
18	205	130	148	140	347	300	335	852	150	122	154	128
19	175	126	151	141	258	299	336	640	143	119	163	129
20	158	128	154	184	225	304	328	471	287	112	165	124
21	152	170	160	594	215	303	323	362	255	120	177	125
22	186	159	247	2300	208	299	332	392	210	142	174	128
23	212	129	1520	1470	195	317	320	527	161	132	177	133
24	171	121	1380	397	293	240	363	457	149	120	177	133
25	157	116	314	282	310	195	916	327	145	126	173	136
26	150	113	195	234	226	175	430	307	145	123	191	239
27	138	113	192	199	185	226	338	298	132	119	196	602
28	141	120	192	185	181	1090	330	315	136	115	199	866
29	136	114	413	232	188	566	329	311	128	137	198	2990
30	574	118	253	243	---	391	320	294	130	149	198	4280
31	864	---	192	211	---	242	---	294	---	139	189	---
TOTAL	7711	4321	9250	9324	9217	7996	13913	19922	6849	3893	4911	13616
MEAN	249	144	298	301	318	258	464	643	228	126	158	454
MAX	1720	250	1520	2300	744	1090	1420	3400	294	149	199	4280
MIN	131	113	115	131	181	154	207	213	128	105	113	124
AC-FT	15290	8570	18350	18490	18280	15860	27600	39520	13580	7720	9740	27010
CAL YR 1979	TOTAL	238464	MEAN 653	MAX 10100	MIN 113	AC-FT 473000						
WTR YR 1980	TOTAL	110923	MEAN 303	MAX 4280	MIN 105	AC-FT 220000						

## 08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1956 to current year. Chemical and biochemical analyses: January 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to current year.

pH: October 1976 to current year.

WATER TEMPERATURES: October 1966 to current year.

DISSOLVED OXYGEN: October 1976 to current year.

INSTRUMENTATION.--Water-quality monitor since Oct. 29, 1976.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1320 micromhos Dec. 12, 1978; minimum, 188 micromhos May 28, 1978.

pH (1976-1979): Maximum, 8.5 units Aug. 12, 1978; minimum, 6.6 units Jan. 6, 1979.

WATER TEMPERATURES: Maximum, 34.0°C Aug. 9, 1970, Aug. 2, 1974, July 12, 16, 1978; minimum, 3.0°C Jan. 9, 1973.

DISSOLVED OXYGEN: Maximum, 12.3 mg/L July 8, 1980; minimum, 0.0 mg/L on several days each year.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,220 micromhos Sept. 8; minimum, 226 micromhos Sept. 29.

WATER TEMPERATURES: Maximum, 32.5°C on several days during June and July.

DISSOLVED OXYGEN: Maximum, 12.3 mg/L July 8; minimum, 0.0 mg/L on many days during the year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- IDY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)
OCT 23...	1330	222	860	7.3	21.5	25	5.7	2.2	25	8.4	150	0
NOV 08...	1455	177	845	7.4	17.0	20	9.6	5.1	54	8.7	170	0
DEC 12...	1530	766	458	7.4	9.5	100	390	7.4	65	15	100	0
JAN 16...	1340	137	965	7.4	16.5	15	5.3	1.7	17	19	180	0
FEB 14...	1115	408	725	7.6	11.5	15	32	9.2	84	17	200	11
MAR 04...	1115	192	950	7.6	14.5	20	17	7.8	77	26	190	0
APR 16...	1400	372	680	7.5	18.5	5	33	5.4	57	16	180	11
MAY 21...	1435	362	690	7.6	24.5	10	36	3.2	38	18	180	16
JUN 11...	1030	294	666	7.4	26.0	25	5.4	.5	6	5.9	140	0
JUL 23...	1130	159	1060	7.7	29.5	25	3.4	1.3	17	4.9	150	0
AUG 27...	1320	195	1020	7.4	30.5	10	2.8	4.1	55	7.0	130	0
SEP 09...	1345	883	931	7.1	28.5	140	280	.0	0	60	140	0

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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...	48	6.8	120	4.3	11	230	0	140	70	.9	8.5
NOV 08...	56	7.4	100	3.3	13	220	0	98	88	.9	9.2
DEC 12...	35	4.2	51	2.2	6.9	140	0	54	43	.5	6.0
JAN 16...	59	9.0	110	3.5	13	280	0	130	77	.8	8.8
FEB 14...	69	6.6	71	2.2	8.2	230	0	110	50	.6	5.9
MAR 04...	63	8.3	120	3.8	11	260	0	150	81	.7	6.7
APR 16...	60	6.1	66	2.2	7.5	200	0	77	54	.5	6.5
MAY 21...	61	6.8	71	2.3	7.8	200	0	100	51	.6	7.3
JUN 11...	45	6.4	82	3.0	7.1	200	0	77	50	.5	6.6
JUL 23...	47	7.5	140	5.0	12	280	0	140	80	.7	11
AUG 27...	40	8.2	140	5.3	11	260	0	140	88	1.1	10
SEP 09...	42	7.7	120	4.5	10	230	0	110	91	.9	8.5

## TRINITY RIVER BASIN

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08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 23...	519	24	18	2.5	.560	3.1	4.100	.90	5.0	3.500	17
NOV 08...	481	23	9	2.7	.490	3.2	2.000	1.7	3.7	.090	18
DEC 12...	270	684	37	.23	.100	.33	2.900	.00	.58	.400	23
JAN 16...	546	26	8	.00	.230	.14	1.200	15	16	6.500	18
FEB 14...	435	88	20	.71	.140	.85	4.500	--	--	2.000	15
MAR 04...	569	34	24	.20	.190	.39	10.000	13	23	3.100	30
APR 16...	376	65	15	1.2	.470	1.7	1.600	1.9	3.5	1.500	16
MAY 21...	404	46	38	.94	.460	1.4	1.800	1.7	3.5	1.900	18
JUN 11...	373	12	6	.10	.060	.16	3.800	6.2	10	1.900	18
JUL 23...	576	1	3	.56	.290	.85	--	--	5.5	2.100	22
AUG 27...	566	3	3	1.7	.430	2.1	14.000	2.0	16	5.200	11
SEP 09...	504	1300	300	--	.010	.00	14.000	47	61	21.000	300

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 16...	1340	7	20	<1	10	2	40
MAR 04...	1115	2	30	2	10	14	30
JUL 23...	1130	3	10	<1	0	0	40
SEP 09...	1345	6	8	<1	0	2	60

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 16...	1	90	.0	0	0	70
MAR 04...	0	90	.0	0	0	80
JUL 23...	0	150	.1	0	0	40
SEP 09...	1	210	.2	0	0	10

## TRINITY RIVER BASIN

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	7711	689	385	8020	58	1200	75	1570	170
NOV.	1979	4321	821	460	5370	72	843	93	1080	180
DEC.	1979	9250	654	365	9130	54	1340	71	1770	170
JAN.	1980	9324	658	368	9250	55	1380	72	1800	160
FEB.	1980	9217	728	407	10100	61	1520	80	1980	180
MAR.	1980	7996	808	453	9770	71	1540	92	1980	180
APR.	1980	13913	612	341	12800	48	1810	64	2410	170
MAY	1980	19922	530	295	15900	40	2170	54	2920	150
JUNE	1980	6849	757	424	7830	64	1190	84	1550	180
JULY	1980	3893	1040	587	6170	100	1060	130	1330	180
AUG.	1980	4911	1050	593	7860	100	1360	130	1700	180
SEPT	1980	13616	556	311	11400	46	1700	61	2230	140
TOTAL		110923	**	**	114000	**	17100	**	22300	**
WTD. AVG.		303	679	379	**	57	**	74	**	170

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	872	854	860	---	---	450	---	---	850	722	692	710
2	870	822	837	---	---	550	---	---	880	772	730	761
3	858	808	830	---	---	600	---	---	900	784	740	772
4	876	828	865	---	---	700	918	898	905	860	780	831
5	900	864	880	---	---	830	984	908	936	896	850	877
6	884	852	862	---	---	840	1020	992	1010	896	874	889
7	888	862	875	---	---	830	1010	988	1000	944	876	922
8	918	888	904	836	818	828	1010	988	994	912	884	900
9	902	830	871	820	724	780	1030	984	1010	960	884	926
10	858	816	832	814	788	800	994	970	983	1020	940	979
11	872	854	860	882	816	852	978	906	934	986	952	967
12	942	868	889	898	860	879	906	404	682	996	936	963
13	986	950	969	854	822	836	---	---	600	1010	982	1000
14	998	984	989	950	844	879	---	---	450	986	952	974
15	1000	384	893	982	958	967	---	---	500	958	898	941
16	832	292	447	1000	970	987	---	---	600	1000	890	947
17	510	368	439	1010	970	992	---	---	750	1020	974	1000
18	664	520	615	1030	992	1010	884	870	879	998	978	989
19	776	672	729	1030	966	1000	936	870	903	1060	982	1020
20	816	750	788	982	874	936	976	938	958	1040	866	984
21	890	804	853	930	794	887	978	838	949	1020	558	785
22	880	758	845	958	916	929	970	666	872	604	280	427
23	848	712	811	960	908	931	990	268	618	---	---	440
24	794	684	727	922	854	891	402	298	349	592	---	550
25	852	798	827	852	808	825	550	406	477	---	---	570
26	882	826	852	836	786	816	638	552	593	---	---	600
27	930	862	888	826	---	810	702	648	675	---	---	650
28	958	926	938	---	---	810	780	696	743	---	---	700
29	956	912	926	---	---	820	848	616	747	---	---	750
30	906	242	669	---	---	830	626	562	584	---	---	800
31	---	---	500	---	---	---	682	628	643	834	802	815
MONTH	1000	242	809	1030	724	837	1030	268	773	1060	280	821

## TRINITY RIVER BASIN

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08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	892	838	879	1020	926	980	776	666	724	716	670	696
2	906	734	806	998	932	964	860	778	827	732	264	478
3	774	672	726	1010	944	987	886	368	567	528	302	412
4	762	688	719	994	962	979	608	424	495	680	506	596
5	722	626	668	1030	974	1010	640	586	619	746	666	699
6	704	650	678	1020	1010	1010	624	592	605	842	752	790
7	708	642	679	1080	1000	1040	674	590	629	834	640	767
8	696	592	626	1080	1020	1050	696	652	671	658	390	570
9	654	---	600	1090	1030	1070	720	688	700	526	382	470
10	---	---	630	1110	1030	1070	718	660	695	676	528	601
11	---	---	650	1020	950	985	718	654	697	766	684	727
12	---	---	700	1070	956	1030	722	652	689	790	726	761
13	---	---	690	1070	1020	1050	664	446	543	824	750	796
14	742	---	700	1080	1020	1050	482	370	418	822	518	790
15	744	708	725	1070	1010	1040	608	488	547	760	334	522
16	742	662	694	1120	1020	1070	672	600	641	384	270	319
17	712	666	696	986	864	903	748	632	703	430	370	414
18	694	614	674	854	762	798	722	662	689	530	394	482
19	774	646	692	852	750	792	752	684	724	592	492	527
20	850	780	824	808	720	770	750	666	711	642	484	589
21	904	842	872	782	700	742	778	696	722	720	632	671
22	936	870	906	782	710	747	720	674	692	724	622	668
23	1000	928	958	802	688	745	732	698	721	712	596	669
24	986	804	920	772	658	714	766	484	698	674	616	647
25	798	710	745	820	726	776	712	418	563	728	610	673
26	812	688	736	934	804	888	694	460	560	724	660	702
27	920	818	887	936	650	849	668	598	645	748	660	705
28	942	874	914	908	386	586	670	624	654	722	678	695
29	1020	918	970	636	406	504	694	614	651	760	652	699
30	---	---	---	616	550	589	708	674	692	784	716	751
31	---	---	---	674	608	636	---	---	---	786	698	738
MONTH	1020	592	757	1120	386	885	886	368	650	842	264	633

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	746	636	714	1000	962	981	1070	1050	1060	1120	1040	1080
2	744	674	709	1030	960	998	1080	1010	1040	1070	1030	1050
3	718	668	695	1030	1010	1020	1090	1040	1060	1040	988	1020
4	744	664	696	1020	990	1010	1080	1070	1070	1010	916	952
5	690	642	670	1040	1000	1020	1070	998	1020	1110	1010	1040
6	730	690	717	1030	1010	1020	1080	1010	1030	1180	1080	1120
7	734	694	718	1010	932	961	1080	1040	1060	1210	1130	1160
8	720	646	686	962	928	947	1150	1080	1110	1220	1010	1140
9	714	646	680	1020	944	982	1150	1050	1080	1040	652	926
10	698	612	664	1080	1020	1040	1110	1050	1070	722	262	588
11	714	634	674	1120	1070	1090	1100	970	1040	---	---	600
12	718	644	681	1110	1060	1070	982	952	966	---	---	650
13	746	684	719	1060	1020	1030	1040	974	998	---	---	700
14	734	676	712	1040	990	1010	1080	1030	1050	---	---	750
15	740	668	710	1040	990	1010	1060	1010	1040	---	---	800
16	726	628	683	1010	964	977	1080	1040	1060	---	---	850
17	752	670	696	1180	1030	1090	1080	982	1050	---	---	900
18	902	770	862	1180	1110	1130	966	922	934	---	---	950
19	970	894	941	1140	1100	1120	972	932	955	---	---	1000
20	922	592	823	1140	1070	1090	---	964	1030	---	---	1030
21	910	730	818	1120	942	1080	1110	1050	1080	---	---	1080
22	840	572	757	1040	972	1030	1110	1050	1070	1110	1100	1110
23	888	730	841	1080	1020	1040	1080	1040	1060	1110	1010	1040
24	874	822	849	1070	1050	1060	1130	1050	1070	1020	982	996
25	982	824	905	1060	988	1020	1160	1120	1140	1050	980	1010
26	1020	968	987	1130	1060	1090	1120	1040	1060	1080	550	1030
27	1010	974	987	1130	---	1110	1100	1020	1050	780	422	666
28	1010	956	982	---	---	1100	1140	930	1080	682	448	501
29	1070	1000	1020	---	---	1080	1140	1060	1100	464	226	321
30	1070	994	1030	1110	1020	1070	1120	1040	1080	394	252	288
31	---	---	---	1080	1000	1040	1110	1040	1070	---	---	---
MONTH	1070	572	788	1180	928	1040	1160	922	1050	1220	226	878



## TRINITY RIVER BASIN

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	7.5	7.3	7.4							---	---	---
2	7.5	7.3	7.4							7.5	7.5	7.5
3	7.5	7.4	7.4							7.6	7.5	7.6
4	7.5	7.4	7.4							7.7	7.6	7.7
5	7.4	7.3	7.4							7.6	7.5	7.6
6	7.5	7.3	7.3							7.6	7.4	7.5
7	7.5	7.3	7.4							7.5	7.2	7.3
8	7.6	7.3	7.4							7.5	7.3	7.4
9	7.5	7.3	7.4							7.5	7.3	7.4
10	7.5	6.1	7.4							7.4	7.3	7.3
11	7.4	7.3	7.4							7.3	7.1	7.2
12	7.4	7.3	7.3							7.3	7.1	7.2
13	7.4	7.3	7.3							7.4	7.1	7.2
14	7.4	7.3	7.4							7.5	7.1	7.3
15	7.6	7.3	7.4							7.5	7.3	7.4
16	7.6	7.2	7.5							7.5	7.3	7.4
17	7.5	7.4	7.4							7.3	7.2	7.2
18	7.4	7.2	7.3							7.3	7.1	7.2
19	7.3	7.2	7.3							7.2	7.2	7.2
20	7.3	7.2	7.3							7.2	7.0	7.1
21	7.3	7.3	7.3							7.0	---	7.0
22	7.3	7.3	7.3							7.2	---	7.2
23	7.3	7.3	7.3							---	---	---
24	7.4	7.3	7.3							---	---	---
25	7.4	7.3	7.3							---	---	---
26	7.4	7.3	7.3							---	---	---
27	7.4	7.3	7.3							---	---	---
28	7.4	7.3	7.3							---	---	---
29	7.4	7.3	7.3							---	---	---
30	7.9	7.3	---							---	---	---
31	---	---	---							---	---	---
MONTH	7.9	6.1	7.4							7.7	7.0	7.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	7.5	7.4	7.4	7.5	7.4	7.5	7.3	7.2	7.3
2	---	---	---	7.5	7.5	7.5	7.5	7.4	7.4	7.6	7.2	7.4
3	---	---	---	7.6	7.5	7.5	7.5	7.2	7.4	7.5	7.3	7.4
4	---	---	---	7.6	7.5	7.5	7.4	7.3	7.4	7.3	7.2	7.3
5	---	---	---	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.3
6	---	---	---	7.6	7.5	7.5	7.4	7.3	7.3	7.3	7.2	7.3
7	---	---	---	7.5	7.4	7.5	7.5	7.3	7.4	7.3	7.2	7.3
8	---	---	---	7.5	7.4	7.4	7.5	7.4	7.5	7.6	7.2	7.4
9	---	---	---	7.4	7.3	7.4	7.5	7.4	7.5	7.3	7.2	7.3
10	---	---	---	7.4	7.3	7.3	7.6	7.4	7.4	7.3	7.2	7.3
11	---	---	---	7.5	7.3	7.4	7.5	7.4	7.4	7.3	7.2	7.2
12	---	---	---	7.5	7.4	7.4	7.5	7.4	7.5	7.3	7.2	7.2
13	---	---	---	7.4	7.3	7.4	7.6	7.5	7.6	7.2	7.2	7.2
14	---	---	---	7.4	7.4	7.4	7.7	7.5	7.6	7.4	7.2	7.2
15	---	---	---	7.5	7.4	7.4	7.7	7.5	7.6	7.6	7.2	7.4
16	---	---	---	7.5	7.3	7.4	7.6	7.5	7.5	7.6	7.3	7.5
17	---	---	---	7.5	7.3	7.4	7.6	7.5	7.5	7.5	7.4	7.5
18	---	---	---	7.5	7.5	7.5	7.5	7.4	7.5	7.5	7.3	7.4
19	---	---	---	7.6	7.4	7.5	7.5	7.4	7.4	7.4	7.2	7.4
20	---	---	---	7.6	7.5	7.5	7.5	7.3	7.4	7.4	7.3	7.4
21	7.6	7.5	---	7.7	7.5	7.6	7.4	7.3	7.4	7.4	7.2	7.3
22	7.6	7.5	7.5	7.6	7.5	7.6	7.4	7.3	7.4	7.3	7.2	7.3
23	7.6	7.6	7.6	7.6	7.4	7.5	7.3	7.3	7.3	7.4	7.2	7.3
24	7.7	7.6	7.6	7.5	7.4	7.5	7.7	7.2	7.3	7.4	7.2	7.3
25	7.7	7.7	7.7	7.5	7.4	7.4	7.9	7.2	7.3	7.3	7.2	7.2
26	7.9	7.7	7.8	7.5	7.4	7.4	7.4	7.2	7.3	7.3	7.2	7.2
27	7.8	7.7	7.7	7.4	7.3	7.3	7.4	7.3	7.4	7.3	7.2	7.3
28	7.7	7.4	7.6	7.4	7.3	7.4	7.4	7.3	7.4	7.3	7.2	7.2
29	7.4	7.4	7.4	7.5	7.4	7.5	7.4	7.2	7.3	7.2	7.2	7.2
30	---	---	---	7.5	7.4	7.5	7.3	7.2	7.3	7.3	7.2	7.3
31	---	---	---	7.5	7.4	7.4	---	---	---	7.3	7.2	7.3
MONTH	7.9	7.4	7.6	7.7	7.3	7.5	7.9	7.2	7.4	7.6	7.2	7.3

## TRINITY RIVER BASIN

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08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.3	7.2	7.3	7.4	7.3	7.3	7.5	7.4	7.4	7.7	7.5	7.6
2	7.3	7.2	7.3	7.4	7.3	7.3	7.6	7.4	7.5	7.7	7.5	7.5
3	7.3	7.3	7.3	7.6	7.3	7.5	7.5	7.4	7.5	7.6	7.5	7.5
4	7.3	7.3	7.3	7.4	7.3	7.3	7.6	7.4	7.5	7.6	7.4	7.5
5	7.3	7.3	7.3	7.5	7.3	7.4	7.6	7.4	7.5	7.6	7.4	7.5
6	7.3	7.2	7.3	7.4	7.3	7.3	7.6	7.4	7.4	7.7	7.5	7.5
7	7.3	7.2	7.2	7.8	7.3	7.5	7.6	7.4	7.5	7.6	7.5	7.5
8	7.2	7.2	7.2	8.1	7.4	7.6	7.6	7.4	7.5	7.6	7.5	7.5
9	7.3	7.2	7.2	7.7	7.3	7.5	7.6	7.4	7.5	7.5	7.2	7.4
10	7.3	7.2	7.2	7.8	7.3	7.5	7.5	7.4	7.4	7.5	7.3	7.4
11	7.3	7.2	7.2	7.5	7.3	7.4	7.4	7.4	7.4	---	---	---
12	7.3	7.2	7.2	7.4	7.2	7.3	7.5	7.4	7.4	---	---	---
13	7.3	7.2	7.2	7.3	7.3	7.3	7.5	7.4	7.4	---	---	---
14	7.3	7.2	7.2	7.4	7.2	7.3	7.6	7.4	7.5	---	---	---
15	7.2	7.2	7.2	7.6	7.3	7.4	7.7	7.5	7.5	---	---	---
16	7.3	7.2	7.2	7.6	7.4	7.5	7.7	7.5	7.5	---	---	---
17	7.3	7.3	7.3	7.6	7.3	7.4	7.6	7.5	7.5	---	---	---
18	7.3	7.3	7.3	7.6	7.4	7.4	7.7	7.5	7.5	---	---	---
19	7.3	7.2	7.3	7.5	7.4	7.4	7.6	7.4	7.5	---	---	---
20	7.4	7.2	7.2	7.7	7.4	7.5	7.7	7.4	7.5	---	---	---
21	7.3	7.2	7.2	7.5	7.4	7.5	7.6	7.4	7.5	---	---	---
22	7.3	7.2	7.3	7.6	7.4	7.5	7.6	7.4	7.5	7.6	7.5	7.6
23	7.4	7.2	7.3	7.5	7.4	7.4	7.6	7.4	7.5	7.6	7.5	7.6
24	7.3	7.2	7.3	7.5	7.4	7.4	7.6	7.5	7.5	7.6	7.5	7.5
25	7.3	7.2	7.2	7.4	7.4	7.4	7.6	7.5	7.5	7.5	7.5	7.5
26	7.3	7.3	7.3	7.4	7.3	7.4	7.7	7.5	7.6	7.6	7.5	7.5
27	7.3	7.3	7.3	7.4	7.3	7.3	7.7	7.5	7.5	7.7	7.4	7.5
28	7.3	7.3	7.3	---	---	---	7.6	7.4	7.5	7.5	7.3	7.4
29	7.3	7.3	7.3	---	---	---	7.6	7.4	7.5	7.9	7.5	7.7
30	7.4	7.3	7.3	7.4	7.4	7.4	7.6	7.4	7.5	7.9	7.5	7.8
31	---	---	---	7.5	7.4	7.4	7.6	7.4	7.5	---	---	---
MONTH	7.4	7.2	7.3	8.1	7.2	7.4	7.7	7.4	7.5	7.9	7.2	7.5

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	28.0	26.0	27.0	---	---	---	---	---	---	12.5	12.0	12.5
2	27.0	25.5	26.5	---	---	---	---	---	---	13.5	12.5	13.0
3	26.5	24.5	25.5	---	---	---	---	---	---	13.5	12.5	13.0
4	25.0	23.5	24.0	---	---	---	14.0	11.0	13.0	12.5	12.0	12.5
5	24.0	22.5	23.5	17.0	15.0	16.0	15.0	13.0	14.0	12.5	11.5	12.0
6	26.0	22.5	23.5	---	---	---	15.5	14.0	14.5	13.5	12.0	13.0
7	26.0	23.0	24.5	---	---	---	15.0	13.5	14.5	13.0	12.0	12.5
8	27.0	24.0	25.0	18.0	17.5	17.5	15.0	13.5	14.0	12.0	11.5	11.5
9	26.0	22.5	24.5	18.5	17.5	18.0	14.5	13.5	14.0	12.5	11.0	12.0
10	22.5	21.0	22.0	17.5	16.0	17.0	16.0	14.0	14.5	13.5	12.5	13.0
11	22.5	20.0	21.5	16.5	15.0	16.0	18.0	16.0	17.0	14.5	13.0	14.0
12	24.0	21.5	23.0	15.5	15.0	15.0	16.5	8.5	12.5	13.5	12.5	13.0
13	24.0	23.5	23.5	15.5	14.0	15.0	---	---	---	13.5	12.5	13.0
14	23.5	22.5	23.0	16.0	14.5	15.5	---	---	---	14.5	13.0	13.5
15	22.5	19.5	21.5	16.0	14.5	15.5	---	---	---	16.0	14.0	15.0
16	22.5	19.5	20.5	16.5	14.5	15.5	---	---	---	16.5	15.5	16.0
17	22.5	20.5	21.5	17.0	15.5	16.5	---	---	---	16.0	15.0	15.5
18	24.0	22.5	23.5	18.5	17.0	18.0	10.5	10.5	10.5	15.5	14.5	15.0
19	24.5	23.0	24.0	20.0	18.5	19.5	13.0	10.5	12.0	15.5	15.5	15.5
20	25.5	24.0	24.5	21.0	20.0	20.5	15.0	13.0	14.0	15.5	14.5	15.0
21	25.5	24.5	25.0	21.0	18.5	20.0	16.5	14.5	15.5	---	---	---
22	24.5	22.0	23.0	18.0	15.5	16.5	17.5	15.0	16.5	---	---	---
23	22.0	20.5	21.5	15.5	14.5	15.0	17.5	12.5	15.0	---	---	---
24	21.0	19.5	20.5	15.0	14.0	14.5	13.0	12.5	12.5	---	---	---
25	21.5	20.0	20.5	16.0	14.5	15.5	13.5	12.0	12.5	---	---	---
26	21.5	20.0	21.0	16.0	14.5	15.5	14.0	12.5	13.5	---	---	---
27	22.0	20.5	21.5	17.0	15.5	16.0	15.0	14.0	14.5	---	---	---
28	23.0	21.5	22.0	16.0	---	15.5	15.5	14.5	15.0	---	---	---
29	22.5	21.0	22.0	---	---	---	15.5	13.0	14.5	---	---	---
30	22.0	16.5	20.0	---	---	---	13.0	12.5	13.0	---	---	---
31	---	---	---	---	---	---	13.0	12.0	12.5	9.5	9.0	9.5
MONTH	28.0	16.5	23.0	21.0	14.0	16.5	18.0	8.5	14.0	16.5	9.0	13.5

## TRINITY RIVER BASIN

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

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

## TRINITY RIVER BASIN

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08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	5.2	.9	2.6	---	---	---	---	---	---	6.6	4.5	5.7
2	5.1	1.1	2.7	---	---	---	---	---	---	5.9	4.9	5.5
3	5.3	1.3	2.9	---	---	---	---	---	---	6.6	2.9	4.7
4	7.7	1.3	3.3	---	---	---	---	---	---	6.6	4.4	5.3
5	6.2	1.1	3.0	---	---	---	5.6	2.7	3.8	6.5	3.0	4.0
6	9.2	.8	4.9	---	---	---	4.9	2.0	3.1	5.3	1.8	3.1
7	9.3	.8	5.6	---	---	---	4.5	1.7	2.8	4.5	.6	1.9
8	9.3	1.0	5.7	4.9	3.4	4.2	---	1.7	3.0	4.2	2.1	2.9
9	9.5	1.1	5.5	4.6	3.1	3.7	---	1.9	2.8	4.8	.8	2.3
10	9.4	1.8	6.6	4.6	3.5	4.1	---	1.7	2.5	3.2	.8	1.6
11	5.0	1.6	3.1	4.6	4.0	4.2	3.7	1.3	2.1	3.3	.3	1.3
12	4.7	1.4	2.8	5.1	4.2	4.6	9.2	.0	4.4	2.9	.1	1.2
13	4.6	1.4	2.7	5.6	4.2	4.9	---	.0	---	2.9	.5	1.4
14	4.7	1.5	2.8	4.8	3.7	4.3	---	---	---	3.9	.2	1.9
15	6.6	1.4	2.7	4.8	3.4	4.0	---	---	---	3.2	1.5	2.5
16	4.0	.0	2.6	4.8	3.1	3.8	---	---	---	3.4	.9	1.9
17	4.4	3.7	3.9	5.2	2.7	3.7	---	---	---	2.0	.1	.8
18	3.9	1.8	2.8	5.5	2.3	3.1	6.0	5.0	5.4	1.8	.6	1.0
19	2.5	1.2	1.9	7.6	1.5	2.9	6.1	2.7	4.3	.9	.1	.5
20	2.3	1.1	1.7	---	1.0	3.0	3.8	.7	2.2	3.1	.2	1.0
21	2.3	1.6	1.9	---	.6	3.1	3.2	.8	1.9	5.2	---	2.7
22	2.8	1.6	2.2	1.3	.1	.7	5.8	.5	2.4	---	---	---
23	2.8	1.6	2.2	1.5	.1	1.0	8.3	.3	4.0	---	---	---
24	3.8	2.7	3.3	2.1	1.0	1.4	7.4	3.8	6.0	---	---	---
25	4.0	2.2	3.1	2.4	1.0	1.5	7.2	6.7	7.1	---	---	---
26	3.8	2.0	2.7	---	---	---	7.0	6.6	6.7	---	---	---
27	3.7	1.5	2.7	---	---	---	6.6	5.9	6.3	---	---	---
28	3.3	.7	2.0	---	---	---	6.8	4.6	5.9	---	---	---
29	3.5	1.8	2.6	---	---	---	6.5	2.6	4.8	---	---	---
30	---	---	---	---	---	---	6.8	5.0	6.1	---	---	---
31	---	---	---	---	---	---	6.7	5.7	6.1	9.4	9.2	9.3
MONTH	9.5	.0	3.2	7.6	.1	3.2	9.2	.0	4.3	9.4	.1	2.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.2	8.9	9.1	7.6	5.3	6.6	5.5	3.9	5.1	2.2	.5	1.3
2	9.7	9.1	9.4	7.8	6.5	7.3	4.7	3.4	4.0	7.6	.3	3.9
3	10.1	9.3	9.6	7.8	7.4	7.6	5.2	.0	3.2	3.9	3.3	3.6
4	10.0	8.4	9.6	7.3	5.6	6.3	5.4	3.3	4.6	3.4	.6	2.4
5	9.6	7.1	9.2	6.6	4.7	5.5	5.4	2.7	4.3	3.7	2.8	3.3
6	10.1	8.2	8.8	6.4	4.0	5.3	4.8	3.3	4.0	3.0	1.5	2.6
7	9.8	6.3	7.9	6.5	4.1	5.1	4.8	2.8	4.2	3.7	2.1	2.8
8	10.7	6.0	7.8	5.1	2.9	3.5	5.0	2.2	4.4	6.4	2.9	4.0
9	---	---	---	4.2	2.2	3.5	5.4	2.4	4.3	4.6	2.7	3.6
10	---	---	---	3.8	2.1	2.8	4.7	2.2	3.7	3.7	2.5	3.1
11	---	---	---	3.6	1.7	2.7	4.4	2.3	3.2	2.7	1.2	1.7
12	---	---	---	3.4	2.1	2.9	4.9	2.4	3.9	1.8	.9	1.4
13	---	---	---	2.8	.1	2.1	7.0	4.2	5.8	1.3	.9	1.1
14	9.5	.5	5.3	4.4	2.9	3.5	7.2	5.7	6.7	5.5	1.2	1.5
15	9.5	8.6	9.1	5.2	3.1	4.2	6.7	5.5	6.2	7.5	1.0	4.5
16	9.2	8.5	8.9	4.0	.1	1.8	6.0	4.3	5.3	8.3	3.9	6.7
17	9.5	9.0	9.3	4.4	.1	2.8	5.1	3.2	4.4	6.4	5.1	6.1
18	9.9	9.1	9.5	4.7	3.2	4.2	5.1	2.6	4.2	5.8	1.9	4.7
19	9.1	8.2	8.8	5.0	2.7	3.9	4.4	2.4	3.3	5.3	2.0	4.7
20	8.1	6.6	7.3	5.5	3.4	4.5	4.1	.3	3.0	5.5	4.1	5.1
21	7.0	6.2	6.7	6.3	4.0	5.3	3.5	1.5	2.7	4.9	2.3	3.8
22	6.5	5.8	6.1	6.3	5.3	5.7	3.1	2.1	2.9	3.6	2.0	2.8
23	6.2	5.7	5.9	5.7	4.2	4.9	3.2	1.7	2.3	3.2	.7	2.5
24	6.4	4.6	5.6	5.5	4.0	4.5	5.3	1.1	1.9	3.1	.9	1.9
25	6.6	5.9	6.3	5.7	3.1	4.8	5.8	.8	3.2	1.6	.3	.9
26	6.3	5.6	6.0	5.1	2.9	3.7	4.6	1.3	3.2	1.0	.4	.7
27	5.9	4.8	5.4	5.1	1.2	2.8	5.4	3.3	4.8	.9	.4	.7
28	7.5	4.6	6.1	4.9	.8	3.4	5.3	3.9	4.8	.9	.3	.7
29	7.1	5.0	6.2	6.6	2.9	5.6	5.0	.7	3.7	.5	.1	.3
30	---	---	---	6.5	4.4	5.6	3.1	.8	2.5	.4	.1	.2
31	---	---	---	5.4	3.9	4.8	---	---	---	.5	.0	.2
MONTH	10.7	.5	7.7	7.8	.1	4.4	7.2	.0	4.0	8.3	.0	2.7

## TRINITY RIVER BASIN

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	.7	.0	.3	3.8	.8	1.7	1.9	.1	.7	4.2	.2	1.5
2	1.2	.1	.6	2.4	.9	1.3	3.4	.1	1.0	3.9	.3	1.4
3	1.4	.4	.8	5.6	.9	2.5	2.3	.1	.7	4.1	.4	1.6
4	1.7	.5	.9	1.3	.7	.9	2.1	.1	.6	3.9	.4	1.5
5	1.5	.5	.8	4.8	.7	1.6	2.9	.2	1.0	3.9	.3	1.3
6	.9	.2	.4	.9	.5	.7	2.8	.2	1.0	4.1	.2	1.4
7	.6	.0	.2	8.6	1.0	3.9	2.5	.2	.9	2.4	.3	.9
8	.3	.0	.1	12.3	2.2	6.6	2.6	.1	.9	2.4	.3	.8
9	.4	.0	.1	10.7	2.6	6.3	2.2	.1	.8	1.6	.0	.3
10	.7	.1	.3	11.6	1.9	6.2	1.5	.0	.4	6.5	.5	3.1
11	.9	.1	.4	7.9	1.0	3.9	.5	.0	.2	---	---	---
12	1.0	.3	.5	7.0	.7	3.2	1.0	.0	.3	---	---	---
13	.8	.2	.4	3.4	.4	1.3	3.0	.0	1.0	---	---	---
14	.7	.1	.3	5.0	.5	2.4	3.6	.4	1.4	---	---	---
15	.8	.1	.3	8.0	.6	3.5	3.2	.4	1.3	---	---	---
16	.9	.0	.2	7.4	1.0	3.5	3.7	.5	1.4	---	---	---
17	1.0	.1	.4	5.6	1.0	2.7	3.6	.5	1.4	---	---	---
18	.5	.0	.2	5.0	.9	2.3	3.9	.5	1.6	---	---	---
19	.4	.0	.2	4.5	.8	2.1	4.4	.5	1.7	---	---	---
20	1.8	.0	.4	6.0	.9	2.8	4.0	.4	1.6	---	---	---
21	.4	.0	.2	3.4	1.0	1.9	3.3	.3	1.2	---	---	---
22	1.7	.0	.4	3.9	1.2	2.3	2.7	.2	1.0	---	---	---
23	1.5	.0	.4	2.7	1.4	1.9	2.7	.2	1.0	2.5	1.1	1.7
24	.9	.0	.3	2.2	1.0	1.5	2.9	.1	1.0	2.0	1.2	1.6
25	.4	.0	.2	2.1	1.0	1.4	3.2	.1	1.0	1.3	.7	.9
26	1.7	.0	.6	1.9	.6	1.1	3.5	.2	1.3	1.7	.6	.8
27	.5	.0	.4	1.3	.6	---	3.6	.3	1.4	2.1	.5	1.2
28	.5	.4	.5	---	---	.8	2.9	.3	.7	1.6	.4	.8
29	.8	.2	.4	---	---	---	3.0	.1	1.0	4.1	1.7	3.6
30	.8	.3	.5	1.5	.0	.7	3.1	.2	1.1	5.0	3.3	4.1
31	---	---	---	2.0	.1	.7	3.7	.2	1.3	---	---	---
MONTH	1.8	.0	.4	12.3	.0	2.5	4.4	.0	1.0	6.5	.0	1.6

## TRINITY RIVER BASIN

413

08049600 MOUNTAIN CREEK NEAR CEDAR HILL, TX

LOCATION.--Lat 32°35'03", long 97°01'23", Dallas County, Hydrologic Unit 12030102, on left bank at downstream side of county road bridge, 3.5 mi (5.6 km) downstream from Texas and New Orleans Railroad Co. bridge, 4.5 mi (7.2 km) southwest of Cedar Hill, and 12 mi (19 km) upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--119 mi<sup>2</sup> (308 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 478.31 ft (145.789 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 25, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. At end of year, flow from 14.2 mi<sup>2</sup> (36.8 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of three floodwater-retarding structures with a combined detention capacity of 5,550 acre-ft (6.84 hm<sup>3</sup>). Dallas Power and Light Co. gage-height telemeter is located at station.

AVERAGE DISCHARGE.--20 years, 48.9 ft<sup>3</sup>/s (1.385 m<sup>3</sup>/s), 35,430 acre-ft/yr (43.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,300 ft<sup>3</sup>/s (801 m<sup>3</sup>/s) May 7, 1969, gage height, 25.10 ft (7.650 m), from rating curve extended above 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s); maximum gage height, 25.11 ft (7.654 m) May 3, 1979; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 30 ft (9.1 m) May 25, 1922, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft<sup>3</sup>/s (42.5 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Jan. 22	1830	2,280	64.6	18.04	5.499
May 16	0400	*3,870	110	19.89	6.062

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	2.1	6.8	.92	3.1	1.2	1.2	.00	.00	.00
2	.00	.00	.00	1.9	6.0	.64	2.2	2.2	.84	.00	.00	.00
3	.00	.18	.00	1.5	5.2	.64	65	11	.58	.00	.00	.00
4	.00	.09	.00	1.2	3.4	.77	24	6.2	.42	.00	.00	.00
5	.00	.04	.00	.81	2.8	.77	9.5	3.7	.27	.00	.00	.00
6	.00	.02	.00	.77	2.3	.70	4.5	39	.12	.00	.00	.00
7	.00	.01	.00	.76	1.8	.64	3.2	21	.06	.00	.00	.00
8	.00	.01	.00	.99	16	.58	2.0	5.6	.04	.00	.00	.00
9	.00	.01	.00	.62	80	.58	.94	3.1	.03	.00	.00	.00
10	.00	.01	.00	.52	49	.64	.43	1.4	.01	.00	.00	.00
11	.00	.00	.00	.58	66	.58	.33	.94	.00	.00	.00	.00
12	.00	.00	.00	.68	44	1.0	.39	1.2	.00	.00	.00	.00
13	.00	.00	.00	.70	24	2.2	21	1.2	.00	.00	.00	.00
14	.00	.00	.02	.55	15	2.5	129	2.5	.00	.00	.00	.00
15	.00	.04	.02	.52	12	1.5	41	538	.00	.00	.00	.00
16	.00	.02	.00	.53	9.0	1.3	20	1810	.00	.00	.00	.00
17	.00	.00	.00	.81	6.8	1.1	11	130	.00	.00	.00	.00
18	.00	.00	.00	.64	6.0	.84	5.3	73	.00	.00	.00	.00
19	.00	.00	.00	.49	6.0	.58	2.7	45	.00	.00	.00	.00
20	.00	.00	.01	.69	4.4	.42	1.6	30	.00	.00	.00	.00
21	.00	.00	.01	100	3.8	.27	.89	25	.00	.00	.00	.00
22	.00	.00	.07	1140	3.2	.21	.57	19	.00	.00	.00	.00
23	.00	.00	.82	370	2.5	.16	.29	15	.00	.00	.00	.00
24	.00	.00	192	97	2.2	.38	16	12	.00	.00	.00	.00
25	.00	.00	31	68	1.8	.34	139	8.7	.00	.00	.00	.00
26	.00	.00	16	43	1.5	.27	34	6.5	.00	.00	.00	.00
27	.00	.00	10	20	1.3	.38	14	4.9	.00	.00	.00	.00
28	.00	.00	6.6	11	1.3	6.5	7.1	4.0	.00	.00	.00	.00
29	.00	.00	4.5	8.7	1.3	17	3.1	3.0	.00	.00	.00	35
30	.00	.00	3.3	7.6	---	8.7	1.5	2.2	.00	.00	.00	23
31	.00	---	2.7	7.8	---	4.7	---	1.8	---	.00	.00	---
TOTAL	.00	.43	348.23	1890.46	385.4	57.81	563.64	2828.34	3.57	.00	.00	58.00
MEAN	.000	.014	11.2	61.0	13.3	1.86	18.8	91.2	.12	.000	.000	1.93
MAX	.00	.18	192	1140	80	17	139	1810	1.2	.00	.00	35
MIN	.00	.00	.00	.49	1.3	.16	.29	.94	.00	.00	.00	.00
AC-FT	.00	.9	691	3750	764	115	1120	5610	7.1	.00	.00	115
CAL YR 1979	TOTAL	20925.11	MEAN	57.3	MAX	5120	MIN	.00	AC-FT	41500		
WTR YR 1980	TOTAL	6135.88	MEAN	16.8	MAX	1810	MIN	.00	AC-FT	12170		



## TRINITY RIVER BASIN

08049600 MOUNTAIN CREEK NEAR CEDAR HILL, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1974 to current year. Sediment analyses: October 1976 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

[illegible][illegible]

## TRINITY RIVER BASIN

415

08049600 MOUNTAIN CREEK NEAR CEDAR HILL, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, 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)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 23...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 08...	0	0	.07	.01	.08	.06	.94	1.0	.090	14	2	.00
DEC 10...	--	--	--	--	--	--	--	--	--	--	--	--
JAN 10...	14	13	.01	.01	.02	.00	1.5	1.5	.320	11	1	.10
FEB 14...	29	8	.92	.06	.98	.08	1.5	1.6	.150	13	0	.00
MAR 20...	9	4	.00	.00	.00	.08	2.1	2.2	.040	7.6	0	.10
APR 17...	51	12	1.8	.07	1.9	.10	1.2	1.3	.100	14	1	.30
MAY 15...	1420	106	.23	.03	.26	.13	2.9	3.0	.040	22	0	.10
JUN 05...	16	0	.15	.01	.16	.08	.71	.79	.100	8.7	2	.00
JUL 07...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 27...	--	--	--	--	--	--	--	--	--	--	--	--
SEP 09...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 10...	1445	1	50	<1	0	0	20
MAR 20...	1130	0	70	<1	0	4	<10

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 10...	0	20	.0	0	0	5
MAR 20...	0	50	.0	1	0	<3

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
FEB 19...	1235	5.9	8.0	25	.40

## TRINITY RIVER BASIN

08049700 WALNUT CREEK NEAR MANSFIELD, TX

LOCATION.--Lat 32°34'51", long 97°06'06", Tarrant County, Hydrologic Unit 12030102, on right bank at downstream side of bridge on county road, 2.6 mi (4.2 km) northeast of Mansfield, 3.3 mi (5.3 km) downstream from Texas and New Orleans Railroad Co. bridge, and 10.2 mi (16.4 km) upstream from mouth.

DRAINAGE AREA.--62.8 mi<sup>2</sup> (162.7 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 531.08 ft (161.873 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. During the current year, the city of Mansfield diverted 1,560 acre-ft (1.92 hm<sup>3</sup>) from the Cedar Creek Reservoir pipeline to Fort Worth for municipal use and discharged 838 acre-ft (1.03 hm<sup>3</sup>) of sewage effluent into a tributary 2.5 mi (4.0 km) upstream from station. Several observations of water temperature were made during the year. The Dallas Power and Light Co. operates a gage-height telemeter at this station.

AVERAGE DISCHARGE.--20 years, 16.1 ft<sup>3</sup>/s (0.456 m<sup>3</sup>/s), 3.48 in/yr (88 mm/yr), 11,660 acre-ft/yr (14.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,570 ft<sup>3</sup>/s (271 m<sup>3</sup>/s) May 3, 1979, gage height, 29.7 ft (9.05 m), from floodmark; no flow at times in 1960-74, 1976-80.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft<sup>3</sup>/s (19.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
May 15	2230	*1,160	32.9	16.22	4.944
Sept. 29	1330	704	19.9	13.57	4.136

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.22	.12	.26	.47	.41	1.8	1.7	.62	.00	.00	.00
2	.00	.04	.09	.22	.43	.33	1.5	3.2	.51	.00	.00	.00
3	.00	.00	.00	.20	.42	.28	20	3.8	.47	.00	.00	.00
4	.00	.00	.00	.16	.39	.28	12	2.9	.41	.00	.00	.00
5	.00	.00	.00	.13	.38	.28	5.8	1.7	.41	.00	.00	.00
6	.00	.00	.01	.13	.36	.28	3.7	1.1	.31	.00	.00	.00
7	.00	.00	.00	.10	.35	.28	3.3	4.7	.30	.00	.00	.00
8	.00	.00	.00	.11	5.4	.28	2.6	3.4	.44	.00	.00	.00
9	.00	.00	.00	.10	4.2	.28	1.5	2.1	.44	.00	.00	.00
10	.00	.00	.00	.09	3.2	.28	.98	1.2	.32	.00	.00	.00
11	.00	.00	.00	.10	5.0	.28	.83	1.0	.33	.00	.00	.00
12	.00	.00	.00	.10	2.6	.45	1.2	1.3	.23	.00	.00	.00
13	.00	.00	.18	.10	1.6	.44	22	1.1	.11	.00	.00	.00
14	.00	.00	.10	.11	1.1	.29	27	1.4	.07	.00	.00	.00
15	5.4	.00	.04	.11	.91	.24	8.1	428	.06	.00	.00	.00
16	2.3	.00	.00	.11	.81	.24	5.8	279	.00	.00	.00	.00
17	.08	.00	.00	.11	.71	.16	4.6	21	.00	.00	.00	.00
18	.02	.00	.00	.11	.68	.21	4.1	8.2	.00	.00	.00	.00
19	.00	.00	.00	.12	.68	.20	3.6	5.3	.00	.00	.00	.00
20	.00	.00	.00	.12	.64	.15	3.4	4.1	.00	.00	.00	.00
21	.00	.00	.01	9.7	.60	.12	3.2	3.8	.03	.00	.00	.00
22	.11	.00	.26	273	.56	.12	2.7	3.1	.23	.00	.00	.00
23	.05	.00	17	18	.53	.13	2.5	2.6	.05	.00	.00	.00
24	.00	.00	18	5.0	.50	.17	4.5	2.4	.00	.00	.00	.00
25	.48	.00	4.5	1.7	.47	.17	23	2.1	.00	.00	.00	.00
26	.09	.00	2.0	.98	.42	.16	8.1	1.7	.00	.00	.00	.00
27	.06	.00	1.7	.69	.39	.78	4.8	1.5	.00	.00	.00	.00
28	.02	.00	1.2	.57	.38	5.2	3.5	1.3	.00	.00	.00	.00
29	.00	.00	.83	.69	.39	5.1	2.6	1.1	.00	.00	.00	252
30	26	.04	.60	.65	---	2.7	2.1	.87	.00	.00	.00	26
31	1.2	---	.44	.58	---	2.0	---	.73	---	.00	.00	---
TOTAL	35.81	.30	47.08	314.15	34.57	22.29	190.81	797.40	5.34	.00	.00	278.00
MEAN	1.16	.010	1.52	10.1	1.19	.72	6.36	25.7	.18	.000	.000	9.27
MAX	26	.22	18	273	5.4	5.2	27	428	.62	.00	.00	252
MIN	.00	.00	.00	.09	.35	.12	.83	.73	.00	.00	.00	.00
CFSM	.02	.000	.02	.16	.02	.10	.41	.003	.000	.000	.000	.15
IN.	.02	.00	.03	.19	.02	.01	.11	.47	.00	.00	.00	.16
AC-FT	71	.6	93	623	69	44	378	1580	11	.00	.00	551

CAL YR 1979	TOTAL	7446.71	MEAN	20.4	MAX	2270	MIN	.00	CFSM	.33	IN	4.41	AC-FT	14770
WTR YR 1980	TOTAL	1725.75	MEAN	4.72	MAX	428	MIN	.00	CFSM	.08	IN	1.02	AC-FT	3420

## TRINITY RIVER BASIN

417

08049900 MOUNTAIN CREEK NEAR DUNCANVILLE, TX

LOCATION.--Lat 32°39'43", long 96°58'56", Dallas County, Hydrologic Unit 12030102, at downstream side of bridge on Farm Road 1382; 2.3 mi (3.7 km) downstream from Walnut Creek, 4.5 mi (7.2 km) west of Duncanville, and 5.5 mi (8.8 km) upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--225 mi<sup>2</sup> (583 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1970 to current year.

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

REMARKS.--Elevation records good. This station is used to aid in the operation of Mountain Creek Lake. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see Mountain Creek near Cedar Hill (station 08049600). The Dallas Power and Light Co. operates a gage-height telemeter at this station.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 469.83 ft (143.204 m) Apr. 19, 1976; channel dry at times June 16 to Sept. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 463.80 ft (141.366 m) May 16 at 1300 hours; channel dry at times June 16 to Sept. 28.

ELEVATION, IN FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	457.01	457.66	457.16	457.62	457.77	457.65	457.78	456.82	456.52			---
2	457.00	457.52	457.22	457.59	457.73	457.60	457.74	458.90	456.46			---
3	456.96	457.40	457.29	457.60	457.71	457.58	458.98	457.69	456.37			---
4	456.93	457.34	457.32	457.54	457.65	457.41	458.26	457.20	456.29			---
5	456.90	457.27	457.32	457.49	457.62	457.56	457.93	456.94	456.25			---
6	456.87	457.22	457.32	457.47	457.62	457.46	457.74	457.57	456.20			---
7	456.84	457.20	457.31	457.44	457.63	457.66	457.65	458.57	456.13			---
8	456.81	457.17	457.34	457.42	458.32	457.63	457.39	457.66	456.11			---
9	456.79	457.16	457.36	457.43	459.00	457.67	457.15	457.21	456.08			---
10	456.75	457.15	457.35	457.45	458.73	457.75	457.04	456.93	456.03			---
11	456.70	457.16	457.34	457.36	458.89	457.90	457.07	456.75	456.01			---
12	456.67	457.15	457.53	457.25	458.52	457.74	457.21	456.70	455.95			---
13	456.66	457.13	457.76	457.20	458.11	457.66	458.11	456.67	455.90			---
14	456.64	457.10	457.73	457.11	458.02	457.75	459.41	458.67	455.87			---
15	456.78	457.07	457.66	457.07	457.47	457.73	458.33	461.76	455.83			---
16	457.64	457.08	457.62	457.06	457.93	457.68	457.91	461.64	---			---
17	457.58	457.09	457.59	457.22	457.80	457.66	457.67	459.80	---			---
18	457.41	457.12	457.58	457.23	457.77	457.59	457.51	459.03	---			---
19	457.29	457.12	457.55	457.42	457.39	457.58	457.42	458.35	---			---
20	457.24	457.14	457.54	457.46	457.71	457.56	457.22	457.87	---			---
21	457.19	457.15	457.63	459.64	457.40	457.54	457.12	457.69	---			---
22	457.21	457.18	457.63	462.29	457.53	457.51	457.25	457.54	---			---
23	457.17	457.20	459.81	459.84	457.68	457.54	457.28	457.44	---			---
24	457.14	457.22	459.33	459.30	457.66	457.52	457.94	457.37	---			---
25	457.12	457.24	458.25	459.05	457.62	457.55	459.45	457.28	---			---
26	457.08	457.22	457.92	458.44	457.59	457.57	458.22	457.09	---			---
27	457.13	457.20	457.79	458.07	457.60	457.76	457.59	456.95	---			---
28	457.15	457.16	457.73	457.89	457.59	458.08	457.30	456.84	---			---
29	457.12	457.14	457.67	457.81	457.67	458.23	456.86	456.78	---			---
30	458.00	457.14	457.64	457.78	---	458.05	456.76	456.68	---			460.56
31	457.99	---	457.64	457.81	---	457.89	---	456.58	---			459.27
MAX	458.00	457.66	459.81	462.29	459.00	458.23	459.45	461.76	---			---
MIN	456.64	457.07	457.16	457.06	457.39	457.41	456.76	456.58	---			---

CAL YR 1979 MAX 468.16 MIN 456.21  
WTR YR 1980 MAX - -

NOTE.--Water surface below elevation 455.80 ft June 16 to Sept. 28.

## TRINITY RIVER BASIN

08049900 MOUNTAIN CREEK NEAR DUNCANVILLE, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE, WATER (DEG C)	COLOR (PLATINUM COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARDNESS (MG/L AS CaCO3)	HARDNESS, NONCARBONATE (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)
OCT 23...	1230	740	7.3	19.0	35	2.6	9.0	97	5.8	170	0	56
NOV 08...	1040	405	7.4	12.0	80	34	2.5	23	3.7	130	20	43
DEC 12...	1430	475	7.2	9.0	30	2.8	2.9	25	7.5	160	6	56
JAN 16...	1525	842	7.8	13.0	40	28	9.6	91	4.2	230	86	82
FEB 14...	1015	965	7.8	6.5	30	60	11.0	89	3.6	320	180	110
MAR 20...	0945	1290	8.1	13.5	20	7.6	10.8	105	4.2	400	210	140
APR 17...	1115	1100	7.7	15.0	20	39	--	--	--	350	210	120
MAY 15...	1050	695	7.6	19.0	30	640	6.0	66	3.3	230	100	79
JUN 05...	1105	1000	7.9	25.5	30	34	7.7	94	4.3	320	140	110

DATE	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)
OCT 23...	6.5	87	2.9	11	250	0	77	59	.5	8.2	428	3
NOV 08...	4.6	28	1.1	6.9	130	0	69	18	.5	5.8	240	40
DEC 12...	5.4	35	1.2	7.3	190	0	53	22	.4	7.3	280	9
JAN 16...	7.1	79	2.2	14	180	0	210	40	.6	7.7	529	44
FEB 14...	9.9	75	1.8	9.6	160	0	290	47	.5	8.0	629	63
MAR 20...	13	120	2.6	11	240	0	350	67	.6	1.2	821	14
APR 17...	11	97	2.3	11	170	0	310	62	.5	.0	695	46
MAY 15...	7.0	56	1.6	6.7	150	0	190	24	.6	9.3	447	1010
JUN 05...	11	80	1.9	11	220	0	250	49	.5	9.5	629	55

DATE	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	PHENOLS (UG/L)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT 23...	2	.00	.02	.02	2.3	1.7	4.0	1.800	18	6	.20
NOV 08...	11	.33	.01	.34	1.2	1.2	2.4	.290	5.9	0	.00
DEC 12...	5	.00	.02	.01	.01	1.3	1.3	4.900	10	3	.00
JAN 16...	14	.51	.12	.63	.07	1.7	1.8	.220	10	1	.10
FEB 14...	15	1.0	.06	1.1	.38	1.2	1.6	.230	11	0	.00
MAR 20...	8	.87	.04	.91	.12	1.4	1.5	.180	12	0	.10
APR 17...	13	1.7	.08	1.8	.29	1.2	1.5	.170	11	2	.20
MAY 15...	58	.85	.07	.92	.33	1.4	1.7	.110	24	1	.00
JUN 05...	13	.31	.02	.33	.02	1.3	1.3	.140	11	3	.00

TRINITY RIVER BASIN

419

08049900 MOUNTAIN CREEK NEAR DUNCANVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 16...	1525	2	60	<1	0	0	20
MAR 20...	0945	1	80	<1	0	1	<10

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 16...	0	120	.0	0	0	5
MAR 20...	0	2	.0	0	0	3



## TRINITY RIVER BASIN

## 08050050 MOUNTAIN CREEK LAKE NEAR GRAND PRAIRIE, TX

LOCATION.--Lat 32°43'55", long 96°56'35", Dallas County, Hydrologic Unit 12030102, at right end of spillway in Mountain Creek Dam on Mountain Creek, 2.5 mi (4.0 km) upstream from Texas and Pacific Railway Co. bridge, and 3.7 mi (6.0 km) southeast of Grand Prairie.

DRAINAGE AREA.--295 mi<sup>2</sup> (764 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 21, 1960, nonrecording gage at powerplant at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft (1,770 m) long, including a controlled spillway six 34- by 27-foot (10 by 8 m) tainter gates. The dam was completed in December 1936 and deliberate impoundment began on Mar. 24, 1937. The lake was built and is operated by Dallas Power and Light Co. to supply cooling water for their generating plant. The capacity curve is based on a survey made in 1963. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08049600. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	467.0	-
Top of gates.....	458.0	25,720
Top of dry weather conservation pool.....	457.0	22,840
Top of wet weather conservation pool.....	456.0	20,260
Crest of spillway (sill of tainter gates).....	431.0	0

COOPERATION.--The capacity curve was furnished by the Dallas Power and Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 27,440 acre-ft (33.8 hm<sup>3</sup>) Mar. 27, 1977, elevation, 458.52 ft (139.757 m); minimum, 14,120 acre-ft (17.4 hm<sup>3</sup>) Oct. 18, 1972, elevation, 453.25 ft (138.151 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,860 acre-ft (30.7 hm<sup>3</sup>) Jan. 23 at 0830 hours, elevation, 457.70 ft (139.507 m); minimum, 14,990 acre-ft (18.5 hm<sup>3</sup>) Sept. 26, elevation, 453.67 ft (138.279 m).

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

453.0	13,600	456.0	20,260
454.0	15,670	457.0	22,840
455.0	17,890	458.0	25,720

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21470	21110	20540	22660	22710	21600	21890	22960	22690	20850	18510	16420
2	21450	21090	20520	22690	22760	21780	21960	22140	22630	20780	18390	16360
3	21340	21090	20540	22660	22760	21860	21960	22270	22560	20670	18410	16290
4	21290	21090	20520	22630	22790	21630	22070	22350	22500	20600	18150	16230
5	21270	20960	20390	22660	22790	21700	22140	22380	22450	20490	18100	16160
6	21190	20980	20490	22500	22760	21760	22200	22580	22380	20410	18030	16070
7	21210	20980	20470	22580	22790	21810	22090	22690	22320	20310	17940	16070
8	21140	21110	20410	22580	22170	21730	22040	22200	22220	20240	17890	16050
9	20930	20980	20470	22560	22560	21730	22040	22270	22200	20190	17820	16050
10	20960	20960	20540	22610	22790	21700	21990	22320	22140	20090	17760	16030
11	20880	20960	20410	22530	21370	21680	21780	22270	22090	20020	17710	15980
12	20780	20930	20800	22530	21550	21600	21890	22300	22040	19950	17780	15940
13	20720	20850	20880	22530	21700	21650	22500	22270	21940	19860	17730	15800
14	20670	20850	20880	22530	21810	21630	22740	22400	21860	19810	17650	15780
15	20910	20830	20880	22560	21730	21700	22900	22500	21780	19710	17580	15740
16	20930	20830	20750	22530	21810	21700	23040	23960	21650	19600	17530	15670
17	20960	20830	20800	22530	21860	21550	22960	22400	21580	19530	17400	15590
18	20960	20880	20800	22530	21940	21520	22960	22760	21550	19430	17310	15530
19	21010	20880	20830	22530	21910	21520	22960	22870	21500	19360	17250	15480
20	20960	20960	20830	22580	21960	21500	22960	22960	21500	19290	17180	15400
21	20880	20850	20960	23160	21940	21450	22960	22980	21500	19290	17090	15360
22	20830	20850	21060	23530	21940	21450	22900	22980	21520	19190	17020	15260
23	20800	20800	21890	22840	21910	21500	22900	22980	21520	19100	16960	15150
24	20780	20780	22300	23360	21890	21370	22840	23040	21470	19030	16890	15110
25	20750	20750	22580	23440	21860	21400	22660	23010	21400	19000	16940	15090
26	20720	20880	22610	23530	21890	21400	22810	22980	21370	18930	16890	15170
27	20670	20670	22630	23590	21940	21680	22870	22930	21270	18890	16780	15300
28	20650	20650	22660	23650	21890	21830	22870	22930	21190	18860	16710	15360
29	20600	20570	22690	23760	21760	21910	22930	22960	21060	18890	16670	18170
30	21110	20570	22660	22630	---	21860	22870	22840	20960	18860	16620	18860
31	21140	---	22660	22690	---	21910	---	22790	---	18580	16510	---
MAX	21470	21110	22690	23760	22790	21910	23040	23960	22690	20850	18510	18860
MIN	20600	20570	20390	22500	21370	21370	21780	22140	20960	18580	16510	15090
(†)	456.34	456.12	456.93	456.94	456.58	456.64	457.01	456.98	456.27	455.29	454.38	455.41
(+)	-410	-570	+2090	+30	-930	+150	+960	-80	-1830	-2380	-2070	+2350
CAL YR 1979	MAX	23960	MIN	16360	††	+6300						
WTR YR 1980	MAX	23960	MIN	15090	††	-2690						

† Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

## TRINITY RIVER BASIN

08050050 MOUNTAIN CREEK LAKE NEAR GRAND PRAIRIE, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
MAR 10...	1710	536	16.5	160	55	56	5.2	40	1.4

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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)
MAR 10...	7.1	130	0	120	21	.5	2.5	316

## TRINITY RIVER BASIN

08050100 MOUNTAIN CREEK AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°44'52", long 96°55'33", Dallas County, Hydrologic Unit 12030102, on right bank at downstream side of downstream bridge on Jefferson Street, 1,000 ft (305 m) upstream from bridge on U.S. Highway 80, 1.2 mi (1.9 km) upstream from Texas and Pacific Railroad Co. bridge, 1.5 mi (2.4 km) downstream from Mountain Creek Lake Dam, and 4.4 mi (7.1 km) east of Grand Prairie.

DRAINAGE AREA.--298 mi<sup>2</sup> (772 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 407.31 ft (124.148 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Mountain Creek Lake (station 08050050). Dallas Power and Light Co. gage-height telemeter is located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 102 ft<sup>3</sup>/s (2.889 m<sup>3</sup>/s), 73,900 acre-ft/yr (91.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,100 ft<sup>3</sup>/s (1,080 m<sup>3</sup>/s) Apr. 19, 1976, gage height, 24.21 ft (7.379 m); maximum gage height, 24.62 ft (7.504 m) May 7, 1969; no flow in 1964, 1972-74.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,040 ft<sup>3</sup>/s (114 m<sup>3</sup>/s) May 2 at 1700 hours, gage height, 11.52 ft (3.511 m); no flow June 17, 18, result of pumpage from pool at gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	1.0	.87	.64	1.1	.45	.77	.93	1.6	.37	.65	.64
2	.67	.99	.69	.61	.87	.61	.77	760	1.3	.35	.62	.64
3	.65	.97	.66	.56	.74	.72	.77	3.1	.77	.39	.59	.69
4	.66	.92	.64	.61	.69	.77	.77	1.6	.43	.46	.58	.69
5	.73	.88	.61	.66	.71	.54	.80	1.3	.41	.47	.58	.72
6	.71	.94	.54	1.6	.61	.52	.90	1.3	.43	.45	.56	.69
7	.71	1.1	.58	.84	.64	.49	1.0	1.7	.54	.39	.57	.84
8	.70	.97	.58	.66	518	.43	.93	437	.45	.38	.55	.97
9	.67	1.0	.58	.64	2.3	.45	.90	2.3	.41	.37	.58	.97
10	.76	1.0	.61	.61	1.7	.45	.90	1.5	.43	.37	.59	.87
11	.77	1.2	.61	.69	778	.47	.96	1.3	.35	.38	.61	.80
12	.66	1.1	1.5	.58	1.7	.49	1.0	1.2	.33	.37	.54	.74
13	.57	1.0	1.1	.54	1.1	.47	3.9	1.2	.32	.37	.52	.69
14	.62	1.0	.74	.58	1.1	.49	1.9	47	.35	.38	.49	.64
15	.78	1.0	.72	.58	.69	.56	1.1	1100	.47	.38	.45	.69
16	.97	.93	.66	.58	.69	.72	.96	2050	.32	.37	.47	.66
17	.72	.90	.77	.54	.74	.66	1.0	1680	.19	.38	.49	.66
18	.68	.87	.77	.56	.66	.69	.91	2.5	.20	.38	.52	.69
19	.67	.84	.66	.61	.61	.72	.94	1.5	.36	.39	.49	.72
20	.69	.80	.64	.69	.54	.77	.86	1.3	.60	.42	.49	.75
21	.81	.80	.72	2.3	.47	.87	.82	1.2	.62	1.1	.49	.75
22	.91	.87	1.1	835	.45	.77	.82	1.1	.60	1.6	.59	.59
23	.88	1.0	.51	1560	.43	.80	.82	1.0	.56	1.4	.54	.49
24	.88	.93	1.0	3.1	.45	.84	140	.87	.47	.79	.52	.40
25	.83	.93	.72	1.6	.45	.87	336	.87	.45	.73	.54	.27
26	.81	.90	.64	1.4	.47	.87	1.3	.77	.42	.69	.61	.27
27	.82	.96	.58	1.5	.47	.96	1.2	.69	.41	.80	.66	.66
28	.80	.93	.56	1.5	.45	1.9	1.0	.77	.38	.94	.72	.89
29	.83	1.0	.69	1.8	.43	1.1	.93	.69	.48	.79	.80	22
30	2.7	1.1	.69	493	---	.90	.94	.80	.40	.73	.77	3.4
31	1.1	---	.64	1.8	---	.80	---	.80	---	.67	.74	---
TOTAL	25.44	28.83	22.38	2916.38	1317.26	22.15	505.87	6106.29	15.05	18.06	17.92	44.48
MEAN	.82	.96	.72	94.1	45.4	.71	16.9	197	.50	.58	.58	1.48
MAX	2.7	1.2	1.5	1560	778	1.9	336	2050	1.6	1.6	.80	.22
MIN	.57	.80	.51	.54	.43	.43	.77	.69	.19	.35	.45	.27
AC-FT	50	57	44	5780	2610	44	1000	12110	30	36	36	88
CAL YR 1979	TOTAL	46153.34	MEAN	126	MAX	14200	MIN	.32	AC-FT	91550		
WTR YR 1980	TOTAL	11040.11	MEAN	30.2	MAX	2050	MIN	.19	AC-FT	21900		

## TRINITY RIVER BASIN

423

08050500 ELM FORK TRINITY RIVER NEAR SANGER, TX

LOCATION.--Lat 33°23'11", long 97°05'05", Denton County, Hydrologic Unit 12030103, on right bank on downstream side of pier of bridge on Farm Road 455, 4.1 mi (6.6 km) downstream from Spring Creek, 5.0 mi (8.0 km) upstream from Isle du Bois Creek, and 5.4 mi (8.7 km) northeast of Sanger.

DRAINAGE AREA.--381 mi<sup>2</sup> (987 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 553.72 ft (168.774 m) National Geodetic Vertical Datum of 1929. Prior to May 7, 1955, at site 500 ft (150 m) downstream at same datum.

REMARKS.--Water-discharge records good. Flow is affected at times by discharge from the flood-detention pools of 41 floodwater-retarding structures with a combined capacity of 26,790 acre-ft (33.0 hm<sup>3</sup>). These structures control runoff from 94.7 mi<sup>2</sup> (245.3 km<sup>2</sup>) in the Elm Fork Trinity River watershed. Records furnished by the city of Gainesville show that 3,080 acre-ft (3.80 hm<sup>3</sup>) of sewage effluent was discharged into the river above this station.

AVERAGE DISCHARGE.--31 years, 141 ft<sup>3</sup>/s (3.993 m<sup>3</sup>/s), 102,200 acre-ft/yr (126 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft<sup>3</sup>/s (1,420 m<sup>3</sup>/s) Oct. 31, 1974, gage height, 29.10 ft (8.870 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1903, 30.7 ft (9.36 m) in May 1908, from information by local residents. Flood of May 18, 1935, reached a stage of 29.7 ft (9.05 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,000 ft<sup>3</sup>/s (312 m<sup>3</sup>/s), Sept. 29 at 0330 hours, gage height, 25.99 ft (7.922 m), no other peak above base of 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	12	4.0	6.8	7.7	4.7	5.0	3.5	1.6	.98	.18	.00
2	2.7	7.1	3.5	6.1	7.2	5.0	5.8	3.8	1.6	.74	.11	.00
3	2.1	5.5	3.3	5.6	6.3	4.6	5.9	3.3	1.5	.56	.08	.00
4	2.0	5.4	3.8	5.0	6.7	4.7	6.1	3.5	1.3	.45	.05	.00
5	2.2	4.8	4.0	4.6	6.2	5.1	5.1	3.5	1.3	.39	.01	.00
6	2.2	5.5	3.8	4.4	6.4	5.5	4.9	3.8	1.2	.52	.00	.00
7	2.6	5.4	3.3	4.3	6.3	6.1	4.8	4.0	1.2	.55	.00	.00
8	3.2	5.2	3.5	4.3	30	6.9	4.3	7.7	1.3	.42	.00	.00
9	4.7	13	4.3	4.3	100	6.6	4.4	6.0	1.7	.32	.00	.00
10	4.7	27	4.5	4.3	34	6.7	4.7	5.1	1.3	.24	.00	.00
11	3.9	11	4.3	4.3	21	6.4	3.8	4.8	.94	.53	.00	.00
12	4.7	6.6	60	4.5	26	6.9	3.8	4.4	.80	.46	.00	.00
13	5.4	4.6	37	4.8	32	7.5	11	4.5	.93	.34	.00	.00
14	5.1	3.4	22	4.8	20	8.3	14	3.5	1.0	.31	.00	.00
15	8.4	4.3	13	4.8	15	6.4	8.4	4.0	1.0	.27	.00	.00
16	9.1	5.2	8.5	4.8	12	7.2	7.4	7.9	1.0	.29	.00	.00
17	4.7	4.5	6.3	5.1	8.3	7.3	6.3	12	1.0	.34	.00	.00
18	7.4	4.0	5.7	5.1	7.3	6.1	5.1	5.3	1.0	.28	.00	.00
19	6.2	3.5	5.4	5.1	6.8	6.0	4.3	3.8	1.1	.20	.00	.00
20	6.1	3.8	5.1	5.2	7.2	6.1	3.8	3.2	204	.16	.00	.00
21	6.4	11	4.9	6.9	6.1	6.2	3.5	3.5	48	.14	.00	.00
22	6.6	5.7	4.8	21	5.6	5.7	3.3	12	15	.04	.00	.08
23	16	3.5	11	13	5.1	5.9	3.3	7.3	7.9	.00	.00	.10
24	7.4	3.8	50	12	4.8	6.7	3.3	3.7	6.2	.00	.00	.10
25	4.5	4.5	37	9.5	4.7	5.6	4.0	3.0	5.5	.00	.00	1.4
26	4.5	4.8	24	8.0	4.5	5.1	5.1	2.7	4.8	.01	.00	4.3
27	4.7	3.8	16	6.9	4.3	5.9	8.8	2.3	4.4	2.8	.00	22
28	4.2	3.8	12	6.3	4.6	8.9	5.4	1.9	2.4	1.3	.00	2320
29	4.0	3.5	10	6.3	4.8	14	3.5	1.8	2.0	.81	.00	5520
30	8.2	3.8	9.5	6.7	---	7.9	3.5	1.6	1.5	.60	.00	663
31	21	---	8.0	7.0	---	5.8	---	1.6	---	.28	.00	---
TOTAL	185.4	190.7	392.5	201.8	410.9	201.8	162.6	139.0	324.47	14.33	.43	8530.98
MEAN	5.98	6.36	12.7	6.51	14.2	6.51	5.42	4.48	10.8	.46	.014	284
MAX	21	27	60	21	100	14	14	12	204	2.8	.18	5520
MIN	2.0	3.4	3.3	4.3	4.3	4.6	3.3	1.6	.80	.00	.00	.00
AC-FT	368	378	779	400	815	400	323	276	644	28	.9	16920

CAL YR 1979 TOTAL 53959.40 MEAN 148 MAX 4870 MIN 2.0 AC-FT 107000  
WTR YR 1980 TOTAL 10754.91 MEAN 29.4 MAX 5520 MIN .00 AC-FT 21330

## TRINITY RIVER BASIN

08050500 ELM FORK TRINITY RIVER NEAR SANGER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to current year. Sediment records: January 1966 to September 1976.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE, WATER (DEG C)	COLOR (PLAT-INUM COBALT UNITS)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD-NESS (MG/L AS CaCO3)	HARD-NESS, NONCAR-BONATE (MG/L CaCO3)
NOV 07...	0930	5.4	843	8.0	10.0	40	13	8.5	75	1.7	140	0
JAN 15...	1620	5.4	785	8.1	11.0	20	6.4	9.0	83	2.0	170	0
MAR 18...	1520	5.4	995	8.9	13.5	30	13	13.6	131	11	220	0
MAY 21...	0915	4.0	920	8.1	20.0	30	29	4.4	49	4.0	160	0
JUL 23...	0930	.00	--	--	--	--	--	--	--	--	--	--
SEP 09...	1020	.00	--	--	--	--	--	--	--	--	--	--

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)	BICAR-BONATE (MG/L HCO3)	CAR-BONATE (MG/L AS CO3)	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 07...	48	4.4	140	5.2	8.2	430	0	48	35	.3	14
JAN 15...	61	5.2	110	3.6	5.4	360	0	51	40	.2	1.7
MAR 18...	78	6.9	140	4.1	5.6	390	33	60	73	.3	1.7
MAY 21...	55	5.5	140	4.8	6.7	420	0	45	60	.2	15
JUL 23...	--	--	--	--	--	--	--	--	--	--	--
SEP 09...	--	--	--	--	--	--	--	--	--	--	--

DATE	SOLIDS, SUM OF CON-STI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	SOLIDS, VOLA-TILE, SUS-PENDED (MG/L)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 07...	510	29	15	1.5	.06	1.6	.05	1.2	1.2	3.400	11
JAN 15...	452	17	8	1.3	.06	1.4	.02	1.4	1.4	1.500	6.0
MAR 18...	591	21	12	.08	.03	.11	.12	2.2	2.3	1.500	19
MAY 21...	534	58	44	.52	.10	.62	.38	1.1	1.5	2.600	14
JUL 23...	--	--	--	--	--	--	--	--	--	--	--
SEP 09...	--	--	--	--	--	--	--	--	--	--	--

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
JAN 15...	1620	4	50	<1	0	0	20
MAR 18...	1520	4	50	<1	0	1	<10

DATE	LEAD, DIS-SOLVED (UG/L AS Pb)	MANGA-NESE, DIS-SOLVED (UG/L AS Mn)	MERCURY DIS-SOLVED (UG/L AS Hg)	SELE-NIUM, DIS-SOLVED (UG/L AS Se)	SILVER, DIS-SOLVED (UG/L AS Ag)	ZINC, DIS-SOLVED (UG/L AS Zn)
JAN 15...	0	20	.0	0	0	6
MAR 18...	0	3	.0	1	0	4

## TRINITY RIVER BASIN

425

08051000 ISLE DU BOIS CREEK NEAR PILOT POINT, TX

LOCATION.--Lat 33°24'23", long 97°00'45", Denton County, Hydrologic Unit 12030103, on left bank at downstream side of bridge on Farm Road 372, 2.4 mi (3.9 km) downstream from Wolf Creek, 3.0 mi (4.8 km) west of Pilot Point, and 6.3 mi (10.1 km) upstream from mouth.

DRAINAGE AREA.--266 mi<sup>2</sup> (689 km<sup>2</sup>).

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

Water-quality records: Chemical analyses: November 1961 to April 1963. Sediment records: February 1966 to September 1975.

REVISED RECORDS.--WSP 1512: 1950. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 555.48 ft (169.310 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Feb. 8, 1958, water-stage recorder at site 1.0 mi (1.6 km) upstream at datum 4.22 ft (1.286 m) higher.

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

AVERAGE DISCHARGE.--31 years (water years 1950-80), 112 ft<sup>3</sup>/s (3.172 m<sup>3</sup>/s), 5.72 in/yr (145 mm/yr), 81,140 acre-ft/yr (100 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft<sup>3</sup>/s (1,130 m<sup>3</sup>/s) Oct. 31, 1974, gage height, 29.43 ft (8.970 m), present site and datum; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 30.4 ft (9.27 m) in May 1908, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,700 ft<sup>3</sup>/s (303 m<sup>3</sup>/s) Sept. 29 at 1300 hours, gage height, 25.96 ft (7.913 m), no other peak above base of 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.41	.31	.05	.00	.00	.33	.23	.00	.00	.00	.00
2	.00	.07	.37	.12	.00	.00	.26	.13	.00	.00	.00	.00
3	.00	.02	.45	.12	.00	.00	.22	.09	.00	.00	.00	.00
4	.00	.00	.54	.35	.02	.00	.14	.03	.00	.00	.00	.00
5	.00	.00	.58	.66	.07	.41	.14	.00	.00	.00	.00	.00
6	.00	.00	.56	.27	.04	.40	.23	.00	.00	.00	.00	.00
7	.00	.00	.55	.29	.06	.20	.22	.00	.00	.00	.00	.00
8	.00	.00	.50	.35	.18	.17	.10	.00	.00	.00	.00	.00
9	.00	.00	.49	.25	.81	.34	.00	.00	.00	.00	.00	.00
10	.00	.00	.57	.24	118	.43	.00	.00	.00	.00	.00	.00
11	.00	.00	.70	.12	31	.40	.00	.00	.00	.00	.00	.00
12	.00	.00	1.2	.00	32	.84	.06	.01	.00	.00	.00	.00
13	.00	.00	1.0	.00	107	1.1	1.3	.14	.00	.00	.00	.00
14	.00	.01	.17	.00	124	1.2	1.6	10	.00	.00	.00	.00
15	.00	.03	.05	.00	40	.92	1.9	6.6	.00	.00	.00	.00
16	.00	.02	.03	.00	17	.89	1.7	2.9	.00	.00	.00	.00
17	.00	.02	.02	.00	9.3	.73	1.3	39	.00	.00	.00	.00
18	.00	.07	.03	.00	5.3	.89	.66	8.7	.00	.00	.00	.00
19	.00	.19	.03	.00	3.0	.53	.53	3.4	.00	.00	.00	.00
20	.00	.30	.04	.00	1.9	.65	.64	1.0	.00	.00	.00	.00
21	.00	.61	.11	.12	1.2	.68	.68	.73	71	.00	.00	.00
22	.00	.62	.23	1.0	.80	.73	.63	.09	26	.00	.00	.00
23	.00	.61	.63	1.4	.23	1.2	1.0	.00	4.8	.00	.00	.00
24	.00	.51	1.3	.31	.00	1.4	1.2	.00	1.1	.00	.00	.00
25	.00	.17	.23	.05	.00	1.3	1.2	.00	.16	.00	.00	.00
26	.00	.14	.17	.03	.00	1.4	4.8	.00	.00	.00	.00	.00
27	.00	.38	.20	.00	.00	1.7	3.2	.00	.00	.00	.00	.00
28	.00	.51	.35	.00	.00	4.0	1.3	.00	.00	.00	.00	733
29	.00	.39	.28	.00	.00	2.0	.49	.00	.00	.00	.00	6770
30	.00	.34	.11	.00	---	1.6	.28	.00	.00	.00	.00	2600
31	.48	---	.09	.00	---	.65	---	.00	---	.00	.00	---
TOTAL	.48	5.42	11.89	5.73	589.92	26.76	26.11	73.05	103.06	.00	.00	10103.00
MEAN	.015	.18	.38	.18	20.3	.86	.87	2.36	3.44	.000	.000	.337
MAX	.48	.62	1.3	1.4	124	4.0	4.8	.39	71	.00	.00	6770
MIN	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.000	.001	.001	.001	.08	.003	.003	.009	.01	.000	.000	1.27
IN.	.00	.00	.00	.00	.08	.00	.00	.01	.01	.00	.00	1.41
AC-FT	1.0	11	24	11	1170	53	52	145	204	.00	.00	20040
CAL YR 1979	TOTAL	37730.80	MEAN	103	MAX	5700	MIN	.00	CFSM	.39	IN	5.28
WTR YR 1980	TOTAL	10945.42	MEAN	29.9	MAX	6770	MIN	.00	CFSM	.11	IN	1.53
									AC-FT	74840		
									AC-FT	21710		



## TRINITY RIVER BASIN

08051500 CLEAR CREEK NEAR SANGER, TX

LOCATION.--Lat 33°20'21", long 97°10'51", Denton County, Hydrologic Unit 12030103, at the downstream side of left abutment of main channel bridge on Interstate Highway 35, 600 ft (180 m) downstream from Duck Creek, 1.3 mi (2.1 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 1.7 mi (2.7 km) south of Sanger.

DRAINAGE AREA.--295 mi<sup>2</sup> (764 km<sup>2</sup>).

Water-quality records: Specific conductance, water temperature, and sediment records: May 1968 to September 1976.

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

REVISED RECORDS.--WSP 1512: 1950, 1955. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 582.23 ft (177.464 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Apr. 18, 1975, water-stage recorder at site 950 ft (290 m) downstream at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good. No appreciable diversion above station. Flow is affected at times by discharge from the flood-detention pools of 51 floodwater-retarding structures with a combined detention capacity of 38,850 acre-ft (47.9 hm<sup>3</sup>). These structures control runoff from 149 mi<sup>2</sup> (386 km<sup>2</sup>) in the Clear Creek watershed. Several observations of water temperature were made during the year. A crest-stage gage was installed on May 7, 1979.

AVERAGE DISCHARGE.--31 years (water years 1950-80), 74.3 ft<sup>3</sup>/s (2.104 m<sup>3</sup>/s), 53,830 acre-ft/yr (66.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,200 ft<sup>3</sup>/s (515 m<sup>3</sup>/s) Sept. 13, 1950, gage height, 24.80 ft (7.559 m), site and datum then in use; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 31.5 ft (9.60 m) in May 1908, from information by Gulf, Colorado, and Santa Fe Railway Co. Flood in May 1935 reached a stage of 29.0 ft (8.84 m), from information by State Department of Highways and Public Transportation. Both peaks referenced to site and datum used prior to Apr. 18, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 984 ft<sup>3</sup>/s (27.9 m<sup>3</sup>/s) Sept. 29 at 0245 hours, gage height, 22.58 ft (3.834 m), no peak above base of 3,000 ft<sup>3</sup>/s (85.0 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.05	.00	6.3	4.1	3.0	5.2	2.5	.23	.00	.00	.00
2	.00	.02	.00	5.0	3.8	2.7	4.9	2.5	.16	.00	.00	.00
3	.00	.00	.00	4.2	4.4	2.6	4.8	10	.12	.00	.00	.00
4	.00	.00	.70	3.6	4.4	3.2	6.1	9.7	.08	.00	.00	.00
5	.00	.00	1.5	3.5	3.9	3.5	7.6	4.6	.02	.00	.00	.00
6	.00	.00	1.9	3.5	3.6	3.5	5.7	2.7	.00	.00	.00	.00
7	.00	.00	3.2	3.2	3.2	3.5	5.7	1.9	.00	.00	.00	.00
8	.00	.00	2.7	3.2	15	3.5	5.4	7.5	.00	.00	.00	.00
9	.00	.00	2.1	3.2	18	3.5	4.7	5.9	.00	.00	.00	.00
10	.00	.00	2.1	3.2	19	3.5	4.4	4.0	.00	.00	.00	.00
11	.00	.00	2.2	3.2	14	3.2	4.1	2.4	.00	.00	.00	.00
12	.00	.00	6.8	3.2	13	3.4	3.7	1.8	.00	.00	.00	.00
13	.00	.00	6.2	3.2	9.8	3.5	6.0	1.4	.00	.00	.00	.00
14	.00	.00	4.7	3.2	8.1	4.0	11	1.4	.00	.00	.00	.00
15	.00	.00	4.3	3.3	6.7	3.8	11	1.5	.00	.00	.00	.00
16	.00	.00	3.3	3.6	4.8	3.8	8.8	1.5	.00	.00	.00	.00
17	.00	.00	2.5	3.8	4.8	3.8	6.1	12	.00	.00	.00	.00
18	.00	.00	2.0	3.8	4.2	3.8	4.5	5.7	.00	.00	.00	.00
19	.00	.00	1.5	4.6	5.8	3.8	3.1	3.6	.00	.00	.00	.00
20	.00	.00	2.3	4.2	6.0	3.8	2.7	2.7	.00	.00	.00	.00
21	.00	.00	2.7	5.3	5.9	3.5	2.7	1.9	.00	.00	.00	.00
22	.00	.00	2.7	16	4.6	3.5	2.5	1.6	.00	.00	.00	.00
23	.00	.00	4.9	10	3.8	3.6	2.3	1.5	.00	.00	.00	.00
24	.00	.00	7.2	6.8	3.8	3.8	2.2	1.3	.00	.00	.00	.00
25	.00	.00	7.8	4.9	3.2	3.5	2.1	1.2	.00	.00	.00	.00
26	.00	.00	6.4	4.2	3.0	3.5	2.9	1.1	.00	.00	.00	.00
27	.00	.00	4.8	3.5	3.0	3.7	3.8	.77	.00	.00	.00	.01
28	.00	.00	4.4	3.0	3.1	7.3	3.5	.67	.00	.00	.00	154
29	.00	.00	6.2	3.0	3.3	7.9	3.5	.56	.00	.00	.00	497
30	1.4	.00	13	3.8	---	7.6	3.1	.44	.00	.00	.00	71
31	.10	---	9.4	4.1	---	5.8	---	.32	---	.00	.00	---
TOTAL	1.50	.07	119.50	139.6	190.3	123.1	144.1	96.66	.61	.00	.00	722.01
MEAN	.048	.002	3.85	4.50	6.56	3.97	4.80	3.12	.020	.000	.000	24.1
MAX	1.4	.05	13	16	19	7.9	11	12	.23	.00	.00	497
MIN	.00	.00	.00	3.0	3.0	2.6	2.1	.32	.00	.00	.00	.00
AC-FT	3.0	.1	237	277	377	244	286	192	1.2	.00	.00	1430
CAL YR 1979	TOTAL	24087.03	MEAN	66.0	MAX	2600	MIN	.00	AC-FT	47780		
WTR YR 1980	TOTAL	1537.45	MEAN	4.20	MAX	497	MIN	.00	AC-FT	3050		

## TRINITY RIVER BASIN

427

08052700 LITTLE ELM CREEK NEAR AUBREY, TX

LOCATION.--Lat 33°17'00", long 96°53'33", Denton County, Hydrologic Unit 12030103, on left bank at downstream side of bridge on Farm Road 1385, 1.5 mi (2.4 km) upstream from Mustang Creek, 5.5 mi (8.8 km) east of Aubrey, and 18 mi (29 km) upstream from Lewisville Dam on the Elm Fork Trinity River.

DRAINAGE AREA.--75.5 mi<sup>2</sup> (195.5 km<sup>2</sup>).

PERIOD OF RECORD.--June 1956 to September 1976, October 1979 to September 1980.

Water-quality records: Chemical analyses: January 1968. Specific conductance: December 1966 to September 1975. Water temperatures: February 1966 to September 1975. Sediment records: February 1966 to September 1975.

REVISED RECORDS.--WRD TX-70-1: 1969.

GAGE.--Water-stage recorder. Datum of gage is 534.76 ft (162.995 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Records good. Some small diversions for irrigation above station. Flow is affected at times by discharge from the flood-detention pools of 17 floodwater-retarding structures with a combined detention capacity of 12,600 acre-ft (15.5 hm<sup>3</sup>). These structures control runoff from 36.4 mi<sup>2</sup> (94.3 km<sup>2</sup>) above station. Several observations of water temperature were obtained during the year.

AVERAGE DISCHARGE.--21 years (water year 1957-76, 1980), 43.9 ft<sup>3</sup>/s (1.243 m<sup>3</sup>/s), 31,810 acre-ft/yr (39.2 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,920 ft<sup>3</sup>/s (224 m<sup>3</sup>/s) Oct. 31, 1974, gage height, 17.04 ft (5.194 m); maximum gage height, 17.34 ft (5.285 m) Apr. 26, 1957; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1900, 18.2 ft (5.55 m) in May 1941, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,340 ft<sup>3</sup>/s (151 m<sup>3</sup>/s) Sept. 29 at 0815 hours, gage height, 16.38 ft (4.993 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.69	.60	.00	.12	1.1	.00	.00	.00	.00
2	.00	.00	.00	.69	1.2	.00	.08	.97	.00	.00	.00	.00
3	.00	.00	.00	.69	1.2	.00	.05	.84	.00	.00	.00	.00
4	.00	.00	.00	.40	.89	.00	.01	.65	.00	.00	.00	.00
5	.00	.00	.00	.28	.89	.00	.01	.41	.00	.00	.00	.00
6	.00	.00	.00	.18	.74	.00	.00	.27	.00	.00	.00	.00
7	.00	.00	.00	.05	.69	.00	.00	.15	.00	.00	.00	.00
8	.00	.00	.00	.02	5.9	.00	.00	.15	.00	.00	.00	.00
9	.00	.00	.00	.09	83	.00	.00	.10	.00	.00	.00	.00
10	.00	.00	.00	.31	22	.00	.00	.04	.00	.00	.00	.00
11	.00	.00	.00	.74	21	.00	.00	.01	.00	.00	.00	.00
12	.00	.00	.00	.95	40	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.89	14	.00	.01	.00	.00	.00	.00	.00
14	.00	.00	.00	.84	8.4	.00	.33	.00	.00	.00	.00	.00
15	.00	.00	.00	.74	6.1	.00	.94	.02	.00	.00	.00	.00
16	.00	.00	.00	.74	4.5	.00	1.2	3.8	.00	.00	.00	.00
17	.00	.00	.00	.65	3.4	.00	1.2	3.0	.00	.00	.00	.00
18	.00	.00	.00	.60	2.5	.00	.94	2.1	.00	.00	.00	.00
19	.00	.00	.00	.60	2.0	.00	.64	1.6	.00	.00	.00	.00
20	.00	.00	.00	.69	1.6	.00	.39	2.7	.00	.00	.00	.00
21	.00	.00	.00	.95	1.2	.00	.30	3.2	3.4	.00	.00	.00
22	.00	.00	.00	1.8	.84	.00	.19	2.2	3.6	.00	.00	.00
23	.00	.00	.00	3.7	.60	.00	.09	1.2	2.4	.00	.00	.00
24	.00	.00	3.1	2.3	.40	.00	.07	.70	1.3	.00	.00	.00
25	.00	.00	1.1	1.4	.35	.00	.31	.34	.58	.00	.00	.00
26	.00	.00	.79	1.1	.16	.00	.71	.14	.22	.00	.00	.00
27	.00	.00	.60	.89	.09	.00	1.0	.04	.06	.00	.00	.00
28	.00	.00	.40	.79	.02	.01	1.2	.00	.00	.00	.00	.00
29	.00	.00	.24	.89	.01	.25	1.2	.00	.00	.00	.00	.00
30	.00	.00	.24	1.0	---	.98	1.3	.00	.00	.00	.00	.00
31	.00	---	.35	.65	---	.37	---	.00	---	.00	.00	---
TOTAL	.00	.00	6.82	26.31	224.28	1.61	12.29	25.73	11.56	.00	.00	3531.00
MEAN	.000	.000	.22	.85	7.73	.052	.41	.83	.39	.000	.000	118
MAX	.00	.00	3.1	3.7	83	.98	1.3	3.8	3.6	.00	.00	2920
MIN	.00	.00	.00	.02	.01	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	14	52	445	3.2	24	51	23	.00	.00	7000
CAL YR 1979	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		
WTR YR 1980	TOTAL	3839.60	MEAN	10.5	MAX	2920	MIN	.00	AC-FT	7620		

## TRINITY RIVER BASIN

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX

LOCATION.--Lat 33°04'09", long 96°57'51", Denton County, Hydrologic Unit 12030103, in intake structure of Lewisville Dam on Elm Fork Trinity River, 2 mi (3 km) upstream from bridge on State Highway 121, 2.4 mi (3.9 km) northeast of Lewisville, 12 mi (19 km) upstream from Denton Creek, and 30.0 mi (48.3 km) upstream from mouth.

DRAINAGE AREA.--1,660 mi<sup>2</sup> (4,299 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1954 to current year. Prior to October 1970, published as Garza-Little Elm Reservoir near Lewisville.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 17, 1955, nonrecording gage at site 4,000 ft (1,220 m) upstream at same datum. Corps of Engineers gage-height telemeter at station.

REMARKS.--The lake is formed by a rolled earthfill dam 32,888 ft (10,024 m) long, including a 560-foot (171 m) uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 1, 1954, and the dam was completed in August 1955. The controlled low-flow outlet works consist of a 16.0-foot-diameter (4.9 m) conduit that is controlled by three 6.5- by 13.0-foot (2.0 by 4.0 m) broome-type gates and two 60-inch (1,524 mm) steel pipes with service valves. The lake was built for flood control and water conservation. The city of Dallas obtains most of its water for municipal use from this lake. The capacity table is based on a survey made in 1965. Inflow is affected at times by discharge from the flood-detention pools of 118 floodwater-retarding structures with combined detention capacity of 81,670 acre-ft (101 hm<sup>3</sup>). These structures control runoff from 298 mi<sup>2</sup> (772 km<sup>2</sup>) in the Elm Fork Trinity River, Clear, Little Elm, and Hickory Creeks watersheds. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	560.0	-
Crest of spillway.....	532.0	981,800
Top of conservation pool.....	515.0	457,600
Lowest intakes to wet wells (invert).....	481.0	42,560
Invert of three broome-type gates.....	448.0	0

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,146,000 acre-ft (1.41 km<sup>3</sup>) June 3, 1957, elevation, 535.57 ft (163.242 m); minimum since initial filling in 1957, 184,700 acre-ft (228 hm<sup>3</sup>) Sept. 28, 1980, elevation, 498.65 ft (151.989 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 376,000 acre-ft (464 hm<sup>3</sup>) Oct. 1 at 0100 hours, elevation, 511.27 ft (155.835 m); minimum, 184,700 acre-ft (228 hm<sup>3</sup>) Sept. 28 at 0800 hours, elevation, 498.65 ft (151.989 m).

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

498.0	177,100	506.0	284,800
500.0	201,200	508.0	317,300
502.0	227,200	510.0	351,900
504.0	254,900	512.0	391,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	375400	357300	345100	340100	333200	333400	321700	306900	295500	271300	236000	203700
2	373600	356800	344700	340300	333600	332000	321700	307100	294600	270400	234500	202800
3	373200	356000	344400	339400	332700	330300	321500	306800	294100	269200	233600	201900
4	372200	355500	344200	338900	332500	332000	320300	306100	293300	267800	232000	201200
5	370800	355500	344000	338400	332500	330800	319700	305400	292000	266900	231000	200400
6	370300	354800	343300	338100	332500	330300	318700	304800	290800	265400	229900	199300
7	369100	354000	343000	337700	332500	330300	318700	304500	290200	264500	229000	198600
8	368500	353800	342400	337000	334100	330300	318200	304100	289100	263200	227900	197700
9	368700	354000	342200	336500	334800	329500	317300	303600	288600	262300	227000	197300
10	366200	353300	343500	336800	335100	328900	316000	303000	287800	261200	226300	197100
11	365600	353100	342400	335800	335300	328600	316200	302500	287000	259900	225500	196200
12	364800	352800	343700	334900	335300	328600	316300	302200	285600	258600	224500	195400
13	364300	352000	343000	334600	335600	328600	316300	302200	284300	257400	223300	194500
14	362900	351700	342400	334100	335800	327100	315700	302000	283000	256300	222100	193600
15	363900	351100	342200	333900	336800	326700	315200	302500	282200	254700	221100	192900
16	363900	351100	342200	333600	336800	326200	314300	303200	281200	253900	220300	191900
17	363300	350600	341000	333700	336100	326700	314200	302800	279700	252800	219200	191000
18	362800	349900	340700	332900	335600	325600	313500	303000	279100	251500	218000	190000
19	362200	349700	340300	332700	336000	325000	313000	302800	279000	249800	217000	189300
20	361100	349700	339600	333000	335800	325700	312400	302500	279400	248700	215900	188200
21	361600	350100	339600	334100	335800	324000	311700	302200	279000	248000	214600	187100
22	361100	349500	340000	336000	335600	323400	310700	301700	280500	247300	213700	186500
23	360300	348400	341900	335600	335500	323400	310400	301000	280100	245700	212600	185800
24	359600	348100	342100	335300	335500	323000	310200	300700	279400	244900	211300	185200
25	359000	347900	341900	335500	335100	322200	309900	300400	278500	243400	210000	184800
26	358300	347700	341700	335500	333700	321700	309400	299900	277400	242500	209400	185300
27	357500	347700	341500	334600	333900	322200	308900	299100	276000	241600	208200	186900
28	357300	347400	341900	334600	333700	323200	308600	298600	274700	240900	207500	190700
29	355500	346100	341200	334300	333900	323400	308200	297600	273600	239800	206600	204700
30	357700	345800	340800	334100	---	322900	307200	297300	272800	238700	205400	225200
31	358100	---	340500	333900	---	321800	---	296000	---	237400	204500	---
MAX	375400	357300	345100	340300	336800	333400	321700	307100	295500	271300	236000	225200
MIN	355500	345800	339600	332700	332500	321700	307200	296000	272800	237400	204500	184800
(†)	510.34	509.66	509.36	508.98	508.98	508.27	507.39	506.70	505.23	502.75	500.27	501.85
(††)	-17900	-12300	-5300	-6600	0	-12100	-14600	-11200	-23200	-35400	-32900	+20700
(†††)	1230	902	892	892	845	972	1040	1010	1670	2110	2100	1650

CAL YR 1979 MAX 548000 MIN 239600 †† 12790 ‡ +98100  
WTR YR 1980 MAX 375400 MIN 184800 †† 15310 ‡ -150800

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by cities of Denton and Lewisville.

## TRINITY RIVER BASIN

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08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

## WATER-QUALITY RECORDS

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

330419096575401 LEWISVILLE LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
JAN										
09...	1025	1.0	365	8.1	7.5	.50	10.6	88	130	13
09...	1028	10	365	8.1	7.5	--	10.6	88	--	--
09...	1030	20	365	8.1	7.5	--	10.6	88	--	--
09...	1032	30	365	8.1	7.5	--	10.6	88	--	--
09...	1034	40	365	8.1	7.5	--	10.6	88	--	--
09...	1036	55	365	8.0	7.5	--	10.6	88	130	12
MAY										
07...	1135	1.0	388	8.5	21.0	1.55	9.9	112	130	18
07...	1138	10	388	8.6	20.0	--	9.9	110	--	--
07...	1140	20	395	8.1	17.5	--	7.1	76	--	--
07...	1142	30	395	8.0	17.0	--	6.4	67	--	--
07...	1144	40	398	7.8	16.5	--	5.0	52	--	--
07...	1146	49	405	7.6	16.0	--	2.2	23	140	17
AUG										
19...	1205	1.0	391	8.1	28.5	.70	6.6	86	120	15
19...	1207	10	391	8.0	28.0	--	6.2	79	--	--
19...	1209	20	391	8.0	28.0	--	6.2	79	--	--
19...	1211	30	395	7.5	27.0	--	3.0	38	--	--
19...	1213	35	399	7.4	26.0	--	.2	2	--	--
19...	1215	40	445	7.5	22.0	--	.1	1	--	--
19...	1217	45	458	7.6	21.5	--	.1	1	160	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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
09...	44	4.3	23	.9	4.7	140	0	31	22
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	44	4.1	22	.9	4.5	140	0	36	22
MAY									
07...	44	4.5	23	.9	4.3	130	2	38	23
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	48	5.0	23	.8	4.2	150	0	38	22
AUG									
19...	41	4.6	28	1.1	5.2	130	0	43	30
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	55	4.9	25	.9	4.6	200	0	24	27

## TRINITY RIVER BASIN

## LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330419096575401 LEWISVILLE LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, N <sub>2</sub> +NO <sub>3</sub> TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
09...	.3	4.0	202	.18	1.1	1.3	.030	20	1
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	.18	1.5	1.7	.020	170	10
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	3.8	205	.12	.95	1.1	.030	<10	1
MAY									
07...	.3	1.8	205	.06	.67	.73	.010	<10	<3
07...	--	--	--	.18	.59	.77	.020	10	10
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	.24	.80	1.0	.010	10	10
07...	--	--	--	--	--	--	--	--	--
07...	--	3.8	218	.13	.58	.71	.140	20	10
AUG									
19...	.4	3.2	220	.00	1.3	1.3	.050	<10	3
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	.03	.60	.63	.040	20	80
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	.00	2.0	2.0	.440	1700	2700
19...	--	10	255	.00	2.7	2.7	.800	3400	2400

330410096584501 LEWISVILLE LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
09...	1050	1.0	365	8.1	7.5	10.6	88
09...	1052	10	365	8.1	7.5	10.6	88
09...	1054	20	365	8.0	7.5	10.6	88
09...	1058	30	365	8.0	7.5	10.6	88
09...	1100	40	365	8.0	7.5	10.6	88
MAY							
07...	1200	1.0	388	8.5	20.5	9.6	108
07...	1202	10	388	8.6	20.0	9.6	107
07...	1204	20	393	8.1	18.0	7.2	77
07...	1206	30	395	8.0	17.0	6.4	67
07...	1208	36	395	7.9	16.5	5.6	58
AUG							
19...	1300	1.0	391	8.0	28.0	6.0	77
19...	1302	10	393	7.9	28.0	5.3	68
19...	1304	20	393	7.8	28.0	4.9	63
19...	1306	31	393	7.6	27.5	3.7	47

330450096560501 LEWISVILLE LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
09...	1110	1.0	400	8.2	7.0	11.0	91
09...	1112	10	400	8.2	7.0	10.9	90
09...	1114	20	400	8.2	7.0	10.8	89
09...	1116	27	400	8.2	7.0	10.8	89
MAY							
07...	1215	1.0	413	8.3	23.0	9.2	108
07...	1218	5.0	413	8.4	22.5	9.3	108
07...	1220	10	390	8.5	20.0	9.5	106
07...	1222	20	427	7.6	17.5	2.6	28
07...	1224	24	427	7.5	17.5	2.4	26
AUG							
19...	1320	1.0	393	8.3	29.0	7.6	100
19...	1322	10	393	8.2	28.5	7.2	94
19...	1324	18	408	8.2	28.0	6.6	85

## TRINITY RIVER BASIN

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## LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330606097025601 LEWISVILLE LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
09...	1000	1.0	367	8.2	7.0	11.0	91
09...	1002	10	367	8.2	7.0	11.0	91
09...	1004	21	367	8.2	6.5	10.8	89
MAY							
07...	1110	1.0	391	8.1	23.0	8.1	95
07...	1112	10	396	7.6	20.0	4.8	53
07...	1114	17	404	7.3	18.5	1.1	12
AUG							
19...	1830	1.0	402	8.4	30.0	7.5	100
19...	1832	5.0	402	8.3	29.0	6.8	89
19...	1834	11	402	8.1	28.0	5.6	72

330755096572001 LEWISVILLE LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
09...	1145	1.0	370	8.1	7.5	.40	10.7
09...	1148	10	370	8.1	7.0	--	10.7
09...	1150	20	370	8.1	7.0	--	10.6
09...	1152	32	370	7.9	7.0	--	9.5
MAY							
07...	1245	1.0	390	8.3	24.5	1.04	9.2
07...	1246	5.0	390	8.4	23.0	--	9.6
07...	1248	10	390	8.4	22.5	--	9.5
07...	1250	15	395	7.8	21.0	--	5.4
07...	1252	20	406	7.4	18.5	--	.9
07...	1254	28	406	7.5	18.0	--	.7
AUG							
19...	1450	1.0	396	8.3	29.0	.40	7.1
19...	1452	10	396	8.2	28.5	--	6.7
19...	1454	21	396	8.2	28.5	--	6.1

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
09...	89	.13	1.2	1.3	.030	0	0
09...	88	--	--	--	--	--	--
09...	88	--	--	--	--	--	--
09...	79	.15	1.2	1.4	.050	30	0
MAY							
07...	114	.03	1.0	1.0	.020	20	10
07...	113	--	--	--	--	--	--
07...	110	--	--	--	--	--	--
07...	61	--	--	--	--	--	--
07...	10	--	--	--	--	--	--
07...	8	.03	.42	.45	.080	10	40
AUG							
19...	93	.00	1.3	1.3	.060	20	10
19...	87	--	--	--	--	--	--
19...	79	.00	1.0	1.0	.100	30	10



TRINITY RIVER BASIN  
LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330959096565301 LEWISVILLE LAKE SITE EC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CaCO3)
JAN									
09...	1205	1.0	384	8.2	7.0	.40	11.1	92	130
09...	1208	10	384	8.2	7.0	--	11.0	91	--
09...	1210	20	384	8.1	6.5	--	10.6	87	140
MAY									
07...	1315	1.0	389	8.3	25.5	.55	8.6	106	130
07...	1318	5.0	389	8.2	24.0	--	8.2	99	--
07...	1320	10	395	8.0	23.5	--	6.6	79	--
07...	1322	17	413	7.3	21.5	--	.7	8	140
AUG									
19...	1530	1.0	408	8.4	29.5	.20	7.2	95	120
19...	1532	10	415	8.1	28.5	--	6.3	82	120

DATE	HARD- NESS, NONCAR- BONATE (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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
09...	18	46	4.4	22	.8	4.5	140	0	37
09...	--	--	--	--	--	--	--	--	--
09...	22	48	4.2	22	.8	4.5	140	0	32
MAY									
07...	14	44	4.7	24	.9	4.5	140	0	40
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	17	48	5.0	24	.9	4.3	150	0	41
AUG									
19...	17	41	4.5	29	1.1	5.8	120	3	46
19...	17	42	4.6	30	1.2	5.7	130	0	47

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS Fe)	MANGA- NESE, DIS- SOLVED (UG/L AS Mn)
JAN									
09...	22	2.7	208	.04	1.9	1.9	.040	<10	<1
09...	--	--	--	--	--	--	--	--	--
09...	22	2.6	204	.02	1.3	1.3	.040	<10	4
MAY									
07...	23	2.3	212	.01	.84	.85	.010	20	4
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	23	3.5	223	.40	2.4	2.8	.260	10	340
AUG									
19...	33	3.0	224	.00	.94	.94	.100	<10	<1
19...	33	3.0	229	.00	1.1	1.1	.130	<10	5

## TRINITY RIVER BASIN

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## LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330722096592201 LEWISVILLE LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
09...	1250	1.0	397	8.1	7.0	.30	10.7	89	--
09...	1252	10	410	8.1	7.0	--	10.5	88	--
09...	1254	20	410	8.1	6.5	--	10.5	86	--
MAY									
07...	1410	1.0	390	8.3	24.0	.70	9.6	116	--
07...	1412	10	390	8.3	22.0	--	9.3	108	--
07...	1414	20	416	7.9	20.5	--	5.9	66	--
AUG									
19...	1710	1.0	511	8.4	29.0	.20	7.5	99	150
19...	1712	5.0	511	8.4	29.0	--	7.5	99	--
19...	1714	11	509	8.4	29.0	--	7.3	96	150

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
MAY									
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
AUG									
19...	6	52	5.1	40	1.4	6.5	170	3	52
19...	--	--	--	--	--	--	--	--	--
19...	8	53	5.2	41	1.4	6.6	170	4	54

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
09...	--	--	--	.19	1.2	1.4	.090	20	0
09...	--	--	--	.17	1.3	1.5	.110	420	40
09...	--	--	--	.22	1.2	1.4	.120	20	0
MAY									
07...	--	--	--	.03	1.6	1.6	.040	130	10
07...	--	--	--	.04	1.2	1.2	.020	170	10
07...	--	--	--	.12	1.6	1.7	.020	160	20
AUG									
19...	43	2.3	288	.00	.82	.82	.210	<10	2
19...	--	--	--	--	--	--	--	--	--
19...	43	2.2	293	.00	.95	.95	.150	<10	1

TRINITY RIVER BASIN  
LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330944097003601 LEWISVILLE LAKE SITE GC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
09...	1310	1.0	415	8.1	6.5	.20	10.9	89	140
09...	1312	5.0	415	8.1	6.5	--	10.9	89	150
MAY									
07...	1430	1.0	442	8.2	25.5	.21	7.6	94	130
07...	1432	3.0	446	8.0	24.5	--	5.9	72	140

DATE		HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN										
09...	7	48	4.5	28	1.0	4.7	160	0	36	
09...	14	51	4.4	31	1.1	4.8	160	0	37	
MAY										
07...	10	45	5.1	35	1.3	4.9	150	0	43	
07...	13	46	5.1	35	1.3	4.9	150	0	43	

DATE		CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN										
09...	28	3.8	232	.16	1.3	1.5	.130	10	<1	
09...	28	4.0	239	.21	1.2	1.4	.120	20	<1	
MAY										
07...	34	1.0	242	.01	1.3	1.3	.170	10	<3	
07...	33	1.1	242	.01	.91	.92	.040	20	<3	

## LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330419096575401 LEWISVILLE LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JAN 9,80 1026	MAY 7,80 1136	AUG 19,80 1206
TOTAL CELLS/ML	660	1800	22000
DIVERSITY: DIVISION	1.6	1.0	0.5
...CLASS	1.6	1.0	0.5
...ORDER	1.7	1.0	1.0
...FAMILY	2.0	2.0	1.1
...GENUS	2.6	3.5	1.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE					*	0
...SCHROEDERIA	5	1	13	1		
...COELASTRACEAE						
...COELASTRUM	--	-	180	10	230	1
...MICRACTINIACEAE						
...GOLLENKINIA	--	-	13	1	--	-
...OOCYSTACEAE						
...ANKISTRODESMUS	60	9	--	-	*	0
...CHLORELLA	20	3	120	7	--	-
...CHODATELLA	--	-	370#	21	--	-
...CLOSTERIOPSIS	--	-	13	1	--	-
...DICTYOSPHAERIUM	--	-	51	3	*	0
...KIRCHNERIELLA	25	4	77	4	--	-
...OOCYSTIS	--	-	260	14	230	1
...SELENASTRUM	--	-	77	4	--	-
...TREUBARIA	--	-	64	4	--	-
...SCENEDESMACEAE						
...SCENEDESMUS	30	5	--	-	230	1
...TETRASTRUM	40	6	150	9	150	1
...TETRASPOALES						
...COCCOMYXACEAE						
...ELAKATOTHRIX	--	-	--	-	*	0
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	-	--	-	*	0
...VOLVOCAEAE						
...PANDORINA	--	-	--	-	210	1
...ZYGNEATALES						
...DESMIDIACEAE						
...COSMARIUM	--	-	--	-	*	0
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCAEAE						
...CYCLOTELLA	140#	20	130	7	120	1
...MELOSIRA	--	-	26	1	230	1
...SKELETONEMA	70	11	--	-	--	-
...PENNALES						
...FRAGILARIACEAE						
...SYNEDRA	--	-	--	-	*	0
...NAVICULACEAE						
...NAVICULA	--	-	--	-	*	0
...NITZSCHIAEAE						
...NITZSCHIA	15	2	26	1	120	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	--	-			1400	6
...ANACYSTIS	--	-	190	11	550	2
...COCCOCHLORIS	--	-	13	1	--	-
...HORMOGONALES						
...NOSTOCAEAE						
...ANABAENA	260#	39	--	-	--	-
...OSCILLATORIACEAE						
...LYNCBYA	--	-	--	-	18000#	80
...OSCILLATORIA	--	-	--	-	620	3
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...TRACHELOMONAS	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

TRINITY RIVER BASIN  
LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330944097003601 LEWISVILLE LAKE SITE GC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO MAY 1980

DATE TIME	JAN 9,80 1311	MAY 7,80 1431
TOTAL CELLS/ML	11000	17000
DIVERSITY: DIVISION	1.1	1.3
..CLASS	1.1	1.3
...ORDER	1.5	1.8
....FAMILY	1.7	2.0
....GENUS	2.5	2.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)				
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...MICRACTINIACEAE				
....GOLENKINIA	--	-	*	0
...OOCYSTACEAE				
....ANKISTRODESMUS	2800#	25	190	1
....CHLORELLA	780	7	*	0
....CHODATELLA	--	-	270	2
....DICTYOSPHAERIUM	--	-	*	0
....GLOEOACTINIUM	--	-	1300	8
....KIRCHNERIELLA	870	8	--	-
...OOCYSTIS	390	3	580	3
...SELENASTRUM	--	-	230	1
...TREUBARIA	--	-	*	0
...WESTELLA	--	-	150	1
...SCENEDESMACEAE				
....SCENEDESMUS	--	-	1100	6
...TETRASTRUM	390	3	150	1
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
...CHLAMYDOMONAS	97	1	--	-
CHRYSOPHYTA				
..BACILLARIOPHYCEAE				
...CENTRALES				
...COSCINODISCACEAE				
....CYCLOTELLA	4700#	41	1100	6
....MELOSIRA	390	3	420	2
...PENNALES				
...NAVICULACEAE				
....NAVICULA	780	7	--	-
...NITZSCHIA				
....NITZSCHIA	97	1	190	1
CRYPTOPHYTA (CRYPTOMONADS)				
..CRYPTOPHYCEAE				
...CRYPTOMONADALES				
...CRYPTOMONADACEAE				
...CRYPTOMONAS	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)				
..CYANOPHYCEAE				
...CHROOCOCCALES				
...CHROOCOCCACEAE				
....ANACYSTIS	--	-	1600	9
....COCCOCHLORIS	--	-	190	1
...HORMOGONALES				
...OSCILLATORIA				
....OSCILLATORIA	--	-	9300#	54
EUGLENOPHYTA (EUGLENOIDS)				
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
....EUGLENA	190	2	150	1
...TRACHELOMONAS	--	-	*	0

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

## TRINITY RIVER BASIN

437

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX

LOCATION.--Lat 33°02'43", long 96°57'41". Denton County, Hydrologic Unit 12030103, on left bank at downstream side of pier of bridge on State Highway 121, 1.8 mi (2.9 km) east of Lewisville, 1.9 mi (3.1 km) downstream from Lewisville Lake, 8.3 mi (13.4 km) upstream from Denton Creek, and 28.2 mi (45.4 km) upstream from mouth.

DRAINAGE AREA.--1,673 mi<sup>2</sup> (4,333 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 432.39 ft (131.792 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Jan. 6, 1950, nonrecording gage 0.6 mi (1.0 km) upstream at datum 3.26 ft (0.994 m) lower.

REMARKS.--Water-discharge records good. Flow regulated by Lewisville Lake (see station 08052800) since November 1954. Most of low flow is used by city of Dallas for municipal supply (see station 08055500). The Corps of Engineers operates a gage-height telemeter located at station.

AVERAGE DISCHARGE.--31 years, 565 ft<sup>3</sup>/s (16.00 m<sup>3</sup>/s), 409,300 acre-ft/yr (505 hm<sup>3</sup>/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft<sup>3</sup>/s (615 m<sup>3</sup>/s) Sept. 15, 1950, gage height, 30.75 ft (9.373 m); minimum daily, 0.8 ft<sup>3</sup>/s (0.023 m<sup>3</sup>/s) Jan. 19, 1955. Maximum discharge since construction of Lewisville Dam in 1954, 11,400 ft<sup>3</sup>/s (323 m<sup>3</sup>/s) May 27, 1957, and does not include about 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s) that discharged over spillway of Lewisville Dam and by-passed this gaging station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 33.8 ft (10.30 m) in 1908, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 462 ft<sup>3</sup>/s (13.1 m<sup>3</sup>/s) Aug. 21 at 0400 hours, gage height, 7.13 ft (2.173 m); maximum gage height, 7.27 ft (2.216 m) June 14; minimum daily discharge, 35 ft<sup>3</sup>/s (0.99 m<sup>3</sup>/s) Feb. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218	121	97	111	95	131	135	249	209	335	395	217
2	219	110	93	129	105	93	151	193	172	323	398	332
3	212	97	96	169	105	94	160	183	199	338	392	340
4	216	109	105	191	81	107	186	195	279	385	366	259
5	229	132	112	177	56	145	214	207	237	367	295	263
6	213	124	113	153	53	164	186	242	288	328	310	250
7	213	92	113	143	48	155	164	185	310	322	393	256
8	228	116	109	178	41	154	203	142	265	337	390	227
9	251	121	105	244	39	154	224	149	189	356	217	114
10	173	100	105	239	37	185	264	134	157	338	357	113
11	153	100	109	157	38	196	247	145	226	362	261	139
12	267	91	112	184	35	149	148	155	293	398	304	205
13	235	87	110	188	35	131	144	144	289	386	333	250
14	186	110	105	176	49	153	124	98	316	365	351	284
15	214	134	104	157	62	199	121	93	250	359	301	299
16	219	112	105	143	62	155	159	51	284	386	228	303
17	160	107	152	160	62	135	186	48	297	402	305	280
18	137	115	228	187	86	180	164	54	308	416	322	257
19	137	115	232	184	107	193	204	84	283	428	312	257
20	181	99	176	133	86	176	234	113	233	422	357	257
21	201	89	126	120	71	168	284	103	171	375	417	267
22	184	88	108	151	70	214	272	152	168	271	346	268
23	170	89	112	70	75	192	237	93	176	335	341	207
24	116	98	80	86	88	146	198	131	178	395	384	183
25	124	105	74	103	102	146	122	135	250	404	395	181
26	164	89	88	103	100	146	97	152	331	395	329	94
27	194	79	131	103	93	136	104	190	365	350	322	78
28	198	88	144	103	119	131	120	178	380	330	264	69
29	197	126	152	93	136	129	147	123	380	330	226	159
30	199	127	127	84	---	121	211	154	359	348	285	132
31	141	---	111	83	---	119	---	241	---	397	226	---
TOTAL	5949	3170	3734	4502	2136	4697	5410	4516	7842	11283	10122	6540
MEAN	192	106	120	145	73.7	152	180	146	261	364	327	218
MAX	267	134	232	244	136	214	284	249	380	428	417	340
MIN	116	79	74	70	35	93	97	48	157	271	217	69
AC-FT	11800	6290	7410	8930	4240	9320	10730	8960	15550	22380	20080	12970
CAL YR 1979	TOTAL	138013	MEAN 378	MAX 5250	MIN 31	AC-FT 273700						
WTR YR 1980	TOTAL	69901	MEAN 191	MAX 428	MIN 35	AC-FT 138600						



08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: November 1976 to current year.

INSTRUMENTATION.--Water temperature is recorded continuously at this station.

REMARKS.--Water temperature record is fair. Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum values are not shown, mean value is estimated.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum, 33.0°C July 27, 1977; minimum, 0.0°C Jan. 31 and Feb. 9, 1979.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum, 29.5°C on several days during June and July; minimum, 4.5°C Jan. 31 and Feb. 1.

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

## TRINITY RIVER BASIN

439

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

## TRINITY RIVER BASIN

08053500 DENTON CREEK NEAR JUSTIN, TX

LOCATION.--Lat 33°07'08", long 97°17'25", Denton County, Hydrologic Unit 12030104, on right bank at downstream side of bridge on Farm Road 156, 100 ft (30 m) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.2 mi (3.5 km) north of Justin, 3.0 mi (4.8 km) upstream from Olivers Creek, 12.9 mi (20.8 km) upstream from Harriet Creek, and 32.9 mi (52.9 km) upstream from Grapevine Dam.

DRAINAGE AREA.--400 mi<sup>2</sup> (1,036 km<sup>2</sup>).

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

Water-quality records: Sediment records: February 1966 to September 1975.

REVISED RECORDS.--WSP 1732: 1950(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 606.66 ft (184.910 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several small diversions above station. Flow is affected at times by discharge from the flood-detention pools of 84 floodwater-retarding structures with combined detention capacity of 52,750 acre-ft (65.0 hm<sup>3</sup>). These structures control runoff from 197 mi<sup>2</sup> (510 km<sup>2</sup>) in the Denton Creek watershed. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years, 77.4 ft<sup>3</sup>/s (2.192 m<sup>3</sup>/s), 56,080 acre-ft/yr (69.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,800 ft<sup>3</sup>/s (844 m<sup>3</sup>/s) May 24, 1957, gage height, 17.64 ft (5.377 m); no flow at times in 1949-65, 1967-74, 1976-80.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1935 was the highest since 1908 and reached a stage of 20.6 ft (6.28 m) at site about 1,500 ft (457 m) upstream, from information by local resident. Flood in May 1908 reached a stage about 1.0 ft (0.30 m) higher than flood in May 1935, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,780 ft<sup>3</sup>/s (50.4 m<sup>3</sup>/s) Sept. 29 at 0615 hours, gage height, 10.75 ft (3.277 m), no peak above base of 3,000 ft<sup>3</sup>/s (85.0 m<sup>3</sup>/s); no flow Oct. 1 to Dec. 23, May 27 to Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	3.9	4.8	5.7	4.4	2.2	.00	.00	.00	.00
2	.00	.00	.00	2.9	3.7	4.7	3.9	3.1	.00	.00	.00	.00
3	.00	.00	.00	2.1	4.6	5.4	4.2	5.4	.00	.00	.00	.00
4	.00	.00	.00	1.8	5.1	5.1	3.9	6.5	.00	.00	.00	.00
5	.00	.00	.00	1.7	4.8	6.2	4.6	4.1	.00	.00	.00	.00
6	.00	.00	.00	1.6	4.6	6.8	4.8	5.1	.00	.00	.00	.00
7	.00	.00	.00	1.3	4.6	6.2	5.4	5.1	.00	.00	.00	.00
8	.00	.00	.00	1.2	8.4	5.9	4.4	6.2	.00	.00	.00	.00
9	.00	.00	.00	1.6	4.8	5.9	3.3	6.8	.00	.00	.00	.00
10	.00	.00	.00	1.6	16	6.2	3.1	8.7	.00	.00	.00	.00
11	.00	.00	.00	1.8	12	5.9	3.3	6.2	.00	.00	.00	.00
12	.00	.00	.00	1.8	15	6.2	3.5	4.8	.00	.00	.00	.00
13	.00	.00	.00	2.1	16	6.2	6.5	4.1	.00	.00	.00	.00
14	.00	.00	.00	2.1	12	5.9	8.0	3.7	.00	.00	.00	.00
15	.00	.00	.00	1.9	9.2	5.6	7.7	5.7	.00	.00	.00	.00
16	.00	.00	.00	2.1	7.4	5.1	6.8	6.1	.00	.00	.00	.00
17	.00	.00	.00	2.1	6.8	4.8	4.8	7.3	.00	.00	.00	.00
18	.00	.00	.00	2.2	6.3	4.8	3.9	6.9	.00	.00	.00	.00
19	.00	.00	.00	2.4	8.2	5.1	3.1	5.8	.00	.00	.00	.00
20	.00	.00	.00	2.3	8.5	4.6	2.9	1.2	.00	.00	.00	.00
21	.00	.00	.00	3.1	7.8	4.4	2.9	.80	.00	.00	.00	.00
22	.00	.00	.00	7.1	6.6	4.8	2.6	.50	.00	.00	.00	.00
23	.00	.00	.00	12	6.1	5.1	2.6	.25	.00	.00	.00	.00
24	.00	.00	.42	9.8	5.6	5.1	2.6	.17	.00	.00	.00	.00
25	.00	.00	3.3	5.4	5.6	5.1	2.9	.09	.00	.00	.00	.00
26	.00	.00	2.6	3.5	5.6	5.6	2.9	.02	.00	.00	.00	.00
27	.00	.00	1.5	2.9	5.6	5.6	2.9	.00	.00	.00	.00	.00
28	.00	.00	.95	2.6	5.8	8.4	3.1	.00	.00	.00	.00	.00
29	.00	.00	1.5	2.6	6.0	9.8	2.6	.00	.00	.00	.00	914
30	.00	.00	5.1	2.9	---	7.1	2.2	.00	.00	.00	.00	107
31	.00	---	6.4	4.4	---	5.1	---	.00	---	.00	.00	---
TOTAL	.00	.00	21.77	96.8	260.7	178.4	119.8	106.83	.00	.00	.00	1021.00
MEAN	.000	.000	.70	3.12	8.99	5.75	3.99	3.45	.000	.000	.000	34.0
MAX	.00	.00	6.4	12	48	9.8	8.0	8.7	.00	.00	.00	914
MIN	.00	.00	.00	1.2	3.7	4.4	2.2	.00	.00	.00	.00	.00
AC-FT	.00	.00	43	192	517	354	238	212	.00	.00	.00	2030
CAL YR 1979 TOTAL	20597.58	MEAN	56.4	MAX	2480	MIN	.00	AC-FT	40860			
WTR YR 1980 TOTAL	1805.30	MEAN	4.93	MAX	914	MIN	.00	AC-FT	3580			

## 08054500 GRAPEVINE LAKE NEAR GRAPEVINE, TX

LOCATION.--Lat 32°58'21", long 97°03'22", Tarrant County, Hydrologic Unit 12030104, in intake structure of Grapevine Dam on Denton Creek, 2.7 mi (4.3 km) northeast of Grapevine, 4.3 mi (6.9 km) upstream from bridge on State Highway 121, and 11.7 mi (18.8 km) upstream from mouth.

DRAINAGE AREA.--695 mi<sup>2</sup> (1,800 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1952 to current year. Prior to October 1970, published as Grapevine Reservoir.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 16, 1953, nonrecording gage at site 1,000 ft (305 m) upstream at present datum. Corps of Engineers gage-height telemeter at station.

REMARKS.--The lake is formed by a rolled earthfill dam 12,850 ft (3,917 m) long, including a 500-foot (150 m) uncontrolled off-channel concrete-gravity spillway with an ogee weir section. The dam was completed in June 1952 and deliberate impoundment began July 3, 1952. The controlled outlet works consist of a 13.0-foot-diameter (4.0 m) concrete conduit that is controlled by two 6.5- by 13.0-foot (2.0 by 4.0 m) broome-type gates and two 30-inch (762 mm) steel pipes with service valves. The capacity table used since April 1972 is based on a survey made in October 1966. The lake was built for flood control, navigation, and water conservation. The city of Dallas uses part of this water for their municipal supply. Inflow is affected at times by discharge from the flood-detention pools of 87 floodwater-retarding structures with a combined detention capacity of 57,850 acre-ft (71.3 hm<sup>3</sup>). These structures control runoff from 217 mi<sup>2</sup> (562 km<sup>2</sup>) in the Denton Creek watershed. Figures give herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	588.0	-
Crest of spillway.....	560.0	425,500
Top of conservation pool.....	535.0	181,100
Lowest intake to wet wells (invert).....	500.5	22,140
Invert of two broome-type gates.....	475.0	100

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 445,800 acre-ft (550 hm<sup>3</sup>) June 6, 1957, elevation, 560.80 ft (170.932 m); minimum since lake first filled in 1957, 94,480 acre-ft (116 hm<sup>3</sup>) Feb. 26, 1979, elevation, 520.67 ft (158.700 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 165,700 acre-ft (204 hm<sup>3</sup>) Oct. 1 at 0001 hours, elevation, 532.84 ft (162.410 m); minimum, 101,800 acre-ft (126 hm<sup>3</sup>) Sept. 26 at 2030 hours, elevation, 522.09 ft (159.133 m).

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

522.0	101,300	530.0	146,800
524.0	111,800	532.0	160,000
526.0	123,700	534.0	173,900
528.0	134,300		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165500	158300	151000	146900	142900	140100	138300	136200	134100	128500	119400	109400
2	165100	157900	150800	146600	142700	139700	138400	136300	133800	128100	119100	109000
3	164800	157500	150600	146400	142500	139500	138300	136100	133600	127800	118800	108600
4	164400	157200	150300	146200	142200	139600	138200	136000	133300	127400	118500	108300
5	163800	157000	150200	146000	142100	139400	138100	135900	133100	127300	118100	108000
6	163700	156700	150000	145800	141900	139300	138000	135800	132900	126900	117900	107700
7	163700	156500	149800	145600	141600	139400	138000	135600	132700	126600	117700	107400
8	163400	156300	149500	145300	141700	139300	137700	135800	132600	126200	117400	107300
9	162900	156300	149300	145200	142000	139200	137600	135600	132400	126100	117100	107200
10	162500	156000	149100	145000	142100	139200	137600	135500	132200	125700	116900	106900
11	162200	155700	149200	145000	142000	139100	137500	135300	131900	125300	116600	106600
12	162000	155400	149500	144800	141900	139300	137400	135300	131800	125000	116200	106200
13	161600	155100	149300	144500	141900	139100	137800	135300	131500	124600	115900	105800
14	161200	154900	149000	144300	141800	139000	137500	135300	131200	124400	115500	105600
15	161600	154700	148800	144200	141800	138900	137400	135800	131100	124100	115100	105400
16	161600	154500	148500	144100	141700	139100	137200	135700	130900	123700	114700	105000
17	161300	154200	148400	143900	141700	138800	137300	135500	130700	123400	114400	104700
18	161100	154100	148100	143800	141500	138600	137300	135400	130400	123100	114000	104500
19	160900	153900	147900	143600	141400	138600	137100	135400	130100	122900	113600	104200
20	160600	153700	147700	143600	141300	138600	137000	135400	130800	122600	113400	103800
21	160200	153600	147700	144100	141200	138400	136800	135400	130800	122400	113100	103500
22	160100	153500	147900	144600	141200	138300	136700	135300	130700	122100	112700	103200
23	160000	153200	148300	144500	141100	138600	136700	135100	130500	121800	112400	103000
24	159700	152900	148200	144300	141000	138300	136800	135000	130200	121500	112100	102500
25	159400	152600	148000	144100	140900	138100	136900	134900	130000	121200	111700	102100
26	159100	152400	147800	143900	140700	138000	136700	134800	129800	120900	111400	102100
27	158900	152200	147600	143800	140600	138300	136500	134700	129500	120800	111100	102400
28	158600	152000	147600	143600	140300	138600	136400	134600	129200	120700	110700	103000
29	158300	151700	147500	143400	140300	138800	136200	134500	129000	120400	110400	103000
30	159000	151400	147300	143300	---	138800	136100	134300	128800	120100	110100	106200
31	158600	---	147 00	143100	---	138400	---	134100	---	119900	109700	---
MAX	165500	158300	151000	146900	142900	140100	138400	136300	134100	128500	119400	109400
MIN	158300	151400	147 00	143100	140300	138000	136100	134100	128800	119900	109700	102100
(†)	531.80	531.70	530.05	529.43	528.98	528.67	528.30	527.97	527.08	525.49	523.61	522.93
(+)	-7100	-7200	-4300	-4000	-2800	-1900	-2300	-2000	-5300	-8900	-10200	-3500
(††)	181	121	127	110	111	132	153	152	227	236	227	196

CAL YR 1979 MAX 184900 MIN 94480 †† +48850 † 1840  
WTR YR 1980 MAX 165500 MIN 102100 †† -59500 † 1970

† Elevation, in feet, at end of month.

† Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Grapevine.

## TRINITY RIVER BASIN

08054500 GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

## WATER-QUALITY RECORDS

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

325751097033001 GRAPEVINE LAKE SITE AK

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
10...	0905	1.0	366	8.1	8.5	10.7	94
10...	0906	10	366	8.1	8.5	10.7	94
10...	0907	20	366	8.1	8.5	10.7	94
10...	0908	30	366	8.1	8.5	10.7	94
10...	0909	40	366	8.1	8.5	10.7	94
10...	0910	53	366	8.1	8.5	10.6	93
MAY							
06...	1120	1.0	377	8.4	22.5	9.7	113
06...	1122	10	377	8.5	20.5	9.7	108
06...	1124	20	385	8.2	18.5	7.5	79
06...	1126	30	385	8.2	17.5	7.3	77
06...	1128	37	385	8.1	17.5	7.0	74
AUG							
20...	1125	1.0	376	8.3	28.0	7.4	95
20...	1127	10	376	8.3	28.0	7.4	95
20...	1129	20	376	8.3	27.5	7.3	94
20...	1131	30	376	8.2	27.5	7.0	90

325822097030401 GRAPEVINE LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
JAN										
10...	0845	1.0	366	8.1	8.5	.80	10.7	94	140	24
10...	0847	10	366	8.1	8.5	--	10.7	94	--	--
10...	0849	20	366	8.1	8.5	--	10.7	94	--	--
10...	0852	30	366	8.1	8.5	--	10.7	94	--	--
10...	0854	40	366	8.1	8.5	--	10.7	94	--	--
10...	0856	50	366	8.0	8.5	--	10.7	94	140	8
MAY										
06...	1050	1.0	377	8.4	22.5	1.37	9.7	113	140	20
06...	1052	10	377	8.5	20.5	--	9.7	108	--	--
06...	1054	20	382	8.2	18.0	--	7.7	82	--	--
06...	1056	30	386	8.1	17.5	--	6.9	73	--	--
06...	1058	40	386	8.1	17.0	--	6.8	71	--	--
06...	1100	47	389	7.7	17.0	--	4.9	51	140	20
AUG										
20...	1015	1.0	376	8.3	28.0	1.30	7.5	96	130	16
20...	1019	20	376	8.2	27.5	--	7.4	95	--	--
20...	1021	30	376	8.2	27.5	--	7.4	95	--	--
20...	1023	35	391	7.4	25.0	--	.2	2	--	--
20...	1025	40	409	7.6	22.0	--	.2	2	--	--
20...	1027	43	409	7.6	21.5	--	.2	2	150	0

## TRINITY RIVER BASIN

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GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

325822097030401 GRAPEVINE LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
10...	46	5.9	20	.7	4.5	140	0	30	23
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	46	6.0	20	.7	4.5	160	0	31	22
MAY									
06...	45	6.2	19	.7	4.1	140	2	31	21
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	47	6.2	19	.7	4.0	150	0	31	22
AUG									
20...	42	6.2	22	.8	4.9	140	0	35	28
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	49	5.9	20	.7	4.5	180	0	23	25

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
10...	.3	3.5	202	.09	1.0	1.1	.010	20	<1
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	.12	.96	1.1	.020	80	0
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	4.0	212	.08	.99	1.1	.020	80	5
MAY									
06...	.2	.3	198	.03	.52	.55	.010	<10	<3
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	.08	.76	.84	.010	40	10
06...	--	--	--	.10	.67	.77	.010	10	0
06...	--	--	--	--	--	--	--	--	--
06...	--	1.4	205	.13	.96	1.1	.020	20	20
AUG									
20...	.3	2.8	210	.00	.49	.49	.020	<10	2
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	.00	.82	.82	.010	20	30
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	6.4	226	.00	1.3	1.3	.150	1100	2500



TRINITY RIVER BASIN  
GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

325930097053801 GRAPEVINE LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CaCO3)
JAN									
10...	0945	1.0	366	8.1	8.5	.80	10.8	95	140
10...	0947	10	366	8.1	8.5	--	10.8	95	--
10...	0948	20	366	8.1	8.5	--	10.8	95	--
10...	0949	30	366	8.1	8.5	--	10.8	95	--
10...	0950	41	366	8.1	8.5	--	10.8	95	140
MAY									
06...	1140	1.0	379	8.4	23.0	1.52	9.3	109	140
06...	1142	10	379	8.4	20.0	--	9.0	100	--
06...	1144	20	383	8.2	18.0	--	7.6	81	--
06...	1146	30	388	7.9	18.5	--	5.4	57	--
06...	1148	40	388	7.8	17.0	--	4.7	49	140
AUG									
20...	1150	1.0	374	8.4	28.5	1.00	7.4	96	130
20...	1152	10	374	8.3	28.0	--	7.2	92	--
20...	1154	20	374	8.3	28.0	--	6.9	88	--
20...	1156	25	374	8.3	28.0	--	7.1	91	--
20...	1158	30	380	7.6	27.0	--	3.0	38	--
20...	1200	36	401	7.5	24.5	--	.2	2	140

DATE	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
10...	0	45	6.1	19	.7	4.5	170	0	32
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	23	46	5.6	20	.7	4.5	140	0	30
MAY									
06...	19	45	6.1	19	.7	4.1	140	2	31
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	17	46	6.2	19	.7	4.1	150	0	31
AUG									
20...	18	41	6.1	22	.8	5.0	130	2	35
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	3	47	6.2	20	.7	4.7	170	0	27

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS Fe)	MANGA- NESE, DIS- SOLVED (UG/L AS Mn)
JAN									
10...	24	2.9	217	.10	.91	1.0	.010	10	<1
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	.10	1.1	1.2	.020	0	0
10...	--	--	--	--	--	--	--	--	--
10...	23	3.4	202	.04	.98	1.0	.010	<10	<1
MAY									
06...	21	.4	198	.03	.74	.77	.010	<10	<3
06...	--	--	--	.04	.64	.68	.010	10	10
06...	--	--	--	.08	.63	.71	.010	40	30
06...	--	--	--	--	--	--	--	--	--
06...	22	1.3	204	.11	.70	.81	.050	10	5
AUG									
20...	28	2.8	206	.00	.55	.55	.010	<10	2
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	.00	.54	.54	.020	20	10
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	.00	1.1	1.1	.030	30	210
20...	26	5.5	223	.00	1.2	1.2	.080	500	2000

## TRINITY RIVER BASIN

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## GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

325933097081401 GRAPEVINE LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
10...	1020	13	366	8.2	8.5	.70	11.3
10...	1022	13	366	8.2	8.5	--	11.3
MAY							
06...	1245	1.0	380	8.3	21.5	.88	9.1
06...	1248	9.0	385	8.0	20.0	--	6.7
AUG							
20...	1250	1.0	371	8.4	29.0	.40	7.5
20...	1252	6.0	371	8.4	28.0	--	7.0

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
10...	99	.07	--	--	.010	0	0
10...	99	.06	--	--	.010	0	0
MAY							
06...	103	.03	.60	.63	.010	20	10
06...	74	.07	.48	.55	.040	0	0
AUG							
20...	99	.00	.72	.72	.030	20	10
20...	90	.00	.67	.67	.040	30	10

330106097094601 GRAPEVINE LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
10...	1055	1.0	368	8.2	8.0	.50	11.2
10...	1057	12	368	8.2	8.0	--	11.1
MAY							
06...	1310	1.0	385	8.2	24.0	.67	9.2
06...	1312	5.0	391	7.8	20.5	--	5.6
06...	1314	10	391	7.6	20.0	--	4.2
AUG							
20...	1345	1.3	380	8.4	29.0	.20	7.5
20...	1347	5.0	380	8.2	28.8	--	6.7

## TRINITY RIVER BASIN

## GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

330106097094601 GRAPEVINE LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
10...	97	.06	--	--	.020	0	0
10...	96	.09	--	--	.020	10	0
MAY							
06...	110	.08	.53	.61	.030	20	10
06...	62	--	--	--	--	--	--
06...	47	.06	.64	.70	.060	50	20
AUG							
20...	99	--	--	--	--	--	--
20...	88	.00	.88	.88	.080	10	10

330207097103701 GRAPEVINE LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
10...	1115	1.0	370	8.2	8.0	.20	11.1	96	140
10...	1117	10	366	8.2	8.0	--	11.1	96	140
MAY									
06...	1322	1.0	385	8.3	24.0	.46	8.9	106	140
06...	1324	6.0	399	7.5	20.5	--	2.9	32	150
AUG									
20...	1315	3.0	374	8.5	29.5	.20	8.1	107	130

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
10...	19	47	5.9	20	.7	4.5	150	0	31
10...	21	48	5.9	20	.7	4.4	150	0	31
MAY									
06...	18	46	6.3	19	.7	4.2	150	0	32
06...	15	48	6.3	19	.7	4.1	160	0	32
AUG									
20...	25	41	6.3	22	.8	5.0	120	4	36

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
10...	22	3.1	207	.07	.95	1.0	.040	<10	6
10...	23	3.1	209	.07	1.5	1.6	.030	<10	9
MAY									
06...	22	.8	204	.11	.59	.70	.030	10	<3
06...	22	1.8	212	.01	1.1	1.1	.060	10	30
AUG									
20...	28	3.0	204	.00	.82	.82	.060	<10	2

## TRINITY RIVER BASIN

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## GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

325822097030401 GRAPEVINE LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JAN 10,80 0846	MAY 6,80 1051	AUG 20,80 1016
TOTAL CELLS/ML	1100	1500	190000
DIVERSITY: DIVISION	1.7	1.3	0.0
..CLASS	1.7	1.3	0.0
...ORDER	0.0	1.6	0.1
...FAMILY	0.0	1.9	0.5
...GENUS	0.0	1.9	1.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE	20	2	69	5	--	-
...SCHROEDERIA						
...OOCYSTACEAE	250#	23	110	7	*	0
...ANKISTRODESMUS	*	0	--	--	--	--
...OOCYSTIS						
...SCENEDESMACEAE	--	-	55	4	--	-
...SCENEDESMUS						
...TETRASPORALES						
...COCCOMYXACEAE						
...ELAKATOTHRIX	--	-	28	2	*	0
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	-	28	2	*	0
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE	100	9	940#	64	*	0
...CYCLOTELLA	20	2	--	-	--	-
...MELOSIRA						
..PENNALES						
...ACHNANTHACEAE	--	-	--	-	*	0
...ACHNANTHES						
...FRAGILARIACEAE	--	-	--	-	*	0
...SYNEDRA						
...NITZSCHACEAE	25	2	--	-	*	0
...NITZSCHIA						
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE	55	5	--	-	--	-
...CRYPTOMONADALES						
...CRYPTOMONADACEAE	30	3	--	-	--	-
...CRYPTOMONAS						
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE	--	-	--	-	*	0
...AGMENELLUM	--	-	190	13	*	0
...ANACYSTIS						
...HORMOGONALES						
...NOSTOCACEAE	--	-	55	4	17000	9
...ANABAENA						
...OSCILLATORIACEAE	--	-	--	-	40000#	21
...LYNGBYA	480#	45	--	-	130000#	68
...OSCILLATORIA	70	7	--	-	--	-
...SCHIZOTHRIX						
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...PERIDINIALES						
...GLENODINIACEAE	*	0	--	-	--	-
...GLENODINIUM						

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM. MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

TRINITY RIVER BASIN  
GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

330207097103701 GRAPEVINE LAKE SITE EC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JAN 10,80 1116	MAY 6,80 1323	AUG 20,80 1314
TOTAL CELLS/ML	3700	1700	560000
DIVERSITY: DIVISION	1.4	1.8	0.1
..CLASS	1.4	1.8	0.1
..ORDER	1.6	2.2	0.1
...FAMILY	2.2	2.7	0.1
....GENUS	2.3	2.9	0.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	37	1	--	-	--	-
...COELASTRACEAE						
....COELASTRUM	200	5	100	6	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	650#	17	320#	19	*	0
...CHLORELLA	--	-	13	1	--	-
...CHODATELLA	--	-	26	2	--	-
...CLOSTERIOPSIS	--	-	--	-	*	0
...OOCYSTIS	24	1	--	-	*	0
...TREUBARIA	--	-	--	-	*	0
...SCENEDESMACEAE						
....CRUCIGENIA	590#	16	--	-	--	-
...SCENEDESMUS	--	-	51	3	--	-
...TETRASTRUM	--	-	51	3	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	13	1	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCAEAE						
....CYCLOTELLA	290	8	420#	25	--	-
...MELOSIRA	85	2	--	-	--	-
...PENNALES						
....ACHNANTHACEAE						
...ACHNANTHES	*	0	39	2	*	0
...FRAGILARIACEAE						
...SYNEDRA	*	0	--	-	*	0
...NAVICULACEAE						
...NAVICULA	--	-	--	-	*	0
...NITZSCHIACEAE						
...NITZSCHIA	110	3	51	3	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS			460#	27	*	0
...COCCOCHLORIS	--	-	13	1	--	-
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	51	3	4600	1
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	510000#	91
...OSCILLATORIA	1700#	46	--	-	43000	8
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	39	2	*	0
...TRACHELOMONAS	--	-	39	2	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## TRINITY RIVER BASIN

449

## 08055000 DENTON CREEK NEAR GRAPEVINE, TX

LOCATION.--Lat 32°59'13", long 97°00'45", Denton County, Hydrologic Unit 12030104, on left bank at downstream side of left pier of bridge on State Highway 121, 1.3 mi (2.1 km) downstream from Bakers Branch, 4.1 mi (6.6 km) downstream from Grapevine Dam, 5.0 mi (8.0 km) northeast of Grapevine, and 6.1 mi (9.8 km) upstream from mouth.

DRAINAGE AREA.--705 mi<sup>2</sup> (1,826 km<sup>2</sup>).

PERIOD OF RECORD.--October 1947 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.11 ft (133.841 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Grapevine Lake since July 1952 (see preceding page). Much of flow is used by the city of Dallas for municipal supply (see station 08055500). Records furnished by the Corps of Engineers indicate that 1,970 acre-ft (2.43 hm<sup>3</sup>) was diverted during year from Denton Creek just downstream from Grapevine Dam. Several observations of water temperature were made during the year. Corps of Engineer gage-height telemeter (DARDC) located at station.

AVERAGE DISCHARGE.--5 years (water years 1948-52) prior to regulation, 140 ft<sup>3</sup>/s (3.965 m<sup>3</sup>/s), 101,400 acre-ft/yr (126 hm<sup>3</sup>/yr); 28 years (water years 1953-80) regulated, unadjusted, 135 ft<sup>3</sup>/s (3.823 m<sup>3</sup>/s), 97,810 acre-ft/yr (121 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,900 ft<sup>3</sup>/s (394 m<sup>3</sup>/s) Feb. 26, 1948, gage height, 30.38 ft (9.260 m), from rating curve extended above 6,000 ft<sup>3</sup>/s (170 m<sup>3</sup>/s) on basis of conveyance-slope study; no flow at times. Maximum discharge since construction of Grapevine Dam in 1952, 6,430 ft<sup>3</sup>/s (182 m<sup>3</sup>/s) Sept. 21, 1964, gage height, 26.50 ft (8.077 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 was slightly higher than the flood in April 1942, which reached a stage of 35.9 ft (10.94 m), from floodmarks, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 187 ft<sup>3</sup>/s (5.30 m<sup>3</sup>/s) Jan. 22 at 0800 hours, gage height, 7.35 ft (2.240 m); minimum daily, 2.4 ft<sup>3</sup>/s (0.068 m<sup>3</sup>/s) Jan. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	69	84	77	75	53	17	37	16	89	62	105
2	73	69	82	77	76	54	16	41	21	80	60	104
3	74	69	82	76	76	36	16	37	34	80	60	104
4	80	70	81	76	76	13	15	37	33	75	60	104
5	80	70	81	77	78	13	16	38	34	65	61	104
6	77	71	82	78	78	14	16	35	33	65	60	103
7	76	71	81	78	79	14	15	34	30	64	59	106
8	77	73	81	46	68	14	13	36	29	65	86	105
9	81	74	81	2.4	50	14	14	35	37	63	114	106
10	84	74	80	21	50	13	15	33	37	63	116	105
11	82	74	81	77	49	15	14	32	37	62	116	103
12	81	74	85	78	50	15	15	31	38	61	113	101
13	83	73	81	78	50	15	23	31	39	59	113	102
14	84	75	81	78	50	14	18	25	40	58	115	101
15	85	75	78	79	51	14	17	18	39	62	115	100
16	64	76	77	78	51	14	16	8.3	41	64	115	100
17	65	77	78	78	51	13	15	8.0	41	62	114	101
18	66	79	77	78	52	13	14	15	43	62	112	101
19	67	81	77	79	52	13	14	15	44	60	111	101
20	67	84	76	79	50	13	13	15	34	59	110	100
21	69	85	82	84	51	14	12	16	24	60	109	101
22	72	86	82	113	51	13	11	16	40	59	109	102
23	80	85	96	76	52	14	11	15	38	59	105	101
24	80	85	81	73	52	14	13	15	39	59	100	101
25	80	85	80	73	52	14	17	16	37	57	101	100
26	81	84	79	72	53	14	29	16	38	57	100	104
27	83	85	79	73	53	17	49	21	37	59	101	89
28	83	85	79	73	52	21	39	23	41	62	102	89
29	83	85	79	74	53	25	38	22	55	62	101	65
30	86	84	78	73	---	16	37	17	65	61	101	12
31	70	---	77	74	---	16	---	18	---	62	103	---
TOTAL	2386	2327	2498	2248.4	1681	555	568	756.3	1114	1975	3004	2920
MEAN	77.0	77.6	80.6	72.5	58.0	17.9	18.9	24.4	37.1	63.7	96.9	97.3
MAX	86	86	96	113	79	54	49	41	65	89	116	106
MIN	64	69	76	2.4	49	13	11	8.0	16	57	59	12
AC-FT	4730	4620	4950	4460	3330	1100	1130	1500	2210	3920	5960	5790
CAL YR 1979	TOTAL	16928.3	MEAN	46.4	MAX	172	MIN	1.1	AC-FT	33580		
WTR YR 1980	TOTAL	22032.7	MEAN	60.2	MAX	116	MIN	2.4	AC-FT	43700		



## TRINITY RIVER BASIN

08055500 ELM FORK TRINITY RIVER NEAR CARROLLTON, TX

LOCATION.--Lat 32°57'57", long 96°56'39", Dallas County, Hydrologic Unit 12030103, near left bank at downstream side of bridge on Sandy Lake Road, 40 ft (12 m) upstream from Carrollton Dam, 0.3 mi (0.5 km) downstream from Denton Creek, 1.0 mi (1.6 km) upstream from St. Louis Southwestern Railway Lines bridge, 2.3 mi (3.7 km) northwest of Carrollton, and 18.2 mi (29.3 km) upstream from mouth.

DRAINAGE AREA.--2,459 mi<sup>2</sup> (6,369 km<sup>2</sup>).

PERIOD OF RECORD.--January 1907 to current year. Monthly discharge only for some periods, published in WSP 1312. Prior to November 1923, published as "near Dallas".

REVISED RECORDS.--WSP 788: 1924. WSP 1148: Drainage area at former site. WSP 1632: 1908(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 433.40 ft (132.100 m) National Geodetic Vertical Datum of 1929. Prior to November 1923, nonrecording gage at site 15.5 mi (24.9 km) downstream at different datum. Nov. 1, 1923, to Nov. 13, 1934, nonrecording gage, and Nov. 14, 1934, to July 6, 1938, water-stage recorder at present site and datum. July 7, 1938, to Apr. 14, 1939, nonrecording gage at site 9.3 mi (15.0 km) downstream at datum 22.94 ft (6.992 m) lower. Apr. 15, 1939, to Sept. 30, 1955, water-stage recorder at site 8.5 mi (13.7 km) downstream at datum 22.94 ft (6.992 m) lower.

REMARKS.--Records good. Flow is largely regulated by Lewisville Lake (station 08052800) since November 1954 and by Grapevine Lake (station 08054500) since July 1952. Records furnished by the city of Dallas show that during the year 124,670 acre-ft (154 hm<sup>3</sup>) was diverted from pool at gage and 56,900 acre-ft (70.2 hm<sup>3</sup>) was diverted from river channel 14 mi (23 km) downstream for municipal use. Also, 2,850 acre-ft (3.51 hm<sup>3</sup>) was returned from a water treatment plant to the river below this station. Records furnished by the Dallas Power and Light Co. show that during the year 4,470 acre-ft (5.51 hm<sup>3</sup>) was diverted from pool at gage into North Lake for cooling water at electric generating plant. National Weather Service and Corps of Engineers gage-height telemeters located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--73 years (water years 1908-80), 760 ft<sup>3</sup>/s (21.52 m<sup>3</sup>/s), 550,600 acre-ft/yr (679 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, about 17 ft (5.2 m) May 25, 1908, present site and datum, from information by local resident, estimated discharge, 145,000 ft<sup>3</sup>/s (4,110 m<sup>3</sup>/s), at site 8.5 mi (13.7 km) downstream (from information by Corps of Engineers); maximum gage height subsequent to 1908, 14.5 ft (4.42 m) Apr. 26, 1942, present site and datum, from observation by National Weather Service; discharge at site 8.5 mi (13.7 km) downstream, 90,700 ft<sup>3</sup>/s (2,570 m<sup>3</sup>/s); no flow at times. Flood in 1866 reached about the same stage as flood of May 25, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 778 ft<sup>3</sup>/s (22.0 m<sup>3</sup>/s) Jan. 22 at 1100 hours, gage height, 2.26 ft (0.689 m); no flow for a few days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	41	.08	18	20	125	7.0	37	68	133	149	83
2	58	27	.00	12	39	60	18	63	62	127	165	158
3	65	10	.00	42	51	31	23	10	18	129	168	210
4	50	3.5	.00	110	115	12	34	34	101	172	164	124
5	88	63	.00	110	167	28	79	34	59	181	115	109
6	61	36	.00	76	160	61	68	40	44	174	88	120
7	50	4.5	.28	48	157	45	24	64	104	141	142	87
8	48	13	1.9	87	174	54	31	11	131	143	176	148
9	111	21	2.1	93	151	29	51	38	99	158	109	52
10	100	9.7	.02	122	127	36	49	17	29	133	174	38
11	5.3	11	.70	76	133	108	150	29	19	138	123	23
12	65	12	18	120	117	61	24	66	91	170	154	69
13	114	1.7	27	118	107	24	76	35	105	160	153	112
14	45	.05	11	104	115	16	64	35	139	139	177	113
15	71	26	16	104	141	56	25	77	80	124	155	132
16	161	20	22	84	137	82	34	19	94	142	76	148
17	93	6.7	23	92	141	16	98	3.3	115	150	107	124
18	35	12	93	125	123	44	63	2.0	107	156	141	101
19	19	14	129	150	114	69	74	20	103	169	129	114
20	32	6.6	88	109	95	77	65	33	129	178	151	111
21	97	.01	37	108	71	34	98	39	47	181	242	117
22	81	.00	48	409	69	63	121	98	70	117	172	150
23	98	.00	170	63	75	94	98	46	66	137	156	112
24	32	.00	75	13	90	34	114	38	61	144	190	73
25	2.7	5.1	19	26	110	36	64	40	54	166	199	113
26	17	1.4	4.2	43	112	29	24	33	123	157	162	47
27	65	.00	31	44	94	30	58	39	125	116	151	74
28	76	.00	53	44	90	49	49	84	136	103	186	28
29	70	.00	67	45	97	52	40	12	153	120	89	369
30	183	.25	60	26	---	40	61	17	135	122	182	26
31	96	---	22	22	---	7.8	---	77	---	183	141	---
TOTAL	2151.0	345.51	1018.28	2643	3192	1502.8	1784.0	1190.3	2667	4563	4686	3285
MEAN	69.4	11.5	32.8	85.3	110	48.5	59.5	38.4	88.9	147	151	110
MAX	183	63	170	409	174	125	150	98	153	183	242	369
MIN	2.7	.00	.00	12	20	7.8	7.0	2.0	18	103	76	23
AC-FT	4270	685	2020	5240	6330	2980	3540	2360	5290	9050	9290	6520
CAL YR 1979	TOTAL	103195.17	MEAN	283	MAX	4930	MIN	.00	AC-FT	204700		
WTR YR 1980	TOTAL	29027.89	MEAN	79.3	MAX	409	MIN	.00	AC-FT	57580		

LOCATION.--Lat 32°48'26", Long 96°48'08", Dallas County, Hydrologic Unit 12030105, on left bank 68 ft (21 m) upstream from Hall Street Dam, 210 ft (64 m) upstream from Hall Street in Dallas, and 2.0 mi (3.2 km) north of Dallas County Courthouse.

PERIOD OF RECORD.--Water years 1948-51 (annual maximums only), October 1951 to September 1980 (discontinued). Daily discharge records for April 1948 to September 1951, published in WSP 1392, are unreliable and should not be used.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 428.13 ft (130.494 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 17, 1951, at site 52 ft (16 m) upstream at same datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ft<sup>3</sup>/s (346 m<sup>3</sup>/s) Apr. 28, 1966, gage height, 10.54 ft (3.213 m), from rating curve extended above 2,460 ft<sup>3</sup>/s (69.7 m<sup>3</sup>/s) on basis of contracted-opening measurement of 12,200 ft<sup>3</sup>/s (346 m<sup>3</sup>/s); no flow at times during most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,050 ft<sup>3</sup>/s (58.1 m<sup>3</sup>/s) Sept. 29 at 0330 hours, gage height, 5.47 ft (1.667 m), no other peak above base of 1,200 ft<sup>3</sup>/s (34.0 m<sup>3</sup>/s); minimum daily, 0.46 ft<sup>3</sup>/s (0.013 m<sup>3</sup>/s) Oct. 26.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.62	1.0	1.2	1.2	3.1	3.4	2.2	13	1.1	1.6	1.9	1.3
2	.60	1.2	1.2	1.3	3.5	2.2	2.2	16	1.2	1.4	1.8	1.3
3	.68	.98	1.2	1.9	3.3	4.5	2.2	1.9	1.1	1.8	1.8	1.2
4	.62	1.4	1.0	1.2	3.7	6.2	1.4	1.6	1.0	2.2	1.7	1.2
5	.52	1.3	.89	1.0	4.0	2.2	1.5	2.0	1.2	2.0	1.7	1.1
6	.52	1.1	.97	1.2	2.9	1.9	2.0	6.2	1.6	2.0	1.8	1.1
7	.60	1.5	.74	1.4	11	2.3	2.0	4.9	1.1	1.8	1.9	1.1
8	.70	2.2	.70	1.1	59	2.3	1.6	18	.96	1.5	1.8	2.3
9	.83	6.4	.98	1.3	16	2.0	1.0	3.5	.91	1.3	1.8	11
10	.56	1.1	1.4	2.1	12	4.2	1.2	1.8	.97	1.3	1.8	3.7
11	.70	.82	1.2	1.9	7.0	4.2	1.3	1.6	1.2	1.5	1.8	1.7
12	.73	2.2	.49	1.3	5.4	3.4	7.6	8.0	.95	1.7	2.0	1.1
13	.69	1.2	3.1	1.4	5.0	2.2	72	2.9	.88	2.0	2.7	.94
14	.71	.74	1.3	1.4	4.6	2.3	7.0	12	.90	2.0	2.2	.92
15	25	.70	.88	1.4	4.4	2.6	2.8	172	1.0	2.1	2.2	.93
16	3.2	.78	1.0	1.8	8.0	3.3	1.9	10	1.2	2.2	2.0	1.0
17	1.0	.71	.76	1.6	4.5	3.2	1.6	4.5	1.5	2.1	1.8	1.2
18	1.0	.76	.92	1.5	4.1	1.8	1.6	3.6	1.3	2.2	1.7	1.3
19	.96	.76	1.1	11	3.8	2.3	1.5	3.1	1.1	2.8	1.4	1.1
20	.85	.83	1.1	14	3.5	2.8	1.3	3.7	62	5.3	1.3	1.1
21	.73	6.9	14	78	3.4	1.8	1.8	5.5	3.3	2.9	1.3	1.0
22	14	.80	9.0	110	3.2	2.2	1.1	2.8	9.2	2.4	2.4	1.0
23	3.0	.47	117	8.5	2.5	6.0	1.4	2.7	3.0	2.1	1.4	.98
24	.91	.61	5.3	5.7	3.0	3.9	28	2.4	2.0	2.1	1.4	.98
25	.65	.57	4.0	5.0	3.0	2.1	12	2.1	1.5	3.1	1.1	14
26	.46	.58	2.6	3.8	2.4	2.4	2.0	2.0	1.4	1.9	1.3	27
27	.49	.80	2.1	3.1	3.0	29	1.4	1.8	1.4	2.3	2.9	43
28	.58	.83	2.0	6.1	3.0	26	1.1	1.4	1.2	2.3	2.2	14
29	.74	1.0	2.1	12	3.5	7.5	1.0	1.6	1.1	2.1	1.7	356
30	88	.90	1.5	4.9	---	2.5	1.4	1.3	1.3	1.9	1.3	11
31	3.4	---	1.1	3.7	---	2.1	---	1.2	---	1.8	1.2	---
TOTAL	154.05	41.14	231.34	291.8	195.8	144.8	167.1	315.1	108.57	65.7	55.3	505.55
MEAN	4.97	1.37	7.46	9.41	6.75	4.67	5.57	10.2	3.62	2.12	1.78	16.9
MAX	.88	6.9	117	110	.59	.29	.72	.172	.62	.53	.2.9	356
MIN	.46	.47	.70	1.0	2.4	1.8	1.0	1.2	.88	1.3	1.1	.92
CFSM	.62	.17	.94	1.18	.85	.59	.70	1.28	.45	.27	.22	2.12
IN.	.72	.19	1.08	1.36	.91	.67	.78	1.47	.51	.31	.26	2.36
AC-FT	306	82	459	579	388	287	331	625	215	1330	110	1000
CAL YR 1979	TOTAL	4212.17		MEAN 11.5	MAX 630	MIN .39	CFSM 1.44	IN 19.63	AC-FT 8350			
YR 1980	TOTAL	2276.25		MEAN 6.22	MAX 356	MIN .46	CFSM .78	IN 10.61	AC-FT 4510			

## TRINITY RIVER BASIN

08057000 TRINITY RIVER AT DALLAS, TX

LOCATION.--Lat 32°46'29", long 96°49'18", Dallas County, Hydrologic Unit 12030105, on right bank (levee) 90 ft (27 m) downstream from Commerce Street viaduct in Dallas, 5.2 mi (8.4 km) downstream from confluence of West and Elm Forks, and at mile 500.3 (805.0 km).

DRAINAGE AREA.--6,106 mi<sup>2</sup> (15,815 km<sup>2</sup>).

PERIOD OF RECORD.--October 1898 to December 1899 (gage heights only published in WSP 28 and 37), July 1903 to current year.

REVISED RECORDS.--WSP 850: 1903-6 (monthly and annual means). WSP 1732: 1937(M). WSP 1922: Drainage area. WRD TX-73-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 368.02 ft (112.172 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1898, to Dec. 31, 1899, nonrecording gage at site 2 mi (3 km) upstream at different datum. July 1, 1903, to July 20, 1930, nonrecording gage at present site and datum. July 21, 1930, to Sept. 30, 1932, nonrecording gage at site 6 mi (10 km) downstream at datum 3.08 ft (0.939 m) lower.

REMARKS.--Records good. At times flow is affected by storage in seven upstream reservoirs, combined capacity 1,703,700 acre-ft (2.10 km<sup>3</sup>), of which 846,200 acre-ft (1.04 km<sup>3</sup>) is for flood control. During the year, the city of Dallas reported the diversion for municipal use of 181,500 acre-ft (224 hm<sup>3</sup>) from the Elm Fork, 42,570 acre-ft (52.5 hm<sup>3</sup>) from Lake Tawakoni (on Sabine River), the purchase of 11,690 acre-ft (14.4 hm<sup>3</sup>) from North Texas Municipal Water District (from the East Fork), and returned 164,300 acre-ft (203 hm<sup>3</sup>) of sewage effluent to the river 4 mi (6 km) downstream from station and 9,780 acre-ft (12.1 hm<sup>3</sup>) of sewage effluent to the river about 20 mi (32 km) downstream from station. The Trinity River Authority reported a discharge of 59,920 acre-ft (73.9 hm<sup>3</sup>) of sewage effluent into the river above the station. For other diversions and effluent returns above station, see stations 08048000, 08049200, and 08049500. City of Dallas gage-height telemeter located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--77 years, 1,475 ft<sup>3</sup>/s (41.77 m<sup>3</sup>/s), 1,069,000 acre-ft/yr (1.32 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 184,000 ft<sup>3</sup>/s (5,210 m<sup>3</sup>/s) May 25, 1908, gage height, 52.6 ft (16.03 m), from rating curve extended above 109,000 ft<sup>3</sup>/s (3,090 m<sup>3</sup>/s); minimum observed for periods 1903-6, 1920-75, 1.2 ft<sup>3</sup>/s (0.034 m<sup>3</sup>/s) July 4, 1953, result of storage behind temporary dam 4 mi (6 km) upstream. Maximum stage since at least 1840, that of May 25, 1908.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1866 reached about the same stage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,480 ft<sup>3</sup>/s (240 m<sup>3</sup>/s) Sept. 30 at 0415 hours, gage height, 30.79 ft (9.385 m); minimum daily, 186 ft<sup>3</sup>/s (5.27 m<sup>3</sup>/s) Jan. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	241	536	231	221	330	280	307	426	456	238	226	207
2	241	295	230	208	393	270	295	2190	456	244	219	213
3	236	256	230	210	419	275	1030	2360	456	240	213	220
4	238	243	235	204	418	272	771	529	450	224	245	220
5	234	241	233	198	409	272	453	397	439	217	226	219
6	236	243	231	194	403	276	439	410	441	213	213	219
7	234	245	222	190	414	281	418	543	448	213	219	222
8	232	252	228	192	1510	266	422	1270	443	228	217	310
9	241	293	228	191	1510	263	404	1390	434	234	224	527
10	239	272	231	189	884	256	402	459	448	232	215	481
11	239	256	240	193	1500	273	397	345	443	232	232	283
12	238	250	989	186	705	272	427	357	432	224	220	234
13	230	256	1820	191	545	267	1680	361	415	217	220	224
14	228	239	529	186	513	262	2240	417	412	217	224	219
15	329	241	308	189	496	256	832	3100	408	220	222	215
16	1790	258	256	192	499	295	524	7030	389	217	226	215
17	794	251	238	188	505	379	506	5380	318	217	234	215
18	320	236	228	192	465	378	450	1840	289	217	220	217
19	268	246	226	201	382	373	448	994	273	224	220	219
20	256	251	204	305	332	380	437	773	1200	215	226	217
21	243	304	194	1250	313	380	417	629	927	217	217	211
22	348	269	204	4560	304	369	423	545	376	245	222	217
23	320	239	313	5190	292	399	430	726	312	230	220	219
24	266	224	2900	2010	340	368	465	713	257	226	215	222
25	249	224	1750	493	393	302	2080	527	244	219	207	263
26	243	228	349	396	340	274	950	472	244	217	211	312
27	236	231	263	346	290	354	486	465	238	238	224	1270
28	230	228	245	333	284	1590	445	477	234	255	236	1500
29	230	221	394	423	288	1100	434	497	234	222	228	5790
30	1240	226	368	941	---	746	410	495	230	238	226	7660
31	1940	---	257	389	---	358	---	470	---	234	213	---
TOTAL	12609	7754	14574	20351	15476	12086	19422	36587	12346	7024	6880	22760
MEAN	407	258	470	656	534	390	647	1180	412	227	222	759
MAX	1940	536	2900	5190	1510	1590	2240	7030	1200	255	245	7660
MIN	228	221	194	186	284	256	295	345	230	213	207	207
AC-FT	25010	15380	28910	40370	30700	23970	38520	72570	24490	13930	13650	45140
CAL YR 1979	TOTAL	475815	MEAN	1304	MAX	25600	MIN	194	AC-FT	943800		
WTR YR 1980	TOTAL	187869	MEAN	513	MAX	7660	MIN	186	AC-FT	372600		

## TRINITY RIVER BASIN

453

08057200 WHITE ROCK CREEK AT GREENVILLE AVENUE, DALLAS, TX

LOCATION.--Lat 32°53'21", long 96°45'23", Dallas County, Hydrologic Unit 12030105, on left bank 20 ft (6 m) downstream from bridge on Greenville Avenue in Dallas, 1.1 mi (1.8 km) downstream from Texas and New Orleans Railroad Co. bridge, 1.2 mi (1.9 km) downstream from Cottonwood Creek, 2.9 mi (4.7 km) upstream from White Rock Lake, and 8.2 mi (13.2 km) northeast of Dallas County Courthouse.

DRAINAGE AREA.--66.4 mi<sup>2</sup> (172.0 km<sup>2</sup>).

PERIOD OF RECORD.--August 1961 to September 1980 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Oct. 24, 1961, nonrecording gage at same site and datum.

REMARKS.--Records good. Some regulation at low flow by on- and off-channel dams from which many small diversions are made. The city of Dallas reported that the Royal Oaks Country Club, 0.1 mi (0.2 km) upstream, diverted 60.8 acre-ft (75,000 m<sup>3</sup>) during the water year; Lambert Landscape Co., 3.1 mi (5.0 km) upstream, diverted 23.2 acre-ft (28,600 m<sup>3</sup>); and Preston Trails Country Club, about 7.0 mi (11.3 km) upstream, diverted 130 acre-ft (160,000 m<sup>3</sup>). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1962-80), 53.9 ft<sup>3</sup>/s (1,526 m<sup>3</sup>/s), 11.02 in/yr (280 mm/yr), 39,050 acre-ft/yr (48.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,100 ft<sup>3</sup>/s (1,080 m<sup>3</sup>/s) Sept. 21, 1964, elevation, 490.43 ft (149.483 m); minimum daily, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) July 8, 1970, June 27, July 14, 1971. Maximum elevation since at least 1886, that of Sept. 21, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,310 ft<sup>3</sup>/s (122 m<sup>3</sup>/s) Sept. 29 at 0445 hours, elevation, 485.34 ft (147.932 m), no other peak above base of 2,900 ft<sup>3</sup>/s (82.1 m<sup>3</sup>/s); minimum daily, 2.0 ft<sup>3</sup>/s (0.057 m<sup>3</sup>/s) Aug. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	30	6.3	9.8	17	16	14	14	5.1	5.3	2.7	2.9
2	3.6	8.6	6.7	10	16	15	15	46	4.7	4.3	3.0	2.5
3	3.6	7.0	7.2	11	16	15	15	13	4.6	3.9	3.3	2.8
4	3.6	6.2	5.9	10	15	14	13	11	4.1	4.1	4.2	2.8
5	3.1	5.6	6.0	10	15	16	14	10	4.8	3.9	3.6	3.9
6	3.7	4.9	7.1	10	14	14	14	10	4.3	5.3	4.0	3.5
7	3.8	4.6	6.7	9.6	23	14	14	11	4.1	5.3	4.3	4.6
8	3.5	4.4	5.6	9.0	169	14	13	26	6.0	4.8	3.2	4.6
9	3.4	20	5.8	8.9	40	13	12	12	5.7	4.3	2.0	13
10	3.8	12	6.1	9.2	44	14	12	10	4.4	4.1	2.3	6.2
11	3.5	8.0	5.4	11	30	14	13	9.2	4.6	4.0	2.8	3.5
12	4.5	7.2	180	11	27	20	22	19	4.1	3.9	2.7	3.2
13	3.8	6.6	22	10	24	13	228	11	4.1	3.8	2.8	3.0
14	3.8	5.7	10	9.0	23	12	31	14	4.4	3.8	2.7	3.4
15	42	5.1	8.5	10	22	12	22	609	4.4	3.7	2.9	3.0
16	13	5.8	7.7	12	27	13	20	54	3.7	3.7	2.9	2.9
17	4.8	6.0	7.4	9.5	22	13	19	19	3.7	3.6	2.9	2.8
18	4.2	6.3	7.1	8.6	21	11	17	13	3.2	3.6	2.4	2.9
19	4.1	6.4	7.3	12	20	11	16	11	3.4	3.6	2.6	3.2
20	3.9	6.3	7.6	57	20	11	15	11	44	12	2.2	3.6
21	3.7	21	21	256	19	12	14	12	12	8.5	2.1	3.7
22	28	6.3	35	503	18	12	13	8.2	23	6.8	2.9	3.5
23	4.7	5.4	419	36	18	20	13	7.6	11	5.8	2.4	3.6
24	3.9	4.7	30	25	17	13	167	7.3	8.2	4.5	3.5	3.9
25	3.9	4.9	17	22	16	10	150	7.3	6.2	4.3	2.5	238
26	4.3	5.3	13	20	15	10	28	8.1	6.0	4.7	2.2	68
27	3.8	5.5	12	18	16	28	15	6.8	6.4	4.8	2.1	218
28	3.3	6.2	12	20	17	108	13	5.5	5.3	4.5	2.2	77
29	3.8	5.6	11	32	17	25	12	5.0	5.5	4.4	2.7	1280
30	668	6.4	10	22	---	16	12	5.1	6.4	3.9	2.6	63
31	255	---	9.9	18	---	14	---	5.4	---	4.0	3.5	---
TOTAL	1107.3	238.0	916.3	1219.6	758	543	976	1011.5	217.4	147.2	88.2	2037.0
MEAN	35.7	7.93	29.6	39.3	26.1	17.5	32.5	32.6	7.25	4.75	2.85	67.9
MAX	668	30	419	503	169	108	228	609	44	12	4.3	1280
MIN	3.1	4.4	5.4	8.6	14	10	12	5.0	3.2	3.6	2.0	2.5
CFSM	.54	.12	.45	.59	.39	.26	.49	.49	.11	.07	.04	1.02
IN.	.62	.13	.51	.68	.42	.30	.55	.57	.12	.08	.05	1.14
AC-FT	2200	472	1820	2420	1500	1080	1940	2010	431	292	175	4040

CAL YR 1979 TOTAL 21858.2 MEAN 59.9 MAX 3010 MIN 3.1 CFSM .90 IN 12.25 AC-FT 43360  
WTR YR 1980 TOTAL 9259.5 MEAN 25.3 MAX 1280 MIN 2.0 CFSM .38 IN 5.19 AC-FT 18370

## TRINITY RIVER BASIN

## 08057410 TRINITY RIVER BELOW DALLAS, TX

LOCATION.--Lat 32°42'26", long 96°44'08", Dallas County, Hydrologic Unit 12030105, on right bank at downstream side of bridge on South Loop Highway 12, 1.0 mi (1.6 km) downstream from White Rock Creek, 1.5 mi (2.4 km) upstream from Fivemile Creek, 6.4 mi (10.3 km) southeast of Dallas County Courthouse in Dallas, and at mile 491.8 (791.3 km).

DRAINAGE AREA.--6,278 mi<sup>2</sup> (16,260 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1956 to September 1961 (monthly records only), October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 365.89 ft (111.523 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is affected at times by eight upstream reservoirs with a combined capacity of 1,714,400 acre-ft (2.11 km<sup>3</sup>), of which 846,200 acre-ft (1.04 km<sup>3</sup>) is for flood control. Several cities within the Fort Worth-Dallas metroplex divert water for municipal use and return it to the river as sewage effluents above this station. Low flows are sustained by sewage effluents.

AVERAGE DISCHARGE.--23 years (water years 1958-80), 1,627 ft<sup>3</sup>/s (46.08 m<sup>3</sup>/s), 1,179,000 acre-ft/yr (1.45 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,700 ft<sup>3</sup>/s (1,860 m<sup>3</sup>/s) May 27, 1957, gage height, 32.02 ft (9.760 m); minimum daily, 131 ft<sup>3</sup>/s (3.71 m<sup>3</sup>/s) Dec. 9, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 25, 1908, reached a stage of 41.1 ft (12.53 m), from information by Corps of Engineers, and is the highest since that date. Floods in 1866 and 1908 reached about the same stage at Dallas.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,750 ft<sup>3</sup>/s (248 m<sup>3</sup>/s) Sept. 30 at 1700 hours, gage height, 23.11 ft (7.044 m); minimum daily, 398 ft<sup>3</sup>/s (11.3 m<sup>3</sup>/s) Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	450	1170	517	492	628	557	627	721	609	449	435	408
2	453	704	508	481	645	542	605	1780	626	462	415	437
3	446	586	515	482	687	548	1090	3060	627	458	398	450
4	442	537	528	480	691	552	1200	853	621	434	433	444
5	438	536	541	467	685	549	737	674	614	411	449	447
6	428	527	541	447	671	554	717	655	615	404	418	434
7	413	529	523	456	670	566	714	827	618	417	426	429
8	424	535	515	458	1660	538	729	1270	615	433	434	520
9	435	611	507	455	2160	521	719	1690	624	445	426	675
10	431	617	523	443	1520	531	694	849	628	447	409	790
11	426	573	538	453	1780	541	683	630	626	445	441	536
12	431	561	1120	438	1410	564	698	671	630	432	439	482
13	420	573	2200	435	1010	560	1900	688	627	411	437	452
14	410	546	1080	442	918	540	2810	672	613	426	438	433
15	481	540	589	440	901	515	1410	2930	602	424	447	446
16	1650	556	524	443	916	529	949	7170	615	432	439	451
17	1380	541	502	448	915	672	870	6880	571	430	437	443
18	634	504	484	449	864	681	804	3110	534	430	442	448
19	533	536	480	440	779	667	764	1250	515	435	442	448
20	502	547	473	568	686	668	733	970	1230	415	445	440
21	474	643	488	1340	655	676	725	812	1410	437	431	424
22	689	582	803	4480	634	643	724	757	725	483	450	441
23	598	518	2090	6250	603	682	733	857	635	454	435	440
24	537	492	4280	3490	625	695	733	823	528	431	430	428
25	501	480	1790	1080	723	583	2190	694	483	423	433	470
26	495	502	811	811	681	537	1600	644	473	414	436	502
27	476	525	628	688	593	616	953	648	466	406	444	1310
28	457	523	575	633	580	1750	811	660	450	472	466	1620
29	465	517	636	803	576	1490	760	673	437	429	461	4640
30	1210	519	719	1150	---	1120	718	662	443	442	443	8370
31	2460	---	565	847	---	723	---	639	---	442	417	---
TOTAL	19589	17130	26587	30789	25866	20910	29400	45219	18810	13473	13496	28258
MEAN	632	571	858	993	892	675	980	1459	627	435	435	942
MAX	2460	1170	4280	6250	2160	1750	2810	7170	1410	483	466	8370
MIN	410	480	473	435	576	515	605	630	437	404	398	408
AC-FT	38850	33980	52740	61070	51310	41470	58310	89690	37310	26720	26770	56050
CAL YR 1979	TOTAL	601492	MEAN	1648	MAX	24000	MIN	410	AC-FT	1193000		
WTR YR 1980	TOTAL	289527	MEAN	791	MAX	8370	MIN	398	AC-FT	574300		



## 08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1971 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.  
pH: January 1977 to current year.  
WATER TEMPERATURES: October 1967 to current year.  
DISSOLVED OXYGEN: January 1977 to current year.

INSTRUMENTATION.--Water-quality monitor since Jan. 6, 1977.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1967-68, 1972-80): Maximum, 1,130 micromhos Dec. 17, 1977; minimum, 164 micromhos Aug. 20, 1977.  
pH: Maximum, 8.8 units Jan. 23, 1980; minimum, 6.9 units on many days during 1977 and 1979-80.  
WATER TEMPERATURES (1967-68, 1973-79): Maximum, 34.0°C June 30, Aug. 31, 1977; minimum, 4.0°C Jan. 10, 1968.  
DISSOLVED OXYGEN: Maximum, 11.4 mg/L Feb. 13, 1978; minimum, 0.0 mg/L on many days during spring and summer of 1977-80.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,030 micromhos Sept. 10; minimum, 172 micromhos Sept. 29.  
pH: Maximum, 8.8 units Jan. 23; minimum, 6.9 units on many days during year.  
WATER TEMPERATURES: Maximum, 32.5°C July 19, 20; minimum, 6.5°C Feb. 10, 11.  
DISSOLVED OXYGEN: Maximum, 10.8 mg/L Jan. 30; minimum, 0.0 mg/L on several days during year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)	
DATE	TIME												
OCT 23...	0950	534	805	7.2	21.0	30	12	2.2	24	6.1	130	0	
NOV 08...	1225	538	820	7.3	17.5	70	10	4.5	47	8.7	140	0	
DEC 10...	1130	479	882	7.2	15.5	20	6.2	4.0	40	19	150	0	
JAN 10...	1240	439	924	7.4	13.5	30	3.5	5.6	54	14	150	0	
FEB 21...	0945	599	820	7.3	15.0	30	16	6.6	66	13	180	0	
MAR 04...	1510	581	890	7.4	16.0	30	14	7.9	81	18	170	0	
APR 08...	1345	735	740	7.5	21.0	30	21	4.7	53	13	160	0	
MAY 21...	1220	817	690	7.3	24.0	15	26	1.4	17	14	190	22	
JUN 05...	1310	649	815	7.4	28.0	25	6.5	2.4	31	7.8	150	0	
JUL 16...	1100	410	895	7.3	30.5	30	13	1.2	16	9.3	130	0	
AUG 27...	1200	449	930	7.1	30.0	40	7.5	2.3	30	6.4	120	0	
SEP 18...	0830	382	865	7.1	29.0	30	6.9	2.8	36	9.6	110	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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 23...	44	5.5	120	4.5	13	200	0	130	69	1.1	12	493	
NOV 08...	45	6.7	100	3.7	14	210	0	110	72	1.3	12	465	
DEC 10...	51	6.3	120	4.2	12	220	0	130	78	1.3	9.0	516	
JAN 10...	51	6.5	120	4.2	13	230	0	130	84	1.4	18	538	
FEB 21...	60	6.1	93	3.1	11	230	0	120	62	1.1	8.6	475	
MAR 04...	57	6.7	110	3.7	13	250	0	130	73	1.2	12	526	
APR 08...	56	5.5	81	2.8	10	200	0	100	60	1.0	11	423	
MAY 21...	66	5.1	62	2.0	9.3	200	0	97	51	1.0	9.8	400	
JUN 05...	51	6.2	89	3.1	1.1	210	0	110	66	1.0	10	438	
JUL 16...	43	5.9	120	4.6	13	210	0	120	92	1.7	16	515	
AUG 27...	39	6.3	130	5.1	13	190	0	130	99	1.6	15	528	
SEP 18...	36	5.6	120	4.9	14	180	0	130	82	1.9	16	494	



## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, RESIDUE AT 105 DEG. C. SUS- PENDE (MG/L)	SOLIDS, VOLATILE, SUS- PENDE (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)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 23...	39	25	.95	.450	1.4	6.100	6.9	13	4.800	16	3	.30
NOV 08...	13	8	1.7	.400	2.1	7.400	7.6	15	3.400	13	1	.20
DEC 10...	7	2	1.2	1.100	2.3	6.500	1.2	7.7	.790	14	6	.20
JAN 10...	28	26	.74	.760	1.5	9.000	5.0	14	4.700	21	9	.50
FEB 21...	32	14	.40	.170	.57	8.400	4.6	13	3.600	24	5	.30
MAR 04...	20	19	.99	.310	1.3	9.900	6.1	16	5.200	24	7	.40
APR 08...	47	16	.97	.230	1.2	8.900	1.1	10	3.200	19	4	.30
MAY 21...	59	49	2.0	.370	2.4	2.500	1.6	4.1	2.200	12	4	.30
JUN 05...	2	10	.36	.330	.69	6.000	4.0	10	3.900	17	6	.40
JUL 16...	7	3	1.7	.450	2.1	7.300	2.2	9.5	5.200	21	6	.30
AUG 27...	9	0	2.6	.750	3.3	7.200	4.8	12	6.000	16	4	.20
SEP 18...	10	0	1.7	.590	2.3	6.900	4.1	11	5.500	17	3	.30

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 10...	1240	13	20	3	10	2	80
MAR 04...	1510	10	30	3	10	11	60
JUL 16...	1100	23	10	<1	10	4	50
SEP 18...	0830	6	10	2	20	7	70

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 10...	4	90	.1	0	0	50
MAR 04...	0	80	.0	0	0	40
JUL 16...	2	60	.2	0	0	20
SEP 18...	3	60	.2	0	0	40

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JAN 10...	1240	.0	0	.00	.00	.0	.0	0	.00	.0
JUL 16...	1100	.0	53	.00	.03	.0	.0	<73	.00	1.7

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JAN 10...	.00	.0	.00	.0	.55	.00	.5	.00	.00	.0
JUL 16...	.00	.0	.00	.0	1.0	.01	6.6	.00	.00	.0

## TRINITY RIVER BASIN

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08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
JAN 10...	.00	.00	.0	.00	.0	.05	.2	.14	.01	.0
JUL 16...	.00	.00	.0	.00	.5	.07	.2	.10	.00	.0

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 10...	.00	.00	.00	.00	0	0	.00	.61	.35	.00
JUL 16...	.00	.00	.00	.02	0	<25	.00	--	--	--

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	19589	725	412	21800	57	3030	100	5300	160
NOV.	1979	17130	770	437	20200	62	2860	110	4920	170
DEC.	1979	26587	641	363	26100	48	3430	89	6360	160
JAN.	1980	30789	633	359	29800	47	3940	88	7270	160
FEB.	1980	25866	737	418	29200	58	4050	100	7120	170
MAR.	1980	20910	823	468	26400	69	3910	110	6420	170
APR.	1980	29400	661	375	29700	49	3930	91	7260	160
MAY	1980	45219	598	338	41300	42	5180	83	10100	160
JUNE	1980	18810	741	420	21300	58	2950	100	5200	170
JULY	1980	13473	835	475	17300	70	2540	120	4200	170
AUG.	1980	13496	853	485	17700	72	2630	120	4290	170
SEPT	1980	28258	577	327	25000	44	3340	80	6090	140
TOTAL		289527	**	**	306000	**	41800	**	74500	**
WTD. AVG.		791	690	391	**	53	**	95	**	160

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	840	790	809	574	472	512	860	792	825	706	670	685
2	878	830	851	680	584	623	828	784	806	768	694	720
3	924	886	905	722	678	702	858	780	816	806	766	785
4	946	910	924	740	718	728	870	816	842	838	806	821
5	954	868	911	794	740	768	898	778	843	854	826	841
6	920	874	897	836	784	809	840	788	815	868	824	846
7	902	832	867	844	804	819	852	816	833	882	820	844
8	866	818	840	822	780	803	896	838	861	900	864	875
9	892	856	872	808	714	771	868	802	837	920	874	893
10	910	844	879	790	758	775	858	786	819	932	876	901
11	874	832	856	798	752	771	874	820	840	938	884	907
12	892	832	856	780	752	769	900	522	746	964	906	932
13	896	832	865	824	784	805	628	436	536	938	870	905
14	872	830	848	862	810	833	596	474	535	930	868	887
15	920	836	869	854	802	826	662	596	629	952	878	912
16	852	420	650	868	818	835	724	664	687	968	884	919
17	602	454	531	860	808	831	738	708	723	940	866	901
18	708	602	647	844	770	811	810	740	780	976	886	905
19	770	710	735	870	776	811	846	816	828	1010	908	928
20	800	776	792	868	810	832	876	842	857	956	788	871
21	832	796	815	880	706	808	886	838	865	900	468	674
22	832	536	712	822	770	801	872	656	756	648	378	449
23	808	756	787	814	764	788	772	342	560	684	364	423
24	828	786	807	842	794	818	458	344	400	598	472	511
25	822	744	786	842	760	806	516	404	468	664	598	627
26	774	750	761	788	746	768	612	514	549	716	654	686
27	802	770	788	800	764	781	664	614	634	720	700	709
28	790	746	772	838	788	814	728	666	689	750	706	718
29	788	736	759	852	800	825	804	728	749	748	680	713
30	828	340	653	838	804	818	810	716	773	806	578	714
31	578	310	449	---	---	---	714	636	671	796	620	741
MONTH	954	310	790	880	472	782	900	342	728	1010	364	782

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	836	794	812	940	884	913	734	696	712	824	730	790
2	868	834	855	934	898	916	800	740	756	818	484	683
3	874	786	837	950	842	897	850	612	789	562	412	484
4	792	734	769	950	866	910	618	500	560	678	528	587
5	802	756	779	964	886	923	682	600	632	790	678	720
6	790	744	770	942	894	918	708	684	697	830	726	802
7	792	752	771	980	922	954	726	680	703	846	542	735
8	774	492	647	972	894	936	786	686	733	868	658	798
9	612	516	568	972	908	933	794	744	771	678	560	620
10	590	558	576	994	928	953	818	788	801	680	546	616
11	650	560	604	988	908	946	808	760	785	740	684	703
12	738	582	667	978	892	934	814	774	798	746	702	732
13	770	702	726	932	882	905	750	448	566	806	744	771
14	784	738	765	960	906	936	498	---	430	820	738	794
15	792	752	775	980	898	947	---	---	400	762	364	516
16	792	758	768	966	890	918	744	---	680	482	380	433
17	766	722	743	994	922	952	780	638	732	528	482	513
18	784	732	758	974	878	913	816	736	780	640	514	575
19	784	726	759	912	846	875	822	762	790	662	612	636
20	784	752	768	882	840	863	838	782	802	710	630	670
21	842	806	826	862	820	845	844	792	818	766	668	709
22	872	830	845	862	820	839	832	778	806	776	728	749
23	896	848	866	820	752	798	824	772	795	778	718	748
24	946	876	903	828	738	784	818	746	803	742	666	719
25	938	872	897	854	796	819	764	520	616	694	646	668
26	858	676	805	860	808	835	642	524	560	704	648	675
27	842	814	825	864	740	826	668	562	604	748	684	714
28	882	830	845	730	454	636	738	658	694	764	728	745
29	904	868	884	662	522	565	772	714	743	760	730	740
30	---	---	---	640	554	595	786	728	760	738	712	726
31	---	---	---	692	604	642	---	---	---	748	716	730
MONTH	946	492	773	994	454	859	850	448	704	868	364	681

## TRINITY RIVER BASIN

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08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	754	692	726	860	820	839	954	860	900	820	730	772
2	716	678	700	836	798	814	910	862	882	798	726	769
3	736	702	720	818	778	796	908	838	871	868	800	834
4	740	718	728	816	784	795	870	798	843	884	854	869
5	760	740	750	820	738	777	868	780	824	884	838	862
6	784	746	759	788	732	760	900	830	866	846	818	836
7	802	776	787	808	740	776	894	856	873	842	790	821
8	814	706	766	840	786	808	916	886	898	914	702	819
9	770	730	754	836	798	809	908	864	885	1020	688	807
10	796	766	780	820	788	801	914	844	868	1030	896	958
11	796	768	784	842	794	815	882	816	850	916	760	815
12	810	768	793	876	828	846	884	848	864	874	812	844
13	800	764	786	874	820	841	896	838	865	898	850	878
14	826	780	807	870	794	828	844	810	828	926	846	875
15	820	750	791	872	820	836	840	812	825	912	850	881
16	792	752	769	864	816	837	874	834	851	938	884	909
17	782	740	761	890	846	860	854	810	829	936	888	907
18	790	742	759	868	824	848	848	768	809	918	888	903
19	810	778	792	912	852	873	840	802	821	926	882	896
20	844	368	683	944	812	858	842	814	824	950	888	913
21	608	438	525	902	804	838	850	818	835	946	848	895
22	680	564	632	872	794	839	876	840	856	898	804	856
23	712	608	666	890	836	857	904	850	878	922	868	890
24	760	686	722	896	856	868	886	806	854	918	860	889
25	816	766	794	904	862	881	840	788	813	896	838	867
26	814	784	804	916	868	892	884	828	859	1010	688	801
27	878	804	834	882	832	856	922	862	888	852	488	654
28	894	862	877	902	738	838	902	798	853	798	510	579
29	890	804	850	864	780	838	868	822	844	528	172	308
30	840	802	823	906	852	879	896	846	872	320	282	296
31	---	---	---	924	856	882	864	762	825	---	---	---
MONTH	894	368	757	944	732	835	954	762	853	1030	172	807

PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.1	7.0	7.1	7.0	7.0	7.0	7.0	6.9	7.0	7.0	7.0	7.0
2	7.1	7.0	7.1	7.1	7.0	7.0	7.0	6.9	7.0	7.4	7.0	7.1
3	7.1	7.1	7.1	7.0	7.0	7.0	7.0	6.9	7.0	7.5	7.3	7.4
4	7.1	7.0	7.1	7.0	6.9	7.0	7.0	6.9	7.0	7.4	7.2	7.3
5	7.1	7.0	7.0	7.0	7.0	7.0	7.0	6.9	7.0	7.3	7.2	7.2
6	7.1	7.0	7.1	7.1	7.0	7.0	7.0	6.9	7.0	7.4	7.2	7.3
7	7.1	7.0	7.0	7.0	7.0	7.0	7.1	6.9	7.0	7.3	7.2	7.2
8	7.1	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.3	7.2	7.2
9	7.1	7.0	7.0	7.1	7.0	7.0	7.0	6.9	7.0	7.2	7.1	7.2
10	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9	7.0	7.2	7.2	7.2
11	7.0	7.0	7.0	7.1	7.0	7.0	7.1	7.0	7.0	7.2	7.1	7.2
12	7.1	6.9	7.0	7.0	7.0	7.0	7.1	6.9	7.0	7.2	7.1	7.2
13	7.1	7.0	7.0	7.1	7.0	7.0	7.0	6.9	6.9	7.2	7.1	7.2
14	7.1	7.0	7.0	7.0	7.0	7.0	7.0	6.9	7.0	7.2	7.1	7.2
15	7.1	7.0	7.0	7.0	7.0	7.0	7.0	6.9	7.0	7.4	7.2	7.3
16	7.1	7.0	7.0	7.1	6.9	7.0	7.0	7.0	7.0	7.4	7.3	7.3
17	7.1	6.9	7.0	7.1	7.0	7.0	7.0	7.0	7.0	7.4	7.3	7.3
18	7.0	6.9	7.0	7.1	7.0	7.0	7.0	7.0	7.0	7.4	7.3	7.3
19	7.0	7.0	7.0	7.1	7.0	7.0	7.1	7.0	7.0	7.3	7.2	7.2
20	7.1	7.0	7.0	7.1	7.0	7.0	7.1	7.0	7.0	7.3	7.2	7.2
21	7.1	7.0	7.0	7.1	7.0	7.0	7.1	7.0	7.0	8.0	7.2	7.3
22	7.1	6.9	7.0	7.0	7.0	7.0	7.1	7.0	7.0	8.7	7.2	7.4
23	7.0	7.0	7.0	7.0	7.0	7.0	7.2	7.0	7.1	8.8	7.5	7.6
24	7.0	7.0	7.0	7.0	6.9	7.0	7.2	7.0	7.1	7.8	7.3	7.5
25	7.0	7.0	7.0	7.0	6.9	7.0	7.1	7.0	7.0	7.4	7.3	7.3
26	7.0	7.0	7.0	7.0	6.9	7.0	7.1	7.0	7.0	7.4	7.3	7.4
27	7.0	7.0	7.0	7.0	6.9	7.0	7.1	7.0	7.0	7.4	7.3	7.4
28	7.0	7.0	7.0	7.0	6.9	7.0	7.1	7.0	7.0	7.4	7.3	7.3
29	7.0	7.0	7.0	7.0	6.9	7.0	7.1	7.0	7.1	7.4	7.3	7.4
30	7.3	6.9	7.0	7.1	7.0	7.0	7.1	7.0	7.0	7.7	7.4	7.5
31	7.1	7.0	7.1	---	---	---	7.1	7.0	7.0	7.7	7.5	7.5
MONTH	7.3	6.9	7.0	7.1	6.9	7.0	7.2	6.9	7.0	8.8	7.0	7.3

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	7.5	7.4	7.5	7.5	7.4	7.4	7.5	7.3	7.4	7.3	7.2	7.3
2	7.5	7.4	7.4	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.2	7.2
3	7.5	7.4	7.4	7.5	7.4	7.5	7.7	7.3	7.4	7.3	7.1	7.2
4	7.5	7.4	7.4	7.5	7.4	7.4	7.4	7.3	7.4	7.2	7.1	7.2
5	7.5	7.4	7.4	7.4	7.2	7.4	7.4	7.3	7.3	7.2	7.2	7.2
6	7.4	7.4	7.4	7.4	7.3	7.4	7.5	7.3	7.4	7.3	7.2	7.2
7	7.5	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.4	7.3	7.2	7.2
8	7.7	7.4	7.5	7.5	7.4	7.4	7.5	7.3	7.5	7.3	7.2	7.3
9	7.7	7.5	7.6	7.4	7.2	7.4	7.4	7.3	7.4	7.3	7.1	7.2
10	7.5	7.5	7.5	7.4	7.2	7.4	7.4	7.3	7.4	7.3	7.1	7.2
11	7.8	7.5	7.6	7.4	7.3	7.3	7.4	7.3	7.4	7.3	7.2	7.2
12	7.7	7.5	7.6	7.4	7.3	7.3	7.4	7.4	7.4	7.3	7.2	7.2
13	7.6	7.4	7.5	7.4	7.3	7.3	7.5	7.4	7.4	7.3	7.2	7.2
14	7.5	7.3	7.4	7.4	7.3	7.3	7.5	7.4	7.5	7.2	7.1	7.2
15	7.5	7.3	7.4	7.4	7.2	7.3	---	---	---	7.3	7.1	7.2
16	7.5	7.4	7.4	7.4	7.3	7.3	---	---	---	7.4	7.2	7.3
17	7.5	7.4	7.5	7.4	7.3	7.4	7.4	7.4	7.4	7.4	7.3	7.4
18	7.5	7.4	7.4	7.4	7.3	7.4	7.4	7.3	7.4	7.3	7.0	7.1
19	7.5	7.3	7.4	7.5	7.3	7.4	7.4	7.3	7.4	7.1	7.0	7.1
20	7.4	7.3	7.3	7.4	7.3	7.4	7.4	7.3	7.4	7.3	7.1	7.2
21	7.3	7.3	7.3	7.4	7.3	7.3	7.5	7.3	7.4	7.3	7.1	7.2
22	7.4	7.2	7.3	7.4	7.3	7.3	7.4	7.3	7.3	7.4	7.2	7.2
23	7.3	7.2	7.3	7.4	7.3	7.3	7.4	7.2	7.3	7.3	7.2	7.3
24	7.3	7.2	7.3	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.3
25	7.3	7.3	7.3	7.5	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.3
26	7.5	7.3	7.4	7.5	7.4	7.4	7.3	7.2	7.3	7.3	7.2	7.2
27	7.5	7.4	7.5	7.7	7.4	7.5	7.3	7.2	7.3	7.3	7.2	7.2
28	7.5	7.4	7.5	7.5	7.3	7.4	7.3	7.2	7.3	7.4	7.2	7.3
29	7.5	7.4	7.4	7.5	7.3	7.4	7.3	7.2	7.2	7.3	7.3	7.3
30	---	---	---	7.6	7.4	7.5	7.3	7.2	7.2	7.3	7.3	7.3
31	---	---	---	7.5	7.4	7.4	---	---	---	7.3	7.3	7.3
MONTH	7.8	7.2	7.4	7.7	7.2	7.4	7.7	7.2	7.4	7.4	7.0	7.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	7.3	7.3	7.3	7.2	7.1	7.2	7.3	7.1	7.2	7.2	7.1	7.1
2	7.3	7.2	7.3	7.3	7.1	7.2	7.2	7.1	7.1	7.2	7.0	7.1
3	7.3	7.2	7.3	7.2	7.1	7.2	7.2	7.1	7.1	7.3	7.2	7.2
4	7.3	7.2	7.3	7.2	7.1	7.2	7.2	7.1	7.2	7.3	7.2	7.3
5	7.3	7.2	7.2	7.3	7.1	7.2	7.2	7.1	7.2	7.3	7.1	7.2
6	7.2	7.2	7.2	7.3	7.1	7.2	7.2	7.1	7.1	7.2	7.1	7.2
7	7.3	7.2	7.2	7.3	7.2	7.2	7.2	7.1	7.2	7.2	7.1	7.2
8	7.3	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.1	7.2
9	7.2	7.2	7.2	7.2	7.1	7.2	7.2	7.1	7.1	7.4	7.1	7.2
10	7.3	7.2	7.2	7.2	7.1	7.2	7.2	7.1	7.1	7.4	7.2	7.3
11	7.2	7.2	7.2	7.2	7.1	7.2	7.2	7.1	7.1	7.2	7.1	7.1
12	7.3	7.2	7.2	7.2	7.2	7.2	7.2	7.1	7.1	7.2	7.1	7.2
13	7.3	7.2	7.2	7.2	7.1	7.2	7.2	7.1	7.1	7.2	7.1	7.2
14	7.3	7.2	7.2	7.2	7.2	7.2	7.1	7.0	7.1	7.2	7.1	7.2
15	7.3	7.2	7.2	7.2	7.2	7.2	7.1	7.0	7.1	7.1	7.0	7.1
16	7.3	7.2	7.2	7.3	7.1	7.2	7.1	7.1	7.1	7.2	7.1	7.2
17	7.2	7.1	7.2	7.2	7.1	7.2	7.2	7.1	7.1	7.2	7.1	7.2
18	7.3	7.1	7.2	7.3	7.2	7.2	7.1	7.1	7.1	7.2	7.1	7.2
19	7.2	7.1	7.2	7.3	7.2	7.2	7.2	7.1	7.1	7.2	7.1	7.2
20	7.4	7.2	7.2	7.4	7.1	7.3	7.1	7.0	7.1	7.2	7.1	7.2
21	7.3	7.2	7.2	7.3	7.1	7.2	7.1	7.0	7.0	7.2	7.1	7.2
22	7.2	7.1	7.2	7.2	7.2	7.2	7.1	7.0	7.0	7.2	7.1	7.1
23	7.2	7.1	7.2	7.2	7.2	7.2	7.3	7.1	7.1	7.2	7.1	7.2
24	7.2	7.1	7.2	7.2	7.2	7.2	7.2	7.1	7.1	7.1	7.0	7.1
25	7.2	7.2	7.2	7.2	7.2	7.2	7.1	7.0	7.1	7.2	7.0	7.1
26	7.3	7.1	7.2	7.2	7.2	7.2	7.1	7.1	7.1	7.2	7.0	7.1
27	7.2	7.1	7.2	7.2	7.1	7.2	7.2	7.1	7.1	7.4	7.1	7.2
28	7.2	7.1	7.2	7.3	7.1	7.2	7.3	7.1	7.2	7.4	7.2	7.3
29	7.3	7.2	7.2	7.2	7.1	7.2	7.2	7.1	7.2	7.9	7.2	7.5
30	7.2	7.1	7.2	7.2	7.1	7.2	7.3	7.2	7.2	7.7	7.4	7.5
31	---	---	---	7.2	7.1	7.1	7.2	7.1	7.2	---	---	---
MONTH	7.4	7.1	7.2	7.4	7.1	7.2	7.3	7.0	7.1	7.9	7.0	7.2

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

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



08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

## OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	3.0	1.8	2.5	5.1	3.6	4.2	5.5	4.6	5.2	6.6	5.8	6.3
2	2.9	1.4	2.3	5.4	4.8	5.1	5.3	4.2	5.0	6.4	5.7	6.1
3	2.9	2.0	2.4	5.1	4.4	4.7	5.8	4.5	5.3	6.4	5.4	6.0
4	3.0	1.8	2.5	4.8	4.1	4.5	5.9	4.5	5.3	6.6	5.8	6.2
5	3.1	2.2	2.7	4.7	3.4	4.3	5.5	3.4	4.8	6.6	5.4	6.0
6	2.7	1.5	2.2	4.4	3.4	4.1	5.4	3.7	4.7	6.3	3.1	5.6
7	2.8	1.7	2.5	4.6	3.6	4.3	5.3	4.0	4.8	6.1	4.6	5.6
8	2.8	1.9	2.5	4.8	4.1	4.5	5.4	4.3	5.0	6.0	4.1	5.5
9	2.7	1.5	2.2	4.6	4.1	4.4	5.5	4.3	5.1	6.0	4.8	5.5
10	3.2	1.7	2.6	5.2	4.3	4.8	5.7	3.9	5.0	6.0	4.9	5.6
11	3.2	1.7	2.6	5.5	4.7	5.1	5.2	3.4	4.4	5.6	4.3	5.1
12	2.8	.2	2.2	5.7	4.9	5.4	6.9	2.1	4.6	5.6	4.6	5.2
13	2.6	1.3	2.2	5.7	4.8	5.4	7.2	.4	4.3	5.3	4.2	4.8
14	2.7	.8	1.9	5.6	5.1	5.4	7.0	5.2	6.5	4.7	3.7	4.3
15	2.5	1.2	2.0	5.4	4.7	5.3	6.9	6.4	6.7	4.6	3.2	3.9
16	2.5	.0	.8	5.4	4.4	5.0	6.7	6.2	6.5	4.4	3.1	3.9
17	2.9	1.0	2.2	5.1	3.7	4.6	7.4	6.5	7.0	4.5	3.4	4.2
18	3.2	2.4	3.0	4.3	3.5	4.1	7.1	6.3	6.7	4.6	3.7	4.2
19	2.8	2.1	2.5	4.1	3.0	3.7	6.2	5.2	5.9	5.1	3.4	4.4
20	2.7	1.8	2.4	4.1	2.7	3.5	5.7	4.6	5.4	4.9	3.7	4.5
21	2.8	1.8	2.4	3.9	3.0	3.6	5.2	3.8	4.8	6.5	2.6	5.3
22	3.2	1.3	2.6	4.6	3.1	3.9	4.9	3.7	4.3	8.6	3.2	6.2
23	3.2	2.3	2.9	4.9	4.1	4.5	6.8	3.8	5.1	9.4	7.9	8.5
24	3.4	2.7	3.1	4.8	3.9	4.4	6.8	4.5	5.5	9.3	7.2	8.3
25	3.6	2.4	3.1	4.7	3.5	4.3	6.9	6.1	6.5	7.8	7.2	7.5
26	3.6	2.5	3.2	4.7	4.1	4.4	7.1	6.7	6.9	7.9	7.6	7.8
27	3.5	2.8	3.3	4.7	3.7	4.4	6.8	6.2	6.5	8.1	7.8	8.0
28	3.4	2.2	3.0	4.8	3.6	4.4	6.3	5.8	6.1	8.2	7.8	8.0
29	3.2	1.9	2.9	5.4	4.2	4.9	6.3	5.0	5.9	8.3	7.7	8.1
30	5.1	.3	3.1	5.6	4.7	5.2	5.5	3.4	4.3	10.8	8.2	8.9
31	4.6	1.5	3.9	---	---	---	6.8	5.4	6.2	10.2	9.2	9.6
MONTH	5.1	.0	2.6	5.7	2.7	4.6	7.4	.4	5.5	10.8	2.6	6.1

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.6	8.2	9.2	7.8	6.0	6.8	6.3	5.4	6.1	3.9	3.0	3.5
2	9.0	8.1	8.7	8.6	7.6	8.0	6.0	5.3	5.8	3.6	.0	2.5
3	8.9	8.1	8.6	8.7	8.0	8.3	5.6	1.1	4.1	3.8	2.2	2.8
4	8.9	7.5	8.4	8.3	7.2	7.7	4.9	1.4	3.4	4.2	3.0	3.6
5	8.5	7.3	7.8	7.4	6.1	7.0	5.1	4.2	4.7	3.8	2.8	3.6
6	7.7	7.3	7.5	7.0	5.9	6.6	4.9	4.3	4.6	4.6	3.6	3.9
7	7.8	7.4	7.6	6.3	5.6	5.9	4.7	4.0	4.4	4.0	3.1	3.6
8	9.7	7.1	8.1	5.7	5.1	5.5	4.7	4.0	4.4	5.2	1.6	3.2
9	9.4	8.6	8.9	5.6	4.8	5.4	5.0	4.4	4.7	4.9	.8	2.3
10	9.0	8.3	8.7	5.4	5.0	5.2	5.0	4.2	4.7	4.1	1.6	3.2
11	10.7	8.2	9.0	5.0	3.3	4.3	4.7	3.8	4.4	4.0	3.3	3.7
12	10.2	7.6	8.8	4.8	3.4	4.2	5.2	4.1	4.6	3.9	3.2	3.6
13	8.9	7.1	8.1	5.2	3.4	4.6	6.9	4.9	5.6	3.6	2.6	3.2
14	8.2	7.8	8.0	4.8	3.5	4.4	---	5.6	5.7	4.1	1.8	2.8
15	8.0	7.6	7.7	4.9	2.5	4.0	---	---	5.6	5.3	.2	3.5
16	8.5	7.7	8.1	4.9	3.9	4.4	---	---	5.5	4.0	2.3	3.6
17	8.9	8.3	8.6	4.1	---	4.0	5.7	4.9	5.5	4.5	3.6	4.2
18	8.9	8.3	8.6	---	---	4.3	5.3	4.3	5.0	3.3	1.1	1.9
19	8.5	7.8	8.3	---	---	4.5	5.0	4.6	4.8	1.2	.0	.5
20	7.7	7.0	7.3	---	---	4.7	4.7	4.3	4.5	1.9	.0	.5
21	---	---	7.0	---	---	4.9	4.5	4.0	4.3	1.1	.0	.2
22	---	---	---	---	---	5.0	4.3	3.7	4.0	.9	.0	.1
23	---	---	---	---	---	5.2	4.3	3.6	4.0	.7	.0	.1
24	---	---	---	---	---	5.3	4.8	2.8	3.8	2.6	.0	1.4
25	---	---	---	5.8	---	5.4	4.2	.1	2.9	3.2	1.9	2.5
26	7.4	---	7.0	5.8	5.1	5.5	4.9	.8	3.2	2.1	1.3	1.8
27	6.7	5.5	6.2	5.7	4.5	5.4	5.4	5.0	5.2	1.3	.7	1.0
28	6.7	5.4	6.0	6.3	.4	3.0	5.6	4.6	5.1	---	---	1.0
29	6.3	5.0	5.7	5.5	.5	3.2	4.8	4.3	4.6	---	---	1.1
30	---	---	---	6.3	4.2	5.8	4.3	3.5	4.1	---	---	1.3
31	---	---	---	6.6	5.7	6.3	---	---	---	---	---	1.5
MONTH	10.7	5.0	7.9	8.7	.4	5.3	6.9	.1	4.6	5.3	.0	2.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	1.7	2.9	1.7	2.3	2.7	1.3	2.0	4.1	3.0	3.7
2	---	---	1.9	2.4	1.7	2.1	2.8	1.9	2.5	4.0	2.9	3.6
3	---	---	2.0	2.3	1.8	2.1	3.1	1.9	2.6	4.2	.9	2.6
4	---	---	2.2	2.4	2.0	2.2	4.3	1.7	3.0	2.3	.8	1.4
5	---	---	2.3	3.2	2.0	2.7	4.1	2.1	3.1	3.0	1.6	2.6
6	2.9	1.6	2.4	3.8	2.3	3.2	3.6	2.1	2.6	3.4	2.4	2.9
7	3.0	1.9	2.6	3.7	2.8	3.3	2.9	1.9	2.4	3.8	2.8	3.3
8	2.9	1.9	2.5	3.2	2.1	2.5	2.6	2.0	2.3	3.8	2.4	3.3
9	3.0	1.9	2.6	2.8	2.0	2.3	2.7	1.0	2.0	3.1	1.1	2.1
10	2.9	.5	2.0	2.3	1.5	1.9	2.8	1.9	2.5	2.7	1.0	1.8
11	3.1	1.7	2.4	2.0	.8	1.4	3.0	2.2	2.8	3.5	2.0	2.7
12	3.3	2.0	3.0	1.6	.7	1.1	3.0	2.1	2.7	3.6	2.5	3.2
13	3.4	2.5	3.1	1.5	.6	1.0	2.7	1.8	2.4	3.6	2.6	3.3
14	3.2	2.0	2.7	1.8	1.5	1.4	2.6	1.9	2.3	3.9	2.6	3.5
15	3.4	2.3	2.9	1.0	.2	.7	2.8	2.0	2.4	3.8	2.8	3.5
16	3.0	2.3	2.7	2.4	.0	.5	3.0	1.9	2.5	3.8	.8	2.7
17	3.5	2.2	2.8	2.6	1.7	2.2	3.2	2.2	2.8	3.7	2.9	3.3
18	3.6	.9	3.0	2.4	.1	1.7	3.2	2.4	2.9	3.4	2.7	3.2
19	3.4	2.5	2.9	2.9	1.5	2.3	3.9	2.9	3.4	3.6	2.7	3.2
20	4.8	.3	2.2	3.9	.7	2.6	3.7	2.3	2.9	3.8	2.4	3.2
21	3.0	1.5	2.7	3.7	1.5	2.5	2.6	1.3	2.0	4.0	2.7	3.6
22	3.4	2.2	2.8	2.2	1.1	1.7	2.4	1.0	1.8	3.8	2.8	3.5
23	3.5	2.3	2.9	2.4	---	2.0	3.6	1.9	2.6	3.7	2.4	3.3
24	3.6	2.6	3.1	3.1	1.4	2.3	3.9	2.1	3.2	3.5	1.5	2.6
25	3.2	2.6	2.9	3.1	1.5	2.5	4.1	2.5	3.3	3.4	1.6	2.8
26	2.9	.0	2.3	3.4	2.2	2.7	3.3	2.4	3.0	3.6	1.2	2.4
27	2.6	2.1	2.3	3.7	1.6	2.8	3.6	2.3	3.1	3.5	1.0	2.1
28	2.9	1.9	2.4	3.7	1.4	2.4	3.5	2.4	2.9	2.6	.4	1.4
29	4.3	2.1	3.4	2.9	1.6	2.3	3.3	2.4	2.9	7.8	.6	5.0
30	4.3	2.4	3.1	3.2	2.1	2.7	3.7	2.6	3.2	4.3	2.8	3.6
31	---	---	---	3.1	1.4	2.2	3.8	2.8	3.4	---	---	---
MONTH	4.8	.0	2.6	3.9	.0	2.1	4.3	1.0	2.7	7.8	.4	3.0

LOCATION.--Lat 32°42'17", long 96°40'11", Dallas County, Hydrologic Unit 12030105, on left bank at downstream side of the downstream access road bridge on U.S. Highway 175, 3.4 mi (5.5 km) upstream from mouth, and 9.0 mi (14.5 km) southeast of Dallas City Hall.

PERIOD OF RECORD.--October 1975 to September 1980 (discontinued).

REMARKS.--Records good. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,970 ft<sup>3</sup>/s (55.8 m<sup>3</sup>/s) Apr. 19, 1976, gage height, 22.38 ft (6.821 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 969 ft<sup>3</sup>/s (27.4 m<sup>3</sup>/s) Sept. 29 at 1100 hours, gage height, 18.67 ft (5.691 m), no other peak above base of 900 ft<sup>3</sup>/s (25.5 m<sup>3</sup>/s); no flow June 29 to Sept. 28.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.28	.43	.59	1.1	.63	.60	.94	.46	.00	.00	.00
2	.03	.09	.50	.50	.91	.51	.55	1.8	.30	.00	.00	.00
3	.02	.11	.55	.35	.69	.34	.60	2.0	.21	.00	.00	.00
4	.02	.07	.55	.32	.50	.40	.28	1.3	.27	.00	.00	.00
5	.02	.05	.58	.32	.73	.40	.40	1.1	.16	.00	.00	.00
6	.02	.07	.57	.38	.73	.48	.60	1.3	.11	.00	.00	.00
7	.02	.05	.55	.43	.63	.55	1.4	4.0	.20	.00	.00	.00
8	.02	.05	.55	.36	37	.44	1.5	4.7	.15	.00	.00	.00
9	.01	.98	.45	.48	10	.22	1.3	4.5	.09	.00	.00	.00
10	.01	1.3	.59	.50	7.2	.23	1.3	1.5	.07	.00	.00	.00
11	.02	.67	.66	.48	7.6	.28	1.5	1.0	.04	.00	.00	.00
12	.02	.34	11	.79	2.3	.56	2.2	2.0	.03	.00	.00	.00
13	.01	.19	9.8	.67	1.2	.61	81	3.6	.03	.00	.00	.00
14	.01	.11	.52	.85	1.0	.36	12	1.3	.03	.00	.00	.00
15	.07	.11	.17	.72	.94	.66	3.2	214	.03	.00	.00	.00
16	.06	.11	.08	.72	.92	.55	1.8	38	.02	.00	.00	.00
17	.03	.24	.08	.85	1.5	.60	1.3	5.8	.01	.00	.00	.00
18	.02	.21	.21	.85	.96	.66	.72	2.4	.01	.00	.00	.00
19	.03	.21	.23	1.3	.73	.50	.79	1.2	.01	.00	.00	.00
20	.03	.22	.22	1.2	.19	.45	.94	1.2	33	.00	.00	.00
21	.03	3.8	.50	49	.50	.40	1.0	.63	3.6	.00	.00	.00
22	.44	2.7	8.6	161	.45	.36	1.3	.97	18	.00	.00	.00
23	.01	1.4	99	9.2	.45	.50	1.3	.76	4.4	.00	.00	.00
24	.01	1.1	11	2.5	.28	1.4	1.5	.65	.41	.00	.00	.00
25	.02	.82	1.9	1.4	.37	1.4	14	.46	.11	.00	.00	.00
26	.02	.77	1.1	1.1	.52	.86	6.0	.82	.05	.00	.00	.00
27	.02	.66	.94	.91	.34	2.2	1.9	.61	.02	.00	.00	.00
28	.03	.51	.60	.65	.23	22	1.5	.54	.01	.65	.00	.00
29	.04	.42	.38	4.0	.29	5.8	1.3	.42	.00	.00	.00	236
30	15	.40	.44	3.1	---	2.6	1.0	.32	.00	.00	.00	13
31	8.5	---	.49	1.2	---	.86	---	.29	---	.00	.00	---
TOTAL	24.61	18.04	153.24	246.72	80.26	47.81	144.78	300.11	61.83	.00	.00	249.00
MEAN	.79	.60	4.94	7.96	2.77	1.54	4.83	9.68	2.06	.000	.000	8.30
MAX	15	3.8	99	161	37	22	81	214	33	.00	.00	236
MIN	.01	.05	.08	.32	.19	.22	.28	.29	.00	.00	.00	.00
CFSM	.09	.07	.55	.88	.31	.17	.54	1.07	.23	.000	.000	.92
IN.	.10	.07	.63	1.02	.33	.20	.60	1.24	.25	.00	.00	1.03
AC-FT	49	36	304	489	159	95	287	595	123	.00	.00	494
CAL YR 1979	TOTAL	2563.29		MEAN 7.02	MAX 246	MIN .01	CFSM .78	IN 10.56	AC-FT 5080			
WTR YR 1980	TOTAL	1326.40		MEAN 3.62	MAX 236	MIN .00	CFSM .40	IN 5.46	AC-FT 2630			

## TRINITY RIVER BASIN

465

08058900 EAST FORK TRINITY RIVER AT MCKINNEY, TX

LOCATION.--Lat 33°14'38", long 96°36'31", Collin County, Hydrologic Unit 12030106, on downstream side of highway embankment near left end of main channel bridge on State Highways 5 and 121, 750 ft (230 m) downstream from Honey Creek, 1.2 mi (1.9 km) upstream from Southern Pacific Railway Co. bridge, 1.7 mi (2.7 km) upstream from Clemons Creek, 3.3 mi (5.3 km) north of McKinney, 26.1 mi (42.0 km) upstream from Lavon Dam, and 86.5 mi (139.2 km) upstream from mouth.

DRAINAGE AREA.--164 mi<sup>2</sup> (425 km<sup>2</sup>).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 528.74 ft (161.160 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. At end of year, flow from 89.1 mi<sup>2</sup> (230.8 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of 49 floodwater-retarding structures with a combined detention capacity of 26,080 acre-ft (32.2 hm<sup>3</sup>). A nonrecording rain gage is located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 46.0 ft<sup>3</sup>/s (1.303 m<sup>3</sup>/s), 33,330 acre-ft/yr (41.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft<sup>3</sup>/s (371 m<sup>3</sup>/s) Mar. 27, 1977, gage height, 19.84 ft (6.047 m), from rating curve extended above 800 ft<sup>3</sup>/s (22.7 m<sup>3</sup>/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1913, about 28 ft (8.5 m) in April 1942, discharge not determined, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 919 ft<sup>3</sup>/s (26.0 m<sup>3</sup>/s) Sept. 29 at 1000 hours, gage height, 14.20 ft (4.328 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.07	.00	.61	1.5	4.7	8.1	2.3	1.6	.07	.00	.00
2	.00	.00	.00	.59	1.5	4.2	7.4	2.9	1.0	.07	.00	.00
3	.00	.00	.00	.58	1.5	3.8	6.4	2.3	.78	.07	.00	.00
4	.00	.00	.00	.51	1.5	4.2	5.7	1.8	.55	.07	.00	.00
5	.00	.00	.00	.50	1.4	4.2	5.2	1.7	.43	.07	.00	.00
6	.00	.00	.00	.52	1.4	4.1	4.9	1.6	.37	.06	.00	.00
7	.00	.00	.00	.47	1.2	4.2	5.0	1.4	.33	.06	.00	.00
8	.00	.00	.00	.43	2.1	4.2	4.6	1.1	.31	.06	.00	.00
9	.00	.00	.00	.47	31	4.3	4.4	.81	.27	.06	.00	.00
10	.00	.00	.00	.42	18	4.1	4.1	1.3	.24	.06	.00	.00
11	.00	.00	.00	.59	11	4.0	3.7	.82	.22	.05	.00	.00
12	.00	.00	.02	.73	10	4.4	2.5	.47	.18	.05	.00	.00
13	.00	.00	.10	.70	12	4.2	3.8	.28	.16	.05	.00	.00
14	.00	.00	.03	.59	12	4.0	5.2	.20	.13	.05	.00	.00
15	.00	.00	.00	.62	10	3.6	6.9	19	.12	.04	.00	.00
16	.00	.00	.00	.76	8.8	3.3	5.0	71	.11	.04	.00	.00
17	.00	.00	.00	.71	7.8	3.3	4.1	19	.10	.04	.00	.00
18	.00	.00	.00	.87	7.3	3.3	3.7	14	.09	.03	.00	.00
19	.00	.00	.00	.77	7.4	3.2	3.4	14	.08	.03	.00	.00
20	.00	.00	.00	.89	7.8	3.0	3.1	15	41	.03	.00	.00
21	.00	.00	.00	3.0	7.1	3.0	2.8	8.9	11	.02	.00	.00
22	.00	.00	.03	18	6.8	2.9	2.7	6.9	4.7	.02	.00	.00
23	.00	.00	9.6	8.7	6.1	2.8	2.3	6.5	3.8	.02	.00	.00
24	.00	.00	18	4.7	5.6	3.6	2.1	5.4	1.8	.02	.00	.00
25	.00	.00	13	3.3	5.3	3.3	2.6	4.5	.32	.01	.00	.00
26	.00	.00	5.3	2.5	4.8	3.1	2.5	3.7	.13	.01	.00	.00
27	.00	.00	2.2	1.8	4.8	3.1	2.5	2.7	.08	.00	.00	.00
28	.00	.00	1.1	1.4	5.0	6.0	2.6	2.9	.08	.00	.00	.00
29	.00	.00	.88	1.3	4.9	11	2.8	2.8	.08	.00	.00	557
30	.01	.00	.76	1.5	---	9.4	2.4	2.5	.08	.00	.00	278
31	.14	---	.65	1.4	---	8.4	---	2.2	---	.00	.00	---
TOTAL	.15	.07	51.67	59.93	205.6	134.9	122.5	219.98	70.14	1.16	.00	835.00
MEAN	.005	.002	1.67	1.93	7.09	4.35	4.08	7.10	2.34	.037	.000	27.8
MAX	.14	.07	18	18	31	11	8.1	71	41	.07	.00	557
MIN	.00	.00	.00	.42	1.2	2.8	2.1	.20	.08	.00	.00	.00
AC-FT	.3	.1	102	119	408	268	243	436	139	2.3	.00	1660
CAL YR 1979	TOTAL	24004.21	MEAN	65.8	MAX	1860	MIN	.00	AC-FT	47610		
WTR YR 1980	TOTAL	1701.10	MEAN	4.65	MAX	557	MIN	.00	AC-FT	3370		

## TRINITY RIVER BASIN

08059400 SISTER GROVE CREEK NEAR BLUE RIDGE, TX

LOCATION.--Lat 33°17'40", long 96°28'58", Collin County, Hydrologic Unit 12030106, on left bank at upstream side of highway embankment of bridge on Farm Road 545, 3.5 mi (5.6 km) upstream from Hatler Banch, 4.8 mi (7.7 km) west of Blue Ridge, 7.4 mi (11.9 km) upstream from Stiff Creek, 14.7 mi (23.7 km) upstream from mouth, and 24.7 mi (39.7 km) upstream from Lavon Dam.

DRAINAGE AREA.--83.1 mi<sup>2</sup> (215.2 km<sup>2</sup>).

PERIOD OF RECORD.--July 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 536.29 ft (163.461 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. At end of year, flow from 47.4 mi<sup>2</sup> (122.8 km<sup>2</sup>) above this station was affected at times by discharge from the flood-detention pools of 34 floodwater-retarding structures with a combined detention capacity of 12,710 acre-ft (15.7 hm<sup>3</sup>). A nonrecording rain gage is located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 23.7 ft<sup>3</sup>/s (0.671 m<sup>3</sup>/s), 17,170 acre-ft/yr (21.2 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,650 ft<sup>3</sup>/s (132 m<sup>3</sup>/s) Apr. 19, 1977, gage height, 16.93 ft (5.160 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1900, 20.7 ft (6.31 m) probably in July 1913, from information furnished by State Department of Highways and Public Transportation. The probable date is from published records for discontinued station 08059500 located 9.7 mi (15.6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 375 ft<sup>3</sup>/s (10.6 m<sup>3</sup>/s) May 15 at 2230 hours, gage height, 9.63 ft (2.935 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	3.9	2.2	4.2	3.6	4.3	4.7	2.3	7.9	9.0	.00	.00
2	.00	1.8	2.2	4.2	3.4	3.7	4.1	7.2	4.1	10	.00	.00
3	.40	1.2	2.5	4.0	2.9	3.7	4.1	2.1	.74	12	.00	.00
4	.75	1.0	2.7	4.0	3.0	4.2	3.7	3.3	.56	3.6	.00	.00
5	.79	.43	2.8	3.7	3.3	5.8	3.4	3.4	.33	.09	.00	.00
6	.75	.24	2.7	4.6	3.4	8.0	3.4	4.0	.18	.01	.00	.00
7	.33	.19	2.8	4.2	3.3	7.0	3.4	6.6	.12	3.4	.00	.00
8	.06	.38	2.9	4.2	4.7	4.3	3.5	4.4	.12	13	.00	.00
9	.00	.67	2.9	4.2	13	4.5	3.6	6.1	.15	13	.00	.00
10	.00	.58	2.9	4.0	14	4.6	2.9	6.3	.11	14	.00	.00
11	.00	.73	3.5	2.9	7.8	4.8	2.9	5.1	.06	8.4	.00	.00
12	.00	1.1	4.8	2.7	8.0	4.7	2.8	3.7	.02	.36	.00	.00
13	.00	1.1	5.9	2.9	8.0	4.0	3.5	2.8	.00	.03	.00	.00
14	.00	.77	5.6	2.9	7.4	3.6	5.2	4.0	.00	.00	.00	.00
15	.00	.94	5.2	2.9	6.9	3.7	5.3	55	.00	.00	.00	.00
16	.00	1.4	4.0	2.9	6.1	3.5	4.4	103	.00	.00	.00	.00
17	.00	1.8	3.7	2.9	5.5	3.4	3.9	63	.00	.00	.00	.00
18	.00	1.5	3.7	2.7	5.3	3.3	3.6	38	.00	.00	.00	.00
19	.00	1.2	3.7	2.9	5.8	5.9	3.3	26	.00	.00	.00	.00
20	.00	1.1	3.7	3.1	7.9	8.0	3.1	17	.00	.00	.00	.00
21	.00	1.5	3.7	3.4	11	6.4	3.1	13	4.4	.00	.00	.00
22	.00	1.8	3.7	11	8.3	5.9	2.9	12	9.0	.00	.00	.00
23	.00	1.8	10	9.3	5.8	5.3	2.4	10	5.8	.00	.00	.00
24	.00	2.2	27	6.8	4.7	6.0	2.2	10	.84	.00	.00	.00
25	.00	2.3	15	5.2	4.5	5.1	2.6	9.8	.20	.00	.00	.00
26	.00	2.6	7.6	4.2	4.1	4.4	3.2	8.9	.09	.00	.00	.00
27	.00	2.7	6.0	3.5	5.3	4.3	3.4	8.4	.05	.00	.00	.00
28	.00	2.5	5.2	3.2	5.1	6.1	3.7	8.4	.02	.00	.00	.00
29	.00	2.2	4.9	3.1	4.9	8.1	2.9	8.2	.00	.00	.00	119
30	.00	2.2	4.2	3.2	---	6.9	2.6	8.4	1.8	.00	.00	51
31	7.6	---	4.2	3.7	---	5.3	---	7.9	---	.00	.00	---
TOTAL	10.68	43.83	161.9	126.7	177.0	158.8	103.8	468.3	36.59	86.89	.00	170.00
MEAN	.34	1.46	5.22	4.09	6.10	5.12	3.46	15.1	1.22	2.80	.000	5.67
MAX	7.6	3.9	27	11	14	8.1	5.3	103	9.0	14	.00	119
MIN	.00	.19	2.2	2.7	2.9	3.3	2.2	2.1	.00	.00	.00	.00
AC-FT	21	87	321	251	351	315	206	929	73	172	.00	337
CAL YR 1979	TOTAL	14052.42	MEAN	38.5	MAX	756	MIN	.00	AC-FT	27870		
WTR YR 1980	TOTAL	1544.49	MEAN	4.22	MAX	119	MIN	.00	AC-FT	3060		



## 08060500 LAVON LAKE NEAR LAVON, TX

LOCATION.--Lat 33°01'54", long 96°28'56", Collin County, Hydrologic Unit 12030106, in right abutment of spillway in dam on East Fork Trinity River, 3,850 ft (1,170 m) upstream from St. Louis Southwestern Railway Lines bridge, 4,000 ft (1,200 m) upstream from bridge on State Highway 78, 2.9 mi (4.7 km) west of Lavon, and 55.9 mi (89.9 km) upstream from mouth.

DRAINAGE AREA.--770 mi<sup>2</sup> (1,990 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1953 to current year. Prior to October 1970, published as Lavon Reservoir.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 20, 1954, nonrecording gage in the approach channel at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 18,860 ft (5,749 m) long, including a 568-foot (173 m) gated spillway with twelve 40.0- by 28.0-foot (12.2 by 8.5 m) tainter gates. The original dam was 9,499 ft (2,895 m) long, but conservation capacity was increased to the present size in December 1975. Deliberate impoundment began Sept. 14, 1953, and the dam was completed in October 1953. The low-flow outlets consists of five 36-inch-diameter (914 mm) controlled sluice gates. The capacity table is based on Table No. 9 (Design Memo 1970 Conditions). The lake was designed for flood control and water conservation. Water for municipal supply can be released down to elevation 453.0 ft (138.07 m). Flow is affected at times by discharge from the flood-detention pools of 147 floodwater-retarding structures with a combined detention capacity of 68,450 acre-ft (84.4 hm<sup>3</sup>). These structures control runoff from 239 mi<sup>2</sup> (619 km<sup>2</sup>) in the East Fork Trinity River, Pilot Grove Creek, and Sister Grove Creek drainage basins. Corps of Engineers gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	514.0	-
Design flood.....	509.0	921,200
Top of tainter gates.....	503.5	748,200
Top of conservation pool.....	492.0	456,500
Crest of spillway (sill of tainter gates).....	475.5	178,300
Lowest gated outlet (invert).....	453.0	12,700

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 523,500 acre-ft (645 hm<sup>3</sup>) June 4, 1979, elevation, 494.98 ft (150.870 m); minimum since lake first filled in 1957, 80,150 acre-ft (98.8 hm<sup>3</sup>) Apr. 17, 1976, elevation, 465.96 ft (142.025 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 416,400 acre-ft (513 hm<sup>3</sup>) Oct. 3 at 1900 hours, elevation, 490.06 ft (149.370 m); minimum, 291,200 acre-ft (359 hm<sup>3</sup>) Sept. 26 at 1930 hours, elevation, 483.22 ft (147.285 m).

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

483.0	287,600	489.0	395,500
485.0	321,500	491.0	435,500
487.0	357,500		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	415000	401600	389900	388100	391200	393000	386600	381800	381000	364000	336200	308900
2	414000	401000	389500	388500	391000	392800	387000	382700	381000	363200	334600	308400
3	413600	400200	388900	388100	391200	391800	387100	382900	380800	362300	333900	307300
4	412600	399200	388900	387500	391000	393100	387000	382500	380000	361400	332800	306600
5	411800	400000	388700	386400	391000	392400	386200	382200	379300	360500	331700	305600
6	411400	399200	388500	387000	390800	391800	384800	382000	378500	359500	331000	305300
7	410000	398600	387900	386800	391200	392600	384600	381800	378100	358400	330100	304600
8	409800	397800	387500	386000	391800	392200	384300	381600	377800	357700	329400	304100
9	409500	399000	387100	385600	391800	391400	383700	381000	377000	356800	328500	303400
10	408300	398600	386800	385600	395100	391200	382700	380600	376000	355600	328000	302700
11	407900	398000	388300	385400	396100	391400	382900	380400	375300	354700	327300	301900
12	407500	397000	388500	384300	395900	391400	383300	380400	374300	353800	326400	301000
13	407100	396800	388300	384500	395900	391000	383900	380000	373400	352700	325700	300200
14	405700	396500	387900	384300	396100	390600	383900	379700	372300	351800	324500	300000
15	406100	396100	387700	384500	396700	390600	383500	383300	371500	350700	323600	299400
16	405500	395300	387300	384300	396700	390600	382900	386000	370900	349800	322900	298000
17	405300	394900	386600	384100	396100	390800	382900	387700	370200	348900	321500	298000
18	404900	394700	386000	383700	395500	389300	382700	388100	369200	347900	320600	298000
19	403900	394500	385800	384100	396100	388900	382500	388100	368500	346800	319600	296000
20	403500	395100	385600	385000	395900	388700	382200	387300	370900	346100	318900	294800
21	403100	394700	385800	386800	395900	388500	381600	387100	370800	345600	318200	294200
22	404100	394500	386800	392000	395900	388300	381000	387000	370600	344800	317500	293800
23	403500	393700	389700	392400	395500	388100	380400	386200	370400	343800	316500	293300
24	402900	393100	390000	392400	395300	387700	382200	386000	369400	342900	315600	292500
25	402300	393700	389900	392600	395300	387000	382900	385800	368900	341800	314700	292300
26	401600	391800	389700	392600	394700	386800	383100	385400	368300	341000	313900	293000
27	401400	392000	389500	392400	394300	387500	382200	385000	367400	340900	313000	294200
28	401000	391400	389500	392800	394100	387900	381800	384300	366200	339800	312300	295500
29	399600	390800	389300	392400	393700	388100	380600	383700	365700	339100	311300	300400
30	402100	390000	388900	393000	---	387300	380400	383300	364900	338200	310400	301900
31	401900	---	388700	392000	---	386600	---	382300	---	337100	309200	---
MAX	415000	401600	390000	393000	396700	393100	387100	388100	381000	364000	336200	308900
MIN	399600	390000	385600	383700	390800	386600	380400	379700	364900	337100	309200	292300
(†)	489.32	488.71	488.64	488.81	488.90	488.53	488.21	488.31	487.39	485.87	484.28	483.85
(+)	-13100	-11900	-1300	+3300	+1700	-7100	-6200	+1900	-17400	-27800	-27900	-7300
(††)	7490	5910	6140	6940	5550	6530	7060	7930	11320	14540	14740	11790
CAL YR 1979	MAX	522800	MIN	258600	+	+126600	††	77860				
WTK YR 1980	MAX	415000	MIN	292300	+	-113100	††	105900				

† Elevation, in feet, at end of month.

† Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial uses by North Texas Municipal Water District and the city of Garland.



## TRINITY RIVER BASIN

08060500 LAVON LAKE NEAR LAVON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1974, October 1975 to current year.

330203096284901 LAVON LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
JAN										
08...	1044	1.0	300	8.3	7.5	1.70	11.4	97	130	11
08...	1046	10	300	8.3	7.5	--	11.3	96	--	--
08...	1048	20	300	8.3	7.5	--	11.3	96	--	--
08...	1050	30	300	8.3	7.5	--	11.3	96	--	--
08...	1052	40	300	8.3	7.5	--	11.3	96	140	12
MAY										
13...	1355	1.0	313	8.3	22.0	1.20	8.7	101	130	8
13...	1357	10	315	8.2	21.0	--	8.1	92	--	--
13...	1358	20	315	8.1	20.5	--	7.6	85	--	--
13...	1359	30	315	8.1	20.5	--	7.6	85	--	--
13...	1400	40	315	7.9	20.0	--	6.7	74	130	8
AUG										
11...	1310	1.0	284	8.4	29.5	1.00	7.9	104	110	3
11...	1312	10	288	8.1	28.5	--	7.1	92	--	--
11...	1314	20	288	8.0	28.5	--	6.7	87	--	--
11...	1316	30	288	7.9	28.5	--	5.9	77	--	--
11...	1318	33	288	7.8	28.5	--	5.8	75	110	6

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
08...	49	2.9	12	.5	4.4	150	0	22	5.5
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	49	3.1	13	.5	4.2	150	0	24	7.6
MAY									
13...	47	3.4	9.9	.4	4.0	150	0	23	6.7
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--
13...	47	3.4	10	.4	4.0	150	0	24	7.4
AUG									
11...	39	3.1	11	.5	4.6	120	5	23	8.0
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	40	3.2	12	.5	4.5	130	0	23	8.0

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)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
08...	.3	4.0	174	.09	1.0	1.1	.010	<10	<1
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	.09	1.0	1.1	.010	10	0
08...	--	--	--	--	--	--	--	--	--
08...	--	4.1	179	.06	.95	1.0	.010	<10	<1
MAY									
13...	.3	.7	169	.01	.62	.63	.010	<10	<3
13...	--	--	--	.01	.69	.70	.020	30	10
13...	--	--	--	--	--	--	--	--	--
13...	--	--	--	.02	.76	.78	.010	10	0
13...	--	1.0	171	.02	.71	.73	.010	<10	20
AUG									
11...	.3	3.6	157	.00	1.1	1.1	.020	<10	2
11...	--	--	--	.00	.79	.79	.030	10	0
11...	--	--	--	.00	.68	.68	.030	20	0
11...	--	--	--	--	--	--	--	--	--
11...	--	3.7	159	.00	.79	.79	.030	<10	5

TRINITY RIVER BASIN  
LAVON LAKE NEAR LAVON, TX--Continued

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330205096280001 LAVON LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
08...	1115	1.0	300	8.3	8.0	11.3	97
08...	1117	10	300	8.3	8.0	11.3	97
08...	1119	20	300	8.3	8.0	11.3	97
08...	1121	30	300	8.3	8.0	11.3	97
08...	1123	42	300	8.3	7.5	11.3	96
MAY							
13...	1335	1.0	315	8.2	21.5	8.5	98
13...	1336	10	315	8.2	21.0	8.2	93
13...	1337	20	315	8.1	21.0	7.8	89
13...	1338	30	315	8.0	20.0	7.1	79
13...	1339	40	321	7.6	19.0	4.3	47
AUG							
11...	1200	1.0	288	8.1	29.0	7.1	93
11...	1202	10	288	7.8	28.5	7.0	91
11...	1204	20	288	7.8	28.5	5.7	74
11...	1206	33	288	7.5	28.5	5.0	65

330654096273201 LAVON LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
08...	1315	1.0	306	8.2	8.0	.90	11.1
08...	1318	10	306	8.2	7.5	--	11.1
08...	1320	24	306	8.2	7.5	--	11.0
MAY							
13...	1430	1.0	315	8.2	22.5	.90	8.2
13...	1431	10	315	8.1	22.5	--	8.0
13...	1432	20	315	8.1	22.0	--	7.8
13...	1433	24	315	8.1	22.0	--	7.6
AUG							
11...	1430	1.0	280	8.3	31.0	.80	7.9
11...	1432	10	280	8.0	30.0	--	7.1
11...	1434	18	283	7.7	29.5	--	5.2

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
08...	95	.07	1.1	1.2	.010	0	0
08...	94	.08	1.0	1.1	.020	0	0
08...	93	.06	--	--	1.100	10	0
MAY							
13...	95	.01	.80	.81	.030	20	10
13...	93	.01	.87	.88	.020	20	0
13...	91	.03	1.8	1.8	.070	30	0
13...	88	.01	.73	.74	.010	20	10
AUG							
11...	107	.00	.72	.72	.030	10	0
11...	95	.00	.81	.81	.030	0	0
11...	68	.00	1.4	1.4	.050	10	0

TRINITY RIVER BASIN  
LAVON LAKE NEAR LAVON, TX--Continued

330954096261201 LAVON LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
08...	1420	1.0	346	8.2	7.0	.90	11.7
08...	1422	11	346	8.2	6.0	--	11.3
MAY							
13...	1600	1.0	360	7.8	24.5	.40	6.8
13...	1601	8.0	366	7.7	24.0	--	5.3
AUG							
11...	1530	1.0	324	8.1	31.0	.40	7.4
11...	1532	7.0	324	7.7	29.0	--	4.0

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
08...	98	1.2	.02	1.2	.030	30	0
08...	92	.02	1.2	1.2	.030	40	0
MAY							
13...	83	.01	1.0	1.0	.040	20	10
13...	64	.01	.98	.99	.040	40	10
AUG							
11...	100	.00	1.1	1.1	.070	10	0
11...	53	.00	1.0	1.0	.100	40	30

331023096250101 LAVON LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CaCO3)
JAN									
08...	1450	1.0	344	8.3	6.5	.90	12.0	99	150
08...	1452	10	344	8.3	6.0	--	12.3	100	150
MAY									
13...	1515	1.0	348	8.0	25.0	.30	7.9	96	140
13...	1516	5.0	352	7.6	24.5	--	5.5	67	--
13...	1517	10	352	7.5	23.5	--	4.6	55	150
AUG									
11...	1600	1.0	315	8.4	31.0	.40	7.3	99	120
11...	1602	9.0	323	7.4	29.0	--	3.5	46	120

DATE	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
08...	15	56	3.5	13	.5	4.4	170	0	--
08...	12	55	3.4	12	.4	4.4	170	0	30
MAY									
13...	4	51	4.0	13	.5	4.3	170	0	28
13...	--	--	--	--	--	--	--	--	--
13...	6	52	3.9	13	.5	4.3	170	0	29
AUG									
11...	1	42	3.4	13	.5	4.7	140	2	25
11...	1	44	3.4	14	.5	4.9	150	0	26

## TRINITY RIVER BASIN

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## LAVON LAKE NEAR LAVON, TX--Continued

331023096250101 LAVON LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA- NESE, DIS-SOLVED (UG/L AS MN)
JAN									
08...	5.7	2.2	--	.00	--	--	.040	<10	2
08...	6.6	2.0	197	.00	--	--	.060	10	3
MAY									
13...	7.0	2.6	194	.02	1.0	1.0	.040	10	<3
13...	--	--	--	--	--	--	--	--	--
13...	7.0	2.8	196	.01	1.1	1.1	.010	<10	40
AUG									
11...	8.7	3.9	172	.00	.88	.88	.060	<10	2
11...	8.8	4.5	180	.00	1.0	1.0	.070	<10	20

330448096315601 LAVON LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	HARD- NESS (MG/L AS CACO3)
JAN									
08...	1215	1.0	316	7.9	8.0	1.00	9.9	85	140
08...	1217	10	316	8.1	7.0	--	10.8	90	140
MAY									
13...	1250	1.0	316	8.0	24.0	.40	7.8	94	130
13...	1252	7.0	334	7.5	23.0	--	4.7	55	140
AUG									
11...	1345	1.0	274	8.5	31.0	.70	8.4	114	100
11...	1347	6.0	274	8.4	30.5	--	8.2	111	100

DATE	HARD- NESS, NONCAR- BONATE (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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
08...	6	50	2.9	11	.4	4.3	160	0	25
08...	5	50	2.8	12	.4	4.3	160	0	24
MAY									
13...	0	47	3.3	10	.4	4.1	160	0	22
13...	0	50	3.3	11	.4	3.9	170	0	17
AUG									
11...	0	36	3.0	12	.5	4.9	120	4	23
11...	1	36	3.1	12	.5	4.3	120	2	24

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA- NESE, DIS-SOLVED (UG/L AS MN)
JAN									
08...	7.0	3.2	182	.12	1.1	1.2	.070	<10	2
08...	6.7	3.3	182	.06	.97	1.0	.030	<10	4
MAY									
13...	6.8	1.2	173	.01	.83	.84	.020	<10	5
13...	5.6	2.0	177	.01	.87	.88	.140	<10	110
AUG									
11...	8.5	3.7	154	.00	.97	.97	.040	<10	2
11...	8.5	3.8	153	.00	.72	.72	.040	<10	2

TRINITY RIVER BASIN  
LAVON LAKE NEAR LAVON, TX--Continued

330203096284901 LAVON LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JAN 8,80 1045	MAY 13,80 1356	AUG 11,80 1311			
TOTAL CELLS/ML	8400	5300	210000			
DIVERSITY: DIVISION	1.2	1.2	0.1			
..CLASS	1.2	1.2	0.1			
...ORDER	0.0	2.1	0.6			
...FAMILY	0.0	2.7	0.7			
...GENUS	0.0	3.1	1.5			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE						
...SCHROEDERIA	140	2	64	1	*	0
...HYDRODICTYACEAE						
...PEDIASTRUM	--	-	210	4	--	-
...OOCYSTACEAE						
...ANKISTRODESMUS	570	7	190	4	*	0
...CHLORELLA	1400#	17	*	0	--	-
...DICTYOSPHAERIUM	--	-	--	-	*	0
...KIRCHNERIELLA	360	4	--	-	--	-
...OOCYSTIS	--	-	39	1	--	-
...SELENASTRUM	--	-	64	1	*	0
...TETRAEDRON	--	-	--	-	*	0
...SCENEDESMACEAE						
...SCENEDESMUS	140	2	*	0	*	0
...TETRASTRUM	--	-	51	1	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	-	220	4	--	-
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCACEAE						
...CYCLOTILLA	3200#	38	*	0	*	0
...MELOSIRA	2100#	25	370	7	--	-
...PENNALES						
...FRAGILARIACEAE						
...FRAGILARIA	--	-	--	-	*	0
...NITZSCHIACEAE						
...NITZSCHIA	--	-	*	0	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE	71	1	--	-	--	-
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
...CHROOMONAS	--	-	51	1	--	-
...CRYPTOMONADACEAE						
...CRYPTOMONAS	430	5	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	--	-	1200#	23	4000	2
...ANACYSTIS	--	-	500	9	13000	6
...HORMOGONALES						
...NOSTOCACEAE						
...ANABAENA	--	-	570	11	4300	2
...ANABAENOPSIS	--	-	--	-	1200	1
...OSCILLATORIACEAE						
...LYNGBYA	--	-	--	-	46000#	22
...OSCILLATORIA	--	-	1500#	29	140000#	66
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...TRACHELOMONAS	--	-	64	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## TRINITY RIVER BASIN

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LAVON LAKE NEAR LAVON, TX--Continued

330448096315601 LAVON LAKE SITE EC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JAN 8,80 1216	MAY 13,80 1251	AUG 11,80 1346
TOTAL CELLS/ML	5000	14000	100000
DIVERSITY: DIVISION	1.2	1.0	0.4
..CLASS	1.2	1.0	0.4
..ORDER	1.2	1.9	1.1
...FAMILY	1.5	2.3	1.5
....GENUS	2.3	3.2	2.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE						
...SCHROEDERIA	97	2	*	0	--	-
...OOCYSTACEAE						
...ANKISTRODESMUS	450	9	330	2	*	0
...CHLORELLA	--	-	150	1	--	-
...CHODATELLA	--	-	180	1	*	0
...DICTYOSPHAERIUM	--	-	--	-	710	1
...KIRCHNERIELLA	64	1	--	-	--	-
...OOCYSTIS	--	-	*	0	--	-
...SELENASTRUM	--	-	100	1	--	-
...TETRAEDRON	--	-	--	-	*	0
...SCENEDESMACEAE						
...ACTINASTRUM	--	-	--	-	710	1
...CRUCIGENIA	--	-	--	-	1100	1
...SCENEDESMUS	260	5	500	4	1100	1
...TETRASTRUM	130	3	200	1	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	-	550	4	*	0
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
...CYCLOTELLA	2000#	40	150	1	*	0
...MELOSIRA	1500#	29	480	3	--	-
...STEPHANODISCUS	--	-	*	0	--	-
..PENNALES						
...ACHNANTHACEAE						
...ACHNANTHES	--	-	--	-	*	0
...FRAGILARIACEAE						
...SYNEDRA	--	-	--	-	*	0
...NITZSCHACEAE						
...NITZSCHIA	32	1	250	2	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOMONADACEAE						
...CRYPTOMONAS	--	-	*	0	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	520	10	2900#	21	1100	1
...ANACYSTIS	--	-	1400	10	20000#	20
...COCCOCHLORIS	--	-	180	1	--	-
...HORMOGONALES						
...NOSTOCACEAE						
...ANABAENA	--	-	650	5	5300	5
...ANABAENOPSIS	--	-	--	-	3800	4
...OSCILLATORIACEAE						
...LYNGBYA	--	-	1600	11	23000#	23
...OSCILLATORIA	--	-	4200#	30	41000#	41
...PHORMIDIUM	--	-	--	-	980	1
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...EUGLENA	--	-	*	0	--	-
...TRACHELOMONAS	--	-	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%



## TRINITY RIVER BASIN

08061000 EAST FORK TRINITY RIVER NEAR LAVON, TX

LOCATION.--Lat 33°01'25", long 96°28'31", Collin County, Hydrologic Unit 12030106, on left bank at downstream side of St. Louis Southwestern Railway Lines bridge, 150 ft (46 m) upstream from bridge on State Highway 78, 3,550 ft (1,082 m) downstream from Lavon Dam, 2.5 mi (4.0 km) west of Lavon, and 54.9 mi (88.3 km) upstream from mouth.

DRAINAGE AREA.--773 mi<sup>2</sup>, (2,002 km<sup>2</sup>).

PERIOD OF RECORD.--October 1953 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 429.58 ft (130.936 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1969, at site 150 ft (46 m) downstream at same datum.

REMARKS.--Records fair. Flow is regulated by Lavon Lake (station 08060500). Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--27 years, 331 ft<sup>3</sup>/s (9.374 m<sup>3</sup>/s), 239,800 acre-ft/yr (296 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft<sup>3</sup>/s (1,100 m<sup>3</sup>/s) May 26, 27, 1957, from records of released flow from Lavon Lake furnished by Corps of Engineers; maximum gage height, 17.34 ft (5.285 m) May 26, 1957; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1894, 22.3 ft (6.80 m) in 1913 and in April 1942, from information by St. Louis Southwestern Railway Lines and local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 59.0 ft<sup>3</sup>/s (1.67 m<sup>3</sup>/s) Jan. 22 at 0630 hours, gage height, 9.64 ft (2.938 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.03	.36	.52	1.0	1.3	.06	.01	.68	.00	.00
2	.00	.00	.06	.36	.32	.91	1.1	.10	.00	.33	.00	.03
3	.00	.00	.14	.56	.36	.47	1.2	.16	.00	.22	.00	.03
4	.35	.00	.21	.56	.36	.40	1.2	.24	.00	.16	.00	.07
5	.01	.00	.21	.36	.36	.70	1.1	.42	.00	.16	.00	.11
6	.00	.00	.05	.22	.36	.83	1.1	.69	.00	.16	.00	.01
7	.00	.00	.03	.22	.43	2.8	1.1	.54	.00	.16	.00	.01
8	.00	.00	.03	.22	3.5	1.3	.74	.41	.00	.03	.00	.05
9	.00	.00	.08	.22	1.5	.15	.49	.39	.00	.03	.00	.14
10	.00	.00	.11	.22	.56	.69	.51	.21	.00	.18	.00	.24
11	.00	.00	.11	.22	.56	.17	.56	.34	.00	.13	.00	.16
12	.00	.00	2.0	.22	.49	.22	.31	.74	.00	.07	.00	.09
13	.00	.00	1.2	.22	.36	.57	3.5	.54	.00	.06	.00	.03
14	.00	.00	.56	.22	.36	.54	2.4	.44	.00	.03	.00	.03
15	.00	.00	.56	.22	.22	.41	.36	2.9	.00	.03	.00	.03
16	.00	.01	.36	.22	.68	.70	.36	1.8	.00	.03	.00	.03
17	.01	.02	.22	.22	.74	.85	.52	.28	.00	.02	.00	.01
18	.01	.00	.36	.22	.50	.60	.56	.12	.00	.01	.00	.01
19	.01	.00	.36	.22	.36	.63	.56	.08	.00	.01	.00	.00
20	.00	.00	.36	.82	.36	.69	.56	.06	.61	.01	.42	.00
21	.00	.00	.36	6.9	.36	.48	.56	.02	.00	.00	.10	.00
22	.00	.00	.56	18	.36	.13	.56	.12	.39	.00	.23	.00
23	.00	.01	7.8	4.4	.36	.25	.84	.36	.00	.00	.14	.00
24	.00	.02	2.0	2.0	.36	.21	1.8	.15	.00	.00	.01	.00
25	.00	.06	1.2	1.5	.28	.21	5.0	.36	.00	.00	.00	.09
26	.00	.05	.82	1.2	.16	.30	1.4	.23	.00	.00	.23	.34
27	.00	.09	.82	1.4	.19	1.9	1.1	.19	.00	.00	.56	1.4
28	.00	.04	.56	1.2	.21	3.5	.76	.13	.00	.00	.11	.65
29	.00	.00	.36	1.2	.23	1.6	.46	.31	.00	.00	.07	6.4
30	.00	.00	.82	.64	---	.85	.17	.08	3.2	.00	.07	.70
31	.00	---	.56	.73	---	.99	---	.05	---	.00	.07	---
TOTAL	.39	.30	22.90	45.27	15.41	25.05	32.18	12.52	4.21	2.51	2.01	10.66
MEAN	.013	.010	.74	1.46	.53	.81	1.07	.40	.14	.081	.065	.36
MAX	.35	.09	7.8	18	3.5	3.5	5.0	2.9	3.2	.68	.56	6.4
MIN	.00	.00	.03	.22	.16	.13	.17	.02	.00	.00	.00	.00
AC-FT	.8	.6	45	90	31	50	64	25	8.4	5.0	4.0	21
CAL YR 1979	TOTAL	52256.01	MEAN	143	MAX	2790	MIN	.00	AC-FT	103600		
WTR YR 1980	TOTAL	173.41	MEAN	.47	MAX	18	MIN	.00	AC-FT	344		

## TRINITY RIVER BASIN

475

08061540 ROWLETT CREEK NEAR SACHSE, TX

LOCATION.--Lat 32°57'35", long 96°36'51", Dallas County, Hydrologic Unit 12030106, on left bank at downstream side of bridge on State Highway 78, 150 ft (46 m) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 250 ft (76 m) downstream from Spring Creek, and 1.5 mi (2.4 km) southwest of Sachse.

DRAINAGE AREA.--120 mi<sup>2</sup> (311 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 450.00 ft (137.160 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period Oct. 1 to Nov. 12, which are fair. No known diversions above station. The North Texas Municipal Water District reported that they returned 8,350 acre-ft (10.3 hm<sup>3</sup>) of sewage effluent into a tributary above station. The city of Dallas maintains a rain gage and a gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years (water years 1969-80), 78.5 ft<sup>3</sup>/s (2.223 m<sup>3</sup>/s), 56,870 acre-ft (70.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,500 ft<sup>3</sup>/s (835 m<sup>3</sup>/s) Mar. 27, 1977, gage height, 29.31 ft (8.934 m); no flow Aug. 24 to Sept. 2, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1942, 35.4 ft (10.79 m) in 1942, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Jan. 22	0945	*2,610	73.9	18.81	5.733
May 15	1815	2,020	57.2	17.07	5.203
Sept. 29	1100	2,020	57.2	17.07	5.203

Minimum discharge, 1.1 ft<sup>3</sup>/s (0.031 m<sup>3</sup>/s) Aug. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	52	15	19	41	39	27	24	19	10	6.8	6.2
2	11	14	16	23	44	38	27	48	20	9.3	6.5	8.7
3	10	10	16	22	40	36	24	25	17	11	7.8	7.2
4	10	12	17	21	39	34	22	21	15	11	7.5	7.0
5	10	10	16	22	36	33	21	20	14	9.7	7.8	7.4
6	9.2	13	16	23	33	31	23	18	14	8.5	8.4	6.4
7	8.8	12	15	23	37	30	25	17	13	11	7.7	7.4
8	9.2	11	14	21	310	29	19	29	14	10	7.6	8.0
9	11	101	13	21	147	28	20	23	16	9.8	6.0	7.5
10	9.6	51	16	22	131	27	19	18	13	8.5	8.2	8.5
11	6.9	14	15	23	114	32	19	15	13	9.9	7.7	6.0
12	6.9	13	175	21	90	58	18	23	13	10	7.6	8.0
13	5.8	12	79	22	78	34	276	23	14	8.3	7.3	8.4
14	6.2	12	30	23	73	30	64	1*	12	9.3	7.6	7.9
15	27	11	21	23	71	29	27	652	12	9.7	6.9	8.3
16	22	11	15	23	70	34	23	230	11	9.3	7.2	6.8
17	11	12	15	21	73	36	19	70	12	8.9	8.1	7.6
18	7.7	11	14	22	70	30	15	52	12	8.5	8.3	11
19	8.4	12	15	23	71	30	14	48	12	10	7.2	8.0
20	8.0	13	19	57	70	31	16	38	658	11	6.8	5.1
21	9.2	23	22	258	57	30	16	34	123	13	6.4	10
22	31	19	57	901	52	30	13	33	64	11	7.8	9.4
23	11	15	518	112	48	45	13	32	45	9.6	6.7	9.7
24	8.0	12	104	62	45	42	12	29	20	8.3	6.5	9.2
25	10	11	33	49	45	30	288	27	14	8.9	8.4	62
26	10	11	24	43	46	30	86	26	12	6.9	8.1	41
27	10	14	20	39	43	45	28	24	12	8.0	7.5	207
28	11	12	18	37	41	164	22	21	11	8.2	8.1	137
29	11	14	17	72	41	62	18	21	7.8	7.6	9.7	959
30	271	15	16	53	---	38	24	23	9.6	8.1	8.8	114
31	150	---	16	50	---	29	---	20	---	6.5	9.0	---
TOTAL	740.9	553	1397	2151	2056	1214	1238	1702	1242.4	289.8	236.0	1709.7
MEAN	23.9	18.4	45.1	69.4	70.9	39.2	41.3	54.9	41.4	9.35	7.61	57.0
MAX	271	101	518	901	310	164	288	652	658	13	9.7	959
MIN	5.8	10	13	19	33	27	12	15	7.8	6.5	6.0	5.1
AC-FT	1470	1100	2770	4270	4080	2410	2460	3380	2460	575	468	3390
CAL YR 1979	TOTAL	36512.5	MEAN	100	MAX	3770	MIN	3.8	AC-FT	72420		
WTR YR 1980	TOTAL	14529.8	MEAN	39.7	MAX	959	MIN	5.1	AC-FT	28820		

## 08061550 LAKE RAY HUBBARD NEAR FORNEY, TX

LOCATION.--Lat 32°48'00", long 96°29'45", Kaufman County, Hydrologic Unit 12030106, near right end of spillway in Forney Dam on East Fork Trinity River, 0.5 mi (0.8 km) upstream from Duck Creek, 1.8 mi (2.9 km) upstream from bridge on Interstate Highway 20, 3.8 mi (6.1 km) northwest of Forney, 24 mi (39 km) downstream from Lavon Dam, and 31.8 mi (51.2 km) upstream from mouth.

DRAINAGE AREA.--1,071 mi<sup>2</sup> (2,774 km<sup>2</sup>).

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

Water-quality records: Chemical analyses: October 1969 to September 1979.

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

REMARKS.--The lake is formed by a rolled earthfill dam 12,500 ft (3,810 m) long, including a 664-foot (202 m) gated spillway with fourteen 40- by 28-foot (12 by 9 m) tainter gates. Closure was made in September 1967, but the gates were not closed until Mar. 22, 1970. Low-flow releases are made through three 4.5- by 6.75-foot (1.4 by 2.06 m) sluiceways. Flow in each sluiceway is controlled by three sluice gates. The lake was built by the city of Dallas for municipal water supply. During the current year, records furnished by the city of Dallas show that they diverted 80,630 acre-ft (99.4 hm<sup>3</sup>) from the lake for municipal use, 2,450 acre-ft (3.02 hm<sup>3</sup>) was diverted for consumptive cooling by the Dallas Power and Light Co. electric generating plant, and 106 acre-ft (131,000 m<sup>3</sup>) was diverted for irrigation by the Eastern Hills Country Club of Garland. The North Texas Municipal Water District reported 9,420 acre-ft (11.6 hm<sup>3</sup>) of sewage effluent returned to lake. Flow is affected at times by discharge from the flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 14,470 acre-ft (17.8 hm<sup>3</sup>). These structures control runoff from 44.5 mi<sup>2</sup> (115.3 km<sup>2</sup>) above this station and below Lavon Lake station (08060500). City of Dallas gage-height telemeter at station. The area and capacity tables are based on surveys made in 1953 and 1959. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	450.0	-
Design flood.....	440.5	611,500
Top of tainter gates.....	437.5	536,700
Top of conservation pool.....	435.5	489,900
Crest of spillway (sill of tainter gates).....	409.5	83,130
Lowest gated outlet (invert).....	388.0	80

COOPERATION.--Record of diversions were furnished by the city of Dallas. The area and capacity tables were furnished by Forrest and Cotton, Consulting Engineers for the city of Dallas.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 500,900 acre-ft (618 hm<sup>3</sup>) June 4, 1973, elevation, 435.98 ft (132.887 m); minimum since first appreciable filling following closure of gates on Mar. 22, 1970, 326,600 acre-ft (403 hm<sup>3</sup>) Sept. 29, 30, 1978, elevation, 427.48 ft (130.296 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 468,800 acre-ft (578 hm<sup>3</sup>) Feb. 16 at 1200 hours, elevation, 434.56 ft (132.454 m); minimum 359,600 acre-ft (443 hm<sup>3</sup>) Sept. 26, elevation, 429.26 ft (130.838 m).

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

429.0	354,700	434.0	456,500
431.0	393,700	435.0	478,600
433.0	435,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	456700	450200	444600	450400	460900	462400	453200	451100	445200	432200	408500	379000
2	455200	449300	443700	451100	460700	458900	453200	451100	444600	431100	407200	378800
3	455800	448900	443300	450600	460900	457200	453400	450400	444100	430700	405800	378200
4	454300	448500	443300	450800	460700	461500	452400	450000	443300	429700	405200	377600
5	453700	450400	448000	450200	460700	458900	451500	449500	442400	429000	404400	376800
6	453700	448200	443100	454100	460200	457600	450800	450000	441600	428400	404400	376000
7	452400	447800	443300	450600	460900	458000	457200	450000	442000	427800	403800	375500
8	452100	446900	442900	449800	466200	458000	450800	449300	442200	426700	403400	375500
9	453200	448500	442600	449300	464800	457600	450200	447800	441800	425900	402700	375100
10	450800	448500	441600	450000	464200	457600	448500	447400	440300	425000	401900	374100
11	451100	447400	445000	450400	464800	458000	453400	446500	439600	424000	401700	372900
12	451100	447600	446300	448900	464200	459100	452100	446500	438600	423200	401100	372100
13	450400	446900	445400	449500	464000	456900	452600	446900	436800	422300	400100	371000
14	449500	446700	445000	449300	463700	456100	452600	447600	435800	421300	393300	370400
15	450000	446500	444400	449500	467500	455000	452400	453000	435400	420400	392300	369200
16	450000	446700	447200	450000	465900	455600	451300	453900	434700	419600	391900	369000
17	450000	446500	443900	450000	464200	455600	452100	453400	434100	418800	391100	367700
18	449800	446100	443500	449500	462200	454800	451500	455400	433100	418200	390100	366500
19	448700	446500	443700	450200	464000	454800	451100	453400	432400	417300	388900	365600
20	448500	446300	443900	451100	463500	454300	450600	453200	437700	416700	388300	364200
21	448900	449100	445000	454500	463300	453700	450200	452800	437700	415500	388100	362500
22	450000	446900	445200	461300	463100	452800	450000	451700	438800	415900	387100	362500
23	449300	445400	450800	460400	463300	455200	449100	451100	438300	414600	386100	362300
24	449100	446100	451100	460000	463100	454100	450800	450200	437500	414000	385300	361100
25	448700	446500	450400	461300	463100	453200	453900	450400	436800	413000	384500	361000
26	447200	444800	450600	462600	461300	452600	452600	450200	436200	412400	383700	361700
27	447800	446900	450600	461300	461100	454300	452400	449800	435000	411300	383100	361900
28	448200	445400	451300	461300	460900	454100	451500	448900	434300	411300	382700	361700
29	445200	444800	451500	462200	465300	454100	451100	447800	433700	411100	381900	371200
30	450000	443900	451300	465100	---	454100	450800	447400	432800	410300	380900	370800
31	450400	---	451100	462400	---	452800	---	445400	---	409500	380200	---
MAX	456700	450400	451500	465100	467500	462400	457200	455400	445200	432200	408500	379000
MIN	445200	443900	441600	448900	460200	452600	448500	445400	432400	409500	380200	361000
(†)	433.72	433.42	433.75	434.27	434.40	433.83	433.74	433.39	432.90	431.78	430.32	429.84
(‡)	-6100	-6500	+7200	+11300	+2900	-12500	-2000	-5400	-12600	-23300	-29300	-9400
(††)	971	165	361	1770	8120	7080	6820	10870	10020	12440	10870	13700
CAL YR 1979	MAX	492400	MIN	317100	±	+131500	††	32920				
WTR YR 1980	MAX	467500	MIN	361000	±	-85700	††	83190				

† Elevation, in feet, at end of month.

± Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal, irrigation, and industrial use.

## TRINITY RIVER BASIN

477

08061700 DUCK CREEK NEAR GARLAND, TX

LOCATION.--Lat 32°49'58", long 96°35'43", Dallas County, Hydrologic Unit 12030106, on right bank in the median area between the dual bridges on Belt Line Road, 6.0 mi (9.7 km) southeast of Garland, and 7.7 mi (12.4 km) upstream from mouth.

DRAINAGE AREA.--31.6 mi<sup>2</sup> (81.8 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 430.02 ft (131.070 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1962, at datum 4.00 ft (1.219 m) higher.

REMARKS.--Water-discharge records good. Flow slightly regulated by several small on-channel dams. Small diversions for irrigation of golf course above station. Low flows may be sustained by effluents from city of Garland. A recording rain gage is located at station.

AVERAGE DISCHARGE.--22 years, 26.9 ft<sup>3</sup>/s (0.762 m<sup>3</sup>/s), 11.56 in/yr (294 mm/yr), 19,490 acre-ft/yr (24.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) July 27, 1962, gage height, 20.80 ft (6.340 m), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, 21.5 ft (6.55 m), present datum, June 13, 1949, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Mar. 15	1600	2,750 77.9	16.03 4.886
Sept. 29	0830	*3,980 113	16.75 5.105

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	5.2	.64	3.1	20	9.9	11	3.4	5.0	.18	.67	.11
2	.92	3.2	.88	2.9	4.1	8.3	6.0	6.3	4.6	.13	2.1	.01
3	.25	2.4	.98	2.7	4.0	7.5	4.5	5.4	4.5	.09	1.1	.00
4	.02	1.9	.74	2.1	4.0	7.9	4.9	4.1	4.7	.06	.18	.00
5	.02	1.5	.69	1.9	3.9	7.5	5.2	3.7	4.7	.04	.03	.00
6	.12	1.2	.72	1.7	3.6	6.2	5.1	16	4.2	.04	.00	.00
7	.02	1.0	.64	1.7	5.9	5.9	5.0	9.5	4.2	.02	.00	.00
8	1.6	.79	.71	1.6	314	5.9	5.6	14	3.5	.02	.18	.00
9	.82	32	.74	1.6	47	6.2	6.2	8.6	2.9	.02	1.0	3.0
10	.28	4.1	1.1	1.5	54	6.2	5.4	3.8	2.2	.01	.57	15
11	.03	1.8	1.7	1.5	28	6.2	5.6	2.8	1.7	.00	.14	6.0
12	.00	1.4	212	1.5	15	6.5	9.0	14	1.2	.00	.00	2.6
13	.00	2.1	19	1.5	11	6.2	270	7.4	.84	.00	3.0	.79
14	.00	1.4	5.4	1.5	10	5.0	70	3.7	.48	.00	4.6	.04
15	10	1.4	2.9	1.4	9.5	4.5	15	1020	.23	.00	1.3	.01
16	21	2.1	2.4	1.4	14	4.5	4.8	139	.06	.00	1.0	.01
17	4.0	1.7	2.1	1.4	16	5.0	4.4	16	.01	.00	.87	.00
18	1.6	1.4	1.3	1.4	10	4.5	3.9	12	.01	.00	.06	.00
19	.59	1.6	1.5	1.4	9.5	4.2	3.5	11	.01	.00	1.1	9.8
20	.32	.59	1.5	1.6	9.1	4.2	3.7	11	375	.00	2.4	7.2
21	.08	11	2.0	15	9.1	4.2	4.1	9.0	13	53	3.1	3.5
22	25	6.3	48	400	9.1	5.0	2.5	7.7	100	12	3.0	1.0
23	4.8	2.6	594	1000	8.7	19	2.1	6.4	12	3.1	3.0	.03
24	1.9	1.5	23	140	8.7	14	12	6.1	4.1	1.2	1.8	.00
25	.83	1.1	7.3	69	7.2	5.3	259	6.4	3.1	.25	.38	71
26	.32	1.6	7.1	52	7.2	5.3	37	5.1	2.2	.04	.01	40
27	.07	.59	5.6	38	6.8	28	8.5	5.1	1.4	.01	1.6	175
28	.02	.20	4.8	37	7.5	599	5.3	4.9	.74	.00	2.5	96
29	.01	.22	4.3	37	9.1	150	4.3	5.0	.48	.00	7.3	1490
30	259	.49	3.9	78	---	50	3.6	4.3	.30	.00	3.5	50
31	19	---	3.3	52	---	20	---	4.6	---	.00	1.9	---
TOTAL	354.32	94.38	960.94	1953.4	666.0	1022.1	787.2	1433.0	557.36	70.21	48.39	1971.10
MEAN	11.4	3.15	31.0	63.0	23.0	33.0	26.2	46.2	18.6	2.26	1.56	65.7
MAX	259	32	594	1000	314	599	270	1020	375	53	7.3	1490
MIN	.00	.20	.64	1.4	3.6	4.2	2.1	2.8	.01	.00	.00	.00
CFSM	.36	.10	.98	1.99	.73	1.04	.83	1.46	.59	.07	.05	2.08
IN.	.42	.11	1.13	2.30	.78	1.20	.93	1.69	.66	.08	.06	2.32
AC-FT	703	187	1910	3870	1320	2030	1560	2840	1110	139	96	3910
(††)	1.57	.12	2.62	2.53	.74	.83	2.13	3.13	1.76	.75	.14	5.18
CAL YR 1979	TOTAL	15914.36	MEAN	43.6	MAX	2290	MIN	.00	CFSM	1.38	IN	18.73
WTR YR 1980	TOTAL	9918.40	MEAN	27.1	MAX	1490	MIN	.00	CFSM	.86	IN	11.68
										AC-FT	31570	††
										AC-FT	19670	††
												21.50

†† Weighted-mean rainfall, in inches.

478

TRINITY RIVER BASIN

08061700 DUCK CREEK NEAR GARLAND, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Sediment records: October 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)
MAY 16...	1015	64	19.0	28	4.9

## TRINITY RIVER BASIN

479

## 08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX

LOCATION.--Lat 32°46'27", long 96°30'12", Kaufman County, Hydrologic Unit 12030106, on right bank 25 ft (8 m) downstream from bridge on Interstate Highway 20, 0.2 mi (0.3 km) downstream from Duck Creek, 1.9 mi (3.1 km) downstream from Lake Ray Hubbard Dam, 2.5 mi (4.0 km) upstream from Texas and Pacific Railroad Co. bridge, 2.6 mi (4.2 km) northwest of Forney, and 30.8 mi (49.6 km) upstream from mouth.

DRAINAGE AREA.--1,118 mi<sup>2</sup> (2,896 km<sup>2</sup>), of which 1,071 mi<sup>2</sup> (2,774 km<sup>2</sup>) is above Lake Ray Hubbard. Prior to May 12, 1977, 105 ft (32 m) downstream.

PERIOD OF RECORD.--January 1973 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 377.86 ft (115.17 m) National Geodetic Vertical Datum of 1929 (from State Department of Highways and Public Transportation bridge plans). Prior to Aug. 26, 1975, recording gage at same datum located at site 126 ft (38 m) downstream (corrected) and 868 ft (265 m) to left.

REMARKS.--Records good. Flow is regulated by Lake Ray Hubbard (station 08061550). Low flow is sustained by sewage effluent from the city of Garland. Records furnished by the city of Garland show that 17,250 acre-ft (21.3 hm<sup>3</sup>) of sewage effluent was discharged into Duck Creek which enters East Fork Trinity River 0.2 mi (0.3 km) upstream from this station. The city of Dallas maintains a gage-height telemeter at this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years (water years 1974-80), 449 ft<sup>3</sup>/s (12.72 m<sup>3</sup>/s), 325,300 acre-ft/yr (401 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,400 ft<sup>3</sup>/s (861 m<sup>3</sup>/s) Mar. 27, 1977, gage height, 16.34 ft (4.980 m); minimum daily, 13 ft<sup>3</sup>/s (0.37 m<sup>3</sup>/s) Oct. 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,380 ft<sup>3</sup>/s (67.4 m<sup>3</sup>/s) May 16 at 0600 hours, gage height, 9.62 ft (2.932 m); minimum daily, 17 ft<sup>3</sup>/s (0.48 m<sup>3</sup>/s) June 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	43	22	22	39	68	27	27	24	25	24	22
2	19	30	20	23	34	30	26	73	20	21	22	21
3	22	26	22	27	32	25	28	38	18	22	19	27
4	19	23	22	25	34	29	24	27	20	25	19	27
5	20	24	24	23	31	28	21	22	25	20	21	27
6	21	25	26	27	31	27	19	22	21	19	23	24
7	19	22	22	20	30	25	20	57	22	19	23	23
8	19	24	20	23	235	26	26	35	22	20	23	25
9	21	40	19	25	252	24	24	45	18	24	23	23
10	23	47	22	24	93	23	22	28	21	24	24	26
11	23	28	24	23	108	23	24	25	22	20	23	26
12	20	26	77	20	65	24	26	25	21	21	22	25
13	18	27	189	21	53	26	387	49	21	23	21	24
14	19	27	48	22	47	25	242	32	23	22	23	24
15	20	23	32	21	44	22	51	322	20	26	24	25
16	46	22	29	23	48	22	34	1250	17	25	24	25
17	37	21	20	23	50	27	30	116	17	26	24	25
18	28	22	21	26	43	21	31	57	20	24	23	28
19	24	25	20	21	41	20	30	39	21	22	23	31
20	22	30	21	58	47	24	25	40	219	21	23	26
21	21	26	22	207	36	23	23	39	212	19	24	23
22	37	32	60	1020	34	22	23	33	61	31	25	25
23	42	28	316	254	32	23	22	29	102	31	25	26
24	25	24	371	65	29	48	25	28	39	25	23	27
25	21	21	52	48	29	25	185	24	31	23	23	27
26	19	19	31	39	32	21	200	23	27	22	23	71
27	19	22	32	36	30	26	45	24	35	24	23	134
28	19	23	30	34	30	195	29	24	25	23	24	134
29	21	23	27	59	31	70	31	23	24	20	25	924
30	69	23	25	55	---	50	30	23	23	22	25	618
31	247	---	23	43	---	26	---	24	---	24	24	---
TOTAL	1000	796	1689	2357	1640	1068	1730	2623	1191	713	715	2513
MEAN	32.3	26.5	54.5	76.0	56.6	34.5	57.7	84.6	39.7	23.0	23.1	83.8
MAX	247	47	371	1020	252	195	387	1250	219	31	25	924
MIN	18	19	19	20	29	20	19	22	17	19	19	21
AC-FT	1980	1580	3350	4680	3250	2120	3430	5200	2360	1410	1420	4980
CAL YR 1979	TOTAL	74195.0	MEAN	203	MAX	3420	MIN	8.0	AC-FT	147200		
WTR YR 1980	TOTAL	18035.0	MEAN	49.3	MAX	1250	MIN	17	AC-FT	35770		



## TRINITY RIVER BASIN

08061950 SOUTH MESQUITE CREEK AT MERCURY ROAD NEAR MESQUITE, TX

LOCATION.--Lat 32°43'32", long 96°34'12", Dallas County, Hydrologic Unit 12030106, on left bank at downstream side of bridge on Mercury Road, 3.3 mi (5.3 km) southeast of Mesquite, and 3.6 mi (5.8 km) upstream from mouth.

DRAINAGE AREA.--23.0 mi<sup>2</sup> (59.6 km<sup>2</sup>).

PERIOD OF RECORD.--October 1968 to September 1979 (discontinued).

REVISED RECORDS.--WRD TX-74-1: 1972(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 389.91 ft (118.845 m) National Geodetic Vertical Datum of 1929.

REVISIONS.--Revised peak discharges and revised daily discharges for water years 1969-70, in cubic feet per second, for high-water periods in these years are given below. These figures supersede those published in WSP 2122 and in the reports for 1969-70.

Date	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)		Gage height (ft) (m)	
May 5, 1969	2,980	84.4	10.15	3.094
May 7, 1969	8,080	229	12.06	2.676
Feb. 6, 1970	1,690	47.9	9.25	2.819
Feb. 24, 1970	1,200	34.0	8.75	2.667
Feb. 28, 1970	1,540	43.6	9.11	2.777
Apr. 25, 1970	2,130	60.3	9.40	2.865
May 31, 1970	2,160	61.2	9.44	2.877

May 5, 1969.....	934	May 9, 1969.....	52	Apr. 26, 1970.....	310
6.....	65	Feb. 6, 1970.....	513	May 30.....	158
7.....	2,190	Feb. 7.....	123	May 31.....	825
8.....	144	Apr. 25.....	537	June 1.....	129

MONTH	TOTAL	MEAN	MAX	MIN	CFSM	IN	AC-FT
May 1969	3713.85	230	2190	0.37	5.22	6.01	7370
WTR YR 1969	7063.00	19.4	2190	0	.84	11.42	14210
CAL YR 1969	7820.32	21.4	2190	0	.93	12.65	15510
February 1970	2620.32	93.6	626	1.7	4.07	4.25	5200
April	1121.90	37.4	537	.90	1.63	1.81	2230
May	1366.75	44.1	825	.06	1.92	2.21	2710
June	152.16	5.07	129	0	.22	.25	302
WTR YR 1970	8820.59	24.2	825	0	1.05	14.26	17500
CAL YR 1970	8366.22	22.9	825	0	1.00	13.50	16590

## TRINITY RIVER BASIN

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## 08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX

LOCATION.--Lat 32°38'19", long 96°29'17", Kaufman County, Hydrologic Unit 12030106, on right bank 15 ft (5 m) downstream from downstream eastbound bridge on U.S. Highway 175, 0.7 mi (1.1 km) downstream from Mustang Creek, 1.8 mi (2.9 km) northwest of Crandall, 4.0 mi (6.4 km) upstream from Buffalo Creek, and 11.0 mi (17.7 km) upstream from mouth.

DRAINAGE AREA.--1,256 mi<sup>2</sup> (3,253 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area. WDR TX-75-1: 1974.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 343.69 ft (104.757 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow largely regulated by Lavon Lake (station 08060500) since September 1953 and Lake Ray Hubbard (station 08061550) since Mar. 22, 1970. Records furnished by the city of Forney show that 185 acre-ft (228,000 m<sup>3</sup>) of sewage effluent was returned to a tributary below Lake Ray Hubbard and above this station. Records furnished by the North Texas Municipal Water District show that 7,550 acre-ft (9.31 hm<sup>3</sup>) of sewage effluent was returned to tributaries above station from the Mesquite and Chandler's Landing sewage treatment plants. National Weather Service gage-height telemeter located at station.

AVERAGE DISCHARGE.--4 years (water years 1950-53) prior to regulation by Lavon Lake, 652 ft<sup>3</sup>/s (18.46 m<sup>3</sup>/s), 472,400 acre-ft/yr (582 hm<sup>3</sup>/yr); 27 years (water years 1954-80) regulated, 560 ft<sup>3</sup>/s (15.86 m<sup>3</sup>/s), 405,700 acre-ft/yr (500 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft<sup>3</sup>/s (935 m<sup>3</sup>/s), May 28, 1957, gage height, 22.81 ft (6.952 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,690 ft<sup>3</sup>/s (47.9 m<sup>3</sup>/s) May 17 at 0330 hours, gage height, 13.27 ft (4.045 m); minimum daily, 34 ft<sup>3</sup>/s (0.96 m<sup>3</sup>/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	140	45	52	99	70	75	79	59	49	46	58
2	35	55	44	48	87	150	73	84	59	51	46	55
3	35	44	45	45	80	129	72	149	54	49	42	55
4	38	39	47	44	77	68	72	94	52	50	39	64
5	37	35	48	39	76	62	65	76	58	51	42	64
6	38	37	51	38	69	57	60	75	60	47	44	69
7	40	44	53	43	66	62	55	165	55	46	50	63
8	40	37	48	35	131	59	57	156	55	47	52	60
9	41	39	47	38	582	61	67	149	56	48	53	66
10	44	66	47	40	332	59	64	119	54	49	57	57
11	47	61	49	40	305	67	63	89	57	50	53	63
12	48	46	52	38	220	75	66	90	57	48	55	67
13	46	43	234	37	157	60	271	142	55	48	51	61
14	43	42	146	37	131	61	898	126	56	48	55	57
15	46	43	75	38	117	66	361	347	57	47	55	57
16	59	42	55	38	111	56	186	1310	53	48	57	61
17	82	39	48	39	112	54	128	1200	50	48	54	61
18	66	40	42	40	110	61	93	335	54	45	56	57
19	57	41	43	43	98	53	87	213	88	43	57	48
20	55	42	42	48	93	55	75	168	143	43	59	51
21	53	49	42	188	93	60	68	154	407	43	55	43
22	62	55	66	977	81	55	65	127	149	43	66	43
23	92	52	210	1290	75	55	62	108	199	51	59	44
24	78	46	759	420	68	74	62	93	118	49	56	48
25	64	41	242	196	66	95	148	79	73	46	58	49
26	52	40	112	147	65	72	311	65	60	46	57	56
27	51	39	86	117	65	58	205	60	55	46	58	115
28	52	43	78	107	63	178	106	63	57	47	63	193
29	51	47	69	119	62	248	85	64	53	46	58	314
30	57	48	62	159	---	145	82	60	50	53	61	742
31	263	---	56	118	---	98	---	60	---	40	61	---
TOTAL	1806	1435	3043	4658	3691	2523	4082	6099	2453	1465	1675	2841
MEAN	58.3	47.8	98.2	150	127	81.4	136	197	81.8	47.3	54.0	94.7
MAX	263	140	759	1290	582	248	898	1310	407	53	66	742
MIN	34	35	42	35	62	53	55	60	50	40	39	43
AC-FT	3580	2850	6040	9240	7320	5000	8100	12100	4870	2910	3320	5640
CAL YR 1979	TOTAL	108798	MEAN	298	MAX	4430	MIN 12	AC-FT	215800			
WTR YR 1980	TOTAL	35771	MEAN	97.7	MAX	1310	MIN 34	AC-FT	70950			

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1976 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

pH: March to September 1977.

WATER TEMPERATURES: October 1967 to current year.

DISSOLVED OXYGEN: March to September 1977.

INSTRUMENTATION.--Water-quality monitor discontinued Nov. 22, 1977

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,010 micromhos Nov. 23, 1968; minimum, 200 micromhos Mar. 27, Apr. 21, 1977.

WATER TEMPERATURES: Maximum, 34.0°C June 26, July 1, and Aug. 16, 17, 1980; minimum, 1.0°C Jan. 3, 1979.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 846 micromhos Dec. 11; minimum daily, 286 micromhos Jan. 22.

WATER TEMPERATURES: Maximum daily, 34.0°C June 26, July 1, and Aug. 16, 17; minimum daily, 3.0°C Feb. 10.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

								OXYGEN, DIS-SOLVED (PER-CENT SATURATION)		OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)		HARD-NESS (MG/L AS CaCO3)		HARD-NESS, NONCARBONATE (MG/L CaCO3)	
DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH FIELD (UNITS)	TEMPERATURE, WATER (DEG C)	COLOR (PLATINUM COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)							
OCT 18...	1330	64	645	7.5	23.0	40	4.5	.0	0	23	150	0			
NOV 15...	1440	45	685	7.3	12.0	35	.90	.4	4	19	130	0			
DEC 10...	1330	50	858	7.4	11.5	70	5.8	.3	3	44	140	0			
JAN 10...	1035	41	702	7.5	8.5	30	5.1	1.4	12	23	130	0			
FEB 21...	1100	96	640	7.5	14.0	25	--	.2	2	17	--	--			
MAR 05...	1235	60	650	7.4	12.0	25	6.5	2.2	20	17	150	0			
APR 16...	1040	174	490	7.5	15.0	25	25	--	--	--	150	7			
MAY 13...	0945	228	610	7.6	24.5	40	7.0	.2	2	19	--	--			
JUN 05...	1505	58	655	8.2	29.0	60	11	10.6	138	39	--	--			
JUL 15...	1050	44	740	7.4	30.0	100	14	.1	1	22	140	0			
AUG 20...	0945	58	600	7.4	28.5	40	85	.0	0	16	120	0			
SEP 17...	1600	59	560	8.2	28.0	45	4.7	11.7	150	18	110	0			
DATE		CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	BICARBONATE (MG/L AS HCO3)	CARBONATE (MG/L AS CO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)		
OCT 18...	54	3.3	57	2.0	11	220	0	46	56	1.8	8.1	346			
NOV 15...	46	3.9	69	2.6	12	210	0	55	65	1.4	9.7	366			
DEC 10...	49	4.4	90	3.3	13	280	0	54	78	3.4	23	453			
JAN 10...	46	3.8	72	2.7	12	230	0	61	55	1.6	8.6	374			
FEB 21...	--	--	--	--	--	--	--	--	--	--	--	--	--		
MAR 05...	54	4.7	62	2.2	9.0	210	0	69	49	1.2	6.5	359			
APR 16...	53	3.3	35	1.3	5.8	170	0	54	23	.8	7.0	266			
MAY 13...	--	--	--	--	--	--	--	--	--	--	--	--	--		
JUN 05...	--	--	--	--	--	--	--	--	--	--	--	--	--		
JUL 15...	48	4.3	77	2.9	12	240	0	42	71	2.2	9.1	384			
AUG 20...	40	4.1	60	2.4	11	190	0	52	45	1.2	8.7	318			
SEP 17...	36	3.7	60	2.5	11	180	0	55	48	1.6	8.3	314			

08062000 EAST FORK TRINITY RIVER NEAR GRANDALL, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, SUS- PENDE (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)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 18...	6	6	--	--	--	--	--	13	--	27	52	.10
NOV 15...	1	0	.02	.02	.04	15	5.0	20	--	23	13	.10
DEC 10...	20	16	.00	.02	.01	24	2.0	26	2.600	30	80	.50
JAN 10...	14	14	.08	.04	.12	14	4.0	18	5.600	23	6	1.1
FEB 21...	--	--	.18	.02	.20	8.2	5.8	14	2.800	36	12	.80
MAR 05...	8	8	.10	.04	.14	10	7.0	17	4.200	23	5	.40
APR 16...	52	17	1.3	.27	1.6	3.7	1.0	4.7	1.200	21	4	.30
MAY 13...	28	17	.02	.00	.02	11	6.0	17	3.700	14	6	.90
JUN 05...	11	5	.03	.11	.14	12	7.0	19	3.900	46	12	.20
JUL 15...	23	23	14	.06	14	11	2.0	13	5.500	28	19	.90
AUG 20...	10	14	.00	.01	.00	11	4.0	15	.590	28	10	--
SEP 17...	16	8	.01	.14	.15	1.4	14	15	3.400	18	5	.10

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 10...	1035	2	20	3	0	0	80
MAR 05...	1235	2	30	2	0	6	30
JUL 15...	1050	3	20	<1	0	2	80
SEP 17...	1600	3	20	<1	40	1	40

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 10...	2	100	.1	0	1	30
MAR 05...	2	80	.0	0	0	30
JUL 15...	0	70	.2	0	0	10
SEP 17...	0	4	.2	1	0	4

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JAN 10...	1035	.0	0	.00	.00	.0	.1	0	.00	.0
JUL 15...	1050	.0	13	.00	.01	.0	.1	<24	.00	<.7

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JAN 10...	.00	.0	.00	.0	.78	.00	8.5	.00	.00	.0
JUL 15...	.00	.0	.00	.0	1.0	.00	.7	.00	.00	.0

## TRINITY RIVER BASIN

08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
JAN 10...	.00	.00	.0	.00	.7	.02	.0	.04	.00	.0
JUL 15...	.00	.00	.0	.00	.0	.05	.0	.00	.00	.0

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 10...	.00	.00	.00	.00	0	0	.00	.09	.00	.00
JUL 15...	.00	.00	.00	.00	0	<17	.00	.06	.00	.00

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	1806	617	329	1610	47	228	48	236	140
NOV.	1979	1435	595	319	1230	44	169	47	183	140
DEC.	1979	3043	495	268	2200	32	261	40	333	130
JAN.	1980	4658	422	231	2900	24	298	36	448	120
FEB.	1980	3691	537	290	2890	35	353	44	435	140
MAR.	1980	2523	636	338	2300	51	346	49	334	130
APR.	1980	4082	523	283	3120	35	381	43	469	130
MAY	1980	6099	452	247	4070	25	408	38	630	130
JUNE	1980	2453	553	298	1970	38	250	45	295	140
JULY	1980	1465	629	336	1330	48	189	49	195	140
AUG.	1980	1675	615	329	1490	46	206	48	219	140
SEPT	1980	2841	471	256	1970	28	217	39	300	130
TOTAL		35771	**	**	27100	**	3310	**	4080	**
WTD. AVG.		98	519	280	**	34	**	42	**	130

## TRINITY RIVER BASIN

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08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	668	358	686	640	513	761	547	652	655	614	622	556
2	704	468	704	620	554	550	574	681	648	581	619	587
3	666	534	684	618	566	537	663	600	677	560	639	543
4	570	668	768	650	606	615	752	469	604	634	635	561
5	666	634	744	658	609	628	748	626	606	584	612	539
6	648	674	804	736	589	656	754	664	614	675	528	618
7	674	610	656	745	639	734	785	520	694	655	512	622
8	692	558	808	752	600	736	711	500	654	560	633	712
9	692	574	802	728	405	771	616	474	700	533	608	560
10	628	576	828	672	432	766	704	605	747	635	604	505
11	594	574	846	682	431	768	750	540	601	628	597	548
12	672	532	632	808	444	594	767	561	559	633	600	577
13	694	612	500	812	503	555	612	452	653	635	588	585
14	678	626	408	784	538	745	362	575	699	639	564	561
15	682	598	450	796	592	788	428	445	671	638	568	580
16	718	628	584	798	595	695	487	317	692	553	587	577
17	570	696	602	748	586	790	522	381	748	655	566	560
18	514	670	626	740	593	839	587	404	595	651	614	530
19	608	744	644	760	555	768	654	460	575	647	613	557
20	696	710	654	782	587	703	728	464	500	665	560	705
21	688	680	660	600	621	685	724	478	400	666	549	661
22	680	638	644	286	632	750	711	537	464	622	657	630
23	548	676	376	292	757	772	671	531	493	624	707	581
24	552	654	306	366	762	817	651	563	370	650	634	553
25	534	592	452	420	785	733	500	566	475	707	717	525
26	580	590	496	434	744	650	416	644	569	680	685	611
27	672	622	492	474	644	595	407	694	582	681	635	720
28	754	708	448	476	731	550	520	579	625	653	617	373
29	728	620	498	498	725	412	586	593	657	685	638	350
30	738	614	542	518	---	525	620	652	642	585	661	289
31	470	---	546	492	---	500	---	692	---	595	643	---
MEAN	644	615	609	625	598	677	619	546	606	630	613	563

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	16.0	10.0	10.0	4.0	10.0	18.0	22.0	22.0	34.0	31.0	30.0
2	24.0	15.0	8.0	9.0	4.0	7.0	19.0	24.0	28.0	32.0	31.0	30.0
3	22.0	15.0	9.0	10.0	6.0	7.0	20.0	23.0	29.0	32.0	31.0	31.0
4	21.0	16.0	10.0	10.0	8.0	10.0	19.0	23.0	30.0	30.0	29.0	30.0
5	23.0	15.0	14.0	9.0	9.0	10.0	19.0	24.0	30.0	32.0	30.0	30.0
6	21.0	15.0	13.0	11.0	10.0	14.0	18.0	25.0	29.0	32.0	31.0	30.0
7	21.0	14.0	7.0	10.0	8.0	15.0	22.0	24.0	29.0	---	31.0	28.0
8	23.0	15.0	11.0	9.0	6.0	14.0	21.0	23.0	27.0	---	33.0	28.0
9	22.0	16.0	12.0	10.0	6.0	14.0	21.0	22.0	27.0	---	30.0	28.0
10	18.0	12.0	12.0	9.0	3.0	15.0	20.0	22.0	28.0	---	33.0	29.0
11	19.0	14.0	14.0	10.0	4.0	14.0	20.0	25.0	29.0	---	28.0	30.0
12	19.0	12.0	11.0	10.0	6.0	16.0	17.0	25.0	29.0	---	30.0	29.0
13	20.0	13.0	10.0	11.0	7.0	15.0	11.0	24.0	29.0	---	31.0	29.0
14	19.0	14.0	8.0	12.0	8.0	14.0	10.0	24.0	29.0	---	31.0	29.0
15	17.0	15.0	9.0	12.0	11.0	13.0	14.0	21.0	30.0	---	32.0	29.0
16	20.0	14.0	8.0	14.0	---	16.0	18.0	20.0	30.0	---	34.0	29.0
17	21.0	13.0	7.0	12.0	6.0	15.0	20.0	23.0	30.0	---	34.0	30.0
18	22.0	11.0	9.0	14.0	7.0	14.0	21.0	25.0	31.0	---	30.0	29.0
19	22.0	18.0	10.0	13.0	10.0	17.0	21.0	26.0	33.0	---	30.0	29.0
20	23.0	19.0	11.0	14.0	15.0	17.0	---	20.0	29.0	---	31.0	29.0
21	23.0	16.0	13.0	12.0	14.0	18.0	---	24.0	29.0	---	31.0	29.0
22	23.0	13.0	15.0	9.0	15.0	17.0	---	24.0	28.0	---	29.0	29.0
23	20.0	13.0	11.0	13.0	14.0	17.0	23.0	25.0	28.0	---	31.0	29.0
24	19.0	14.0	11.0	10.0	13.0	17.0	23.0	24.0	28.0	---	31.0	28.0
25	19.0	12.0	12.0	9.0	12.0	15.0	23.0	29.0	32.0	---	30.0	27.0
26	18.0	12.0	13.0	8.0	11.0	15.0	18.0	30.0	34.0	---	31.0	26.0
27	20.0	13.0	12.0	7.0	11.0	15.0	18.0	28.0	31.0	---	29.0	22.0
28	20.0	11.0	13.0	5.0	12.0	16.0	19.0	29.0	31.0	---	27.0	20.0
29	20.0	9.0	11.0	4.0	14.0	16.0	22.0	27.0	32.0	---	29.0	18.0
30	17.0	7.0	11.0	4.0	---	16.0	21.0	27.0	32.0	---	29.0	18.0
31	16.0	---	11.0	4.0	---	17.0	---	27.0	---	32.0	29.0	---
MEAN	20.5	13.5	11.0	10.0	9.0	14.5	19.0	24.5	29.5	31.5	30.5	27.5



## TRINITY RIVER BASIN

08062500 TRINITY RIVER NEAR ROSSER, TX

LOCATION.--Lat 32°25'35", long 96°27'46", Ellis-Kaufman County line, Hydrologic Unit 12030105, on right bank at downstream side of right pier of bridge on State Highway 34, 2.5 mi (4.0 km) south of Rosser, 8.5 mi (13.7 km) downstream from East Fork Trinity River, and at mile 451.4 (726.3 km).

DRAINAGE AREA.--8,147 mi<sup>2</sup> (21,101 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to September 1925, October 1938 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1922: Drainage area. WDR TX-77-1: 1942(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 302.65 ft (92.248 m) National Geodetic Vertical Datum of 1929. July 25, 1924, to Sept. 30, 1925, nonrecording gage at abandoned lock and dam No. 7, 1.7 mi (2.7 km) upstream from present site at datum 6.94 ft (2.115 m) higher.

REMARKS.--Water-discharge records good. At times, flow is affected by storage in 15 upstream reservoirs having a combined capacity of 3,572,000 acre-ft (4.40 km<sup>3</sup>), of which 1,138,000 acre-ft (1.40 km<sup>3</sup>) is for flood control. A levee system constructed in 1916 extends several miles upstream and downstream from station. The cities of Fort Worth and Dallas and several small cities divert considerable water for municipal use, of which about 60 percent is returned as sewage effluents which sustain low flows at this site. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--43 years (water years 1925, 1939-80), 2,513 ft<sup>3</sup>/s (71.17 m<sup>3</sup>/s), 1,821,000 acre-ft/yr (2.25 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 150,000 ft<sup>3</sup>/s (4,250 m<sup>3</sup>/s) Apr. 23, 1942, following numerous breaks in levee systems along both banks; maximum gage height, 41.55 ft (12.664 m) Apr. 22, 1942, just prior to levee breaks; minimum discharge, 32 ft<sup>3</sup>/s (0.91 m<sup>3</sup>/s) for several days in 1924-25.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 reached a stage of about 33 ft (10.1 m), present site and datum, from information by Corps of Engineers (discharged believed to have been about the same as that of Apr. 22, 1942).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,500 ft<sup>3</sup>/s (354 m<sup>3</sup>/s) May 16 at 1400 hours, gage height, 24.69 ft (7.526 m); minimum daily, 433 ft<sup>3</sup>/s (12.3 m<sup>3</sup>/s) Oct. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	479	2370	500	625	1070	708	863	832	806	530	570	471
2	496	1100	507	548	917	689	771	1100	767	532	564	474
3	498	720	516	538	929	685	730	2880	776	548	517	505
4	487	618	531	530	928	675	1400	2520	762	545	502	526
5	486	570	549	517	921	667	1110	957	749	514	548	520
6	484	570	566	491	894	668	851	843	737	495	539	517
7	477	558	560	469	873	666	821	2490	742	483	520	517
8	459	570	547	484	1010	689	817	1720	732	505	536	523
9	469	587	535	476	3330	645	823	2040	721	520	539	652
10	475	687	526	476	3120	637	810	1840	745	530	530	841
11	473	670	543	467	2170	651	798	1030	747	526	517	807
12	433	608	568	471	2450	677	792	1130	741	523	558	623
13	433	576	1620	457	1610	691	1260	1460	736	502	554	570
14	464	575	2140	461	1300	655	3980	1080	725	480	539	514
15	450	555	1010	469	1180	629	3510	2220	705	498	545	511
16	674	557	639	464	1130	615	1750	10500	697	502	551	545
17	2000	570	556	460	1160	650	1170	10500	699	511	545	539
18	1140	559	524	463	1120	766	1030	8100	622	511	542	536
19	639	526	504	475	1070	769	932	3740	581	511	548	558
20	548	559	495	616	946	755	880	1970	584	514	539	545
21	514	579	497	1140	871	760	836	1510	1820	486	542	536
22	532	705	635	5430	822	768	812	1320	1540	545	533	511
23	738	619	1150	9570	788	746	815	1180	1090	576	554	533
24	642	556	4510	7810	749	807	812	1230	896	545	536	530
25	560	523	4590	3620	781	793	1390	1120	693	526	523	530
26	521	514	1860	1570	844	704	2570	960	604	523	530	586
27	508	534	1010	1250	788	663	1700	896	576	523	530	733
28	484	534	817	1100	723	1100	1120	865	554	601	539	1590
29	468	531	717	1080	729	2150	958	880	536	598	561	2350
30	508	526	806	1200	---	1620	884	866	523	595	539	6740
31	2060	---	749	1540	---	1210	---	836	---	623	511	---
TOTAL	19599	19726	31277	45267	35223	24908	36995	70615	23206	16421	16701	25933
MEAN	632	658	1009	1460	1215	803	1233	2278	774	530	539	864
MAX	2060	2370	4590	9570	3330	2150	3980	10500	1820	623	570	6740
MIN	433	514	495	457	723	615	730	832	523	480	502	471
AC-FT	38870	39130	62040	89790	69860	49410	73380	140100	46030	32570	33130	51440
CAL YR 1979	TOTAL	802687	MEAN	2199	MAX	24700	MIN	433	AC-FT	1592000		
WTR YR 1980	TOTAL	365871	MEAN	1000	MAX	10500	MIN	433	AC-FT	725700		

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1954 to current year. - Chemical, biochemical, and pesticide analyses: January 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1954 to current year.

pH: March 1977 to current year.

WATER TEMPERATURES: October 1954 to current year.

DISSOLVED OXYGEN: March 1977 to current year.

INSTRUMENTATION.--Water-quality monitor since Mar. 1, 1977.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,990 micromhos Oct. 13, 1956; minimum, 200 micromhos July 30, 1962.

pH: Maximum, 7.8 units Mar. 3, 5, 6, 1977, Jan. 23, 1979; minimum, 6.9 units Sept. 17, 18, 28, 29, 1980.

WATER TEMPERATURES: Maximum, 36.0°C July 1, 1955; minimum, 1.0°C on many days during winter months.

DISSOLVED OXYGEN: Maximum, 10.7 mg/L Nov. 9, 1977; minimum, 0.0 mg/L Apr. 19, 1979, and May 3, June 22, 1980.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 994 micromhos Sept. 12; minimum, 214 micromhos Sept. 30.

pH: Maximum, 7.5 units on several days during year; minimum, 6.9 units Sept. 17, 18, 28, 19.

WATER TEMPERATURES: Maximum, 32.5°C on several days during July; minimum, 5.5°C Feb. 10.

DISSOLVED OXYGEN: Maximum, 9.7 mg/L Feb. 10; minimum, 0.0 mg/L May 3, June 22.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY AS (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT												
22...	1605	545	750	7.3	23.0	25	7.0	3.5	41	17	140	0
NOV												
15...	1330	570	745	7.4	14.0	15	3.2	5.3	50	13	140	0
DEC												
10...	1525	543	854	7.4	14.0	30	2.8	4.6	45	7.8	150	0
JAN												
09...	1520	502	824	7.4	11.0	20	1.4	6.2	56	20	160	0
FEB												
21...	1230	889	720	7.4	14.0	20	29	6.0	59	16	180	6
MAR												
05...	1510	611	850	7.5	13.0	15	9.8	5.6	53	18	180	0
APR												
08...	1045	824	770	7.4	20.0	20	28	3.0	33	23	170	0
MAY												
13...	1230	1420	515	7.4	24.5	45	180	4.0	48	18	130	9
JUN												
03...	1700	794	790	7.7	28.0	60	22	3.6	46	17	170	0
JUL												
15...	1340	539	902	7.6	32.0	35	15	5.8	78	17	120	0
AUG												
27...	0920	851	841	7.1	30.0	20	4.5	1.5	20	15	120	0
SEP												
18...	1130	511	800	7.3	29.0	23	6.4	1.6	21	17	120	0

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT												
22...	47	5.2	82	3.0	12	190	0	93	62	1.4	15	411
NOV												
15...	47	5.3	90	3.3	12	190	0	94	67	1.2	11	421
DEC												
10...	49	5.6	110	4.0	13	220	0	110	74	1.5	10	482
JAN												
09...	53	6.3	95	3.3	12	200	0	120	71	1.1	11	468
FEB												
21...	63	5.1	64	2.1	8.6	210	0	96	52	.8	7.5	401
MAR												
05...	63	6.0	100	3.2	11	230	0	130	69	1.0	10	504
APR												
08...	58	5.7	81	2.7	10	210	0	100	67	1.0	9.6	436
MAY												
13...	46	4.1	46	1.7	6.7	150	0	67	34	.7	10	288
JUN												
03...	58	5.5	83	2.8	9.5	220	0	95	66	1.0	9.5	436
JUL												
15...	41	5.2	120	4.7	13	210	0	110	86	1.6	15	495
AUG												
27...	39	5.9	110	4.3	13	170	0	110	93	1.6	12	468
SEP												
18...	40	5.3	110	4.3	12	150	0	110	81	1.3	11	445

## TRINITY RIVER BASIN

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 22...	24	13	1.5	.720	2.2	--	--	6.3	4.000	13	4	.20
NOV 15...	13	0	3.0	.930	3.9	7.600	1.5	9.1	4.200	5.6	2	.30
DEC 10...	14	3	1.7	.870	2.6	6.600	2.2	8.8	1.900	16	6	.10
JAN 09...	24	19	2.0	1.500	3.5	7.900	5.1	13	.110	13	3	.00
FEB 21...	53	13	1.6	.420	2.0	5.800	2.0	7.8	2.300	17	2	.10
MAR 05...	16	13	2.2	.550	2.7	12.000	6.0	18	3.700	15	4	.30
APR 08...	59	14	2.0	.550	2.5	9.300	1.7	11	3.500	16	3	.30
MAY 13...	154	6	1.9	.390	2.3	2.500	1.5	4.0	1.700	14	1	.10
JUN 03...	74	17	.37	.460	.83	4.400	.00	4.4	3.400	22	5	.10
JUL 15...	33	11	.00	.000	.00	.080	1.0	1.1	4.900	22	2	.20
AUG 27...	8	1	3.4	.810	4.2	6.100	4.9	11	5.800	12	4	.20
SEP 18...	7	0	4.9	.990	5.9	3.800	2.7	6.5	4.700	14	5	.20

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR 05...	1510	.0	110	.00	.00	--	.0	100	.00	.0
JUL 15...	1340	.0	64	.00	.01	.0	.0	<67	.00	<1.5

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
MAR 05...	.00	<10	.00	.0	.41	.00	1.1	.00	.00	.0
JUL 15...	.00	.0	.00	.0	.73	.01	4.5	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATT. (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATT. (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATT. (UG/KG)
MAR 05...	.00	.00	<.2	.00	.0	.04	.5	.04	.00	.0
JUL 15...	.00	.00	.0	.00	.0	.07	.0	.02	.00	.0

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
MAR 05...	.00	.00	.00	.00	0	0	.00	.07	.00	.00
JUL 15...	.00	.00	.00	.00	0	<21	.00	4.2	.02	.00

## TRINITY RIVER BASIN

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08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	19599	763	427	22600	60	3180	94	4960	160
NOV.	1979	19726	725	405	21600	56	2960	88	4710	160
DEC.	1979	31277	599	335	28300	42	3530	72	6050	150
JAN.	1980	45267	539	302	36900	36	4350	64	7810	150
FEB.	1980	35223	676	378	35900	49	4690	82	7760	160
MAR.	1980	24908	808	452	30400	66	4470	100	6730	160
APR.	1980	36995	605	339	33800	41	4110	72	7200	160
MAY	1980	70615	506	283	54000	31	5940	59	11300	150
JUNE	1980	23206	715	400	25100	54	3360	87	5440	160
JULY	1980	16421	848	474	21000	71	3160	110	4680	160
AUG.	1980	16701	847	473	21300	71	3200	110	4750	160
SEPT	1980	25933	674	377	26400	52	3670	82	5780	150
TOTAL		365871	**	**	357000	**	46600	**	77200	**
WTD. AVG.		1000	647	362	**	47	**	78	**	160

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	820	782	804	566	394	498	834	798	823	722	668	693
2	828	812	818	530	476	493	854	818	838	718	616	658
3	814	794	804	564	494	518	832	818	824	688	610	650
4	818	788	802	620	568	600	846	804	827	722	688	705
5	844	818	831	720	626	677	822	806	812	770	712	741
6	866	846	858	752	708	726	834	800	819	798	752	775
7	854	838	847	772	734	751	854	830	843	824	788	804
8	868	842	855	832	776	796	870	800	839	824	810	816
9	876	858	867	846	814	829	836	808	825	832	816	824
10	858	812	844	832	804	821	846	830	839	854	812	835
11	818	800	810	804	788	797	876	846	860	874	844	858
12	836	814	825	796	758	778	850	810	834	886	864	876
13	872	836	854	790	774	778	854	620	795	892	858	876
14	862	828	847	778	752	764	640	482	575	900	868	887
15	858	830	844	768	732	749	618	516	556	916	886	898
16	876	848	861	806	770	784	600	538	557	894	856	872
17	876	504	764	816	792	804	644	604	628	896	856	875
18	530	456	496	820	790	805	696	646	681	918	884	900
19	550	532	537	846	824	836	740	696	722	932	884	904
20	---	---	650	848	822	836	778	722	740	892	754	814
21	---	---	700	834	794	816	818	780	795	862	650	766
22	774	---	750	864	812	835	856	800	823	666	362	493
23	782	758	772	860	810	830	854	590	777	398	344	366
24	792	632	731	842	758	791	632	350	478	436	344	387
25	784	680	740	820	784	806	416	340	366	460	424	436
26	826	778	793	806	786	793	388	354	376	522	462	494
27	842	814	826	830	810	820	444	386	417	588	524	564
28	844	786	811	830	782	811	498	440	458	638	582	605
29	808	790	798	788	768	779	560	502	530	664	606	636
30	836	806	820	800	782	790	636	564	603	690	664	675
31	828	428	716	---	---	---	682	638	653	732	662	701
MONTH	876	428	783	864	394	757	876	340	694	932	344	722

## TRINITY RIVER BASIN

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	738	556	624	806	784	796	---	---	650	776	698	716
2	730	614	680	850	806	833	---	---	700	744	672	721
3	788	732	760	882	824	854	---	---	750	748	470	611
4	828	792	812	876	850	864	---	---	550	496	418	454
5	832	772	810	886	858	872	---	---	500	598	498	537
6	774	734	758	874	810	842	---	---	550	650	564	590
7	788	752	771	910	836	875	---	---	600	796	346	419
8	790	682	752	900	860	879	---	---	650	644	478	518
9	674	476	586	926	866	895	---	---	700	742	512	661
10	522	456	488	928	906	917	---	---	750	752	526	587
11	524	502	513	918	870	890	---	---	770	742	556	579
12	594	520	560	922	878	894	---	---	790	772	446	540
13	588	524	549	922	884	903	---	---	550	602	462	530
14	670	590	644	922	880	903	486	426	467	830	612	635
15	728	654	688	914	862	877	460	422	444	746	496	595
16	746	708	726	890	850	867	504	446	473	582	302	360
17	754	726	739	930	892	904	622	512	581	420	340	377
18	744	730	737	932	884	902	702	618	658	460	428	448
19	748	724	735	932	876	905	748	648	708	502	450	477
20	764	722	739	946	872	919	784	726	753	562	502	532
21	762	722	741	894	838	869	788	746	766	608	564	580
22	774	754	760	862	826	849	782	756	768	630	602	618
23	802	774	787	840	818	834	798	760	775	702	624	666
24	820	804	813	844	818	831	796	762	779	726	690	709
25	842	810	833	---	---	820	778	628	734	742	696	717
26	880	836	854	---	---	830	716	516	611	722	678	709
27	892	846	870	---	---	850	604	526	567	684	660	670
28	848	772	812	---	---	700	600	526	548	694	660	678
29	810	772	793	---	---	650	660	570	610	722	688	704
30	---	---	---	---	---	580	714	658	680	748	728	735
31	---	---	---	---	---	550	---	---	---	756	740	748
MONTH	892	456	722	946	784	837	798	422	648	830	302	594

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	760	746	752	---	---	820	854	796	834	858	832	850
2	772	738	754	854	---	830	890	838	864	886	854	875
3	778	738	767	840	808	826	892	858	877	858	798	843
4	746	720	738	868	840	851	912	866	886	796	768	786
5	766	720	749	890	864	876	892	862	877	790	768	780
6	768	746	759	888	870	880	876	830	854	852	788	821
7	778	758	771	892	868	882	850	818	837	866	846	857
8	772	758	765	868	824	851	852	784	812	912	870	888
9	776	754	766	832	792	817	862	812	847	888	860	872
10	778	746	766	846	802	820	874	860	866	898	856	875
11	746	708	728	858	822	842	886	868	877	920	746	811
12	758	---	745	858	826	842	872	840	862	994	942	973
13	750	732	744	842	822	833	864	828	844	942	860	888
14	768	740	755	852	834	841	846	824	836	852	772	792
15	770	750	761	874	856	864	856	842	849	852	804	827
16	790	756	770	872	846	854	860	834	850	880	856	868
17	796	776	783	856	816	840	840	826	834	876	830	856
18	780	738	752	858	844	850	840	826	832	860	832	848
19	764	752	758	868	840	854	860	838	849	880	856	867
20	764	744	753	880	854	869	838	816	829	900	872	886
21	790	476	690	870	840	859	826	792	812	894	872	886
22	650	478	526	898	858	878	824	804	814	896	874	886
23	612	490	562	896	824	859	820	810	816	912	848	881
24	612	542	585	856	834	844	840	822	830	850	784	830
25	648	562	611	864	836	851	850	840	846	802	772	788
26	708	650	680	882	854	867	892	850	870	848	792	817
27	---	---	730	882	856	872	870	826	857	872	838	852
28	---	---	760	872	862	868	828	802	817	850	614	761
29	---	---	790	874	762	823	872	828	853	738	482	564
30	---	---	800	872	834	846	886	870	878	446	214	287
31	---	---	---	866	758	790	884	818	852	---	---	---
MONTH	796	476	729	898	758	848	912	784	847	994	214	821

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	7.2	7.1	7.2	7.2	7.1	7.2	7.1	7.0	7.1	7.2	7.2	7.2
2	7.2	7.2	7.2	7.1	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.2
3	7.2	7.1	7.2	7.2	7.1	7.1	7.2	7.1	7.1	7.2	7.1	7.2
4	7.2	7.2	7.2	7.2	7.1	7.1	7.2	7.1	7.2	7.2	7.2	7.2
5	7.2	7.2	7.2	7.2	7.1	7.1	7.2	7.1	7.1	7.2	7.1	7.1
6	7.2	7.1	7.2	7.2	7.1	7.1	7.2	7.1	7.1	7.2	7.1	7.2
7	7.2	7.1	7.2	7.2	7.1	7.2	7.2	7.1	7.1	7.2	7.2	7.2
8	7.2	7.1	7.2	7.2	7.1	7.2	7.1	7.1	7.1	7.2	7.2	7.2
9	7.2	7.1	7.2	7.2	7.2	7.2	7.2	7.1	7.1	7.2	7.2	7.2
10	7.1	7.0	7.1	7.2	7.1	7.2	7.2	7.1	7.1	7.2	7.2	7.2
11	7.1	7.1	7.1	7.2	7.1	7.2	7.2	7.1	7.1	7.2	7.2	7.2
12	7.1	7.1	7.1	7.2	7.1	7.1	7.2	7.1	7.1	7.2	7.2	7.2
13	7.1	7.1	7.1	7.2	7.1	7.1	7.1	7.0	7.1	7.2	7.2	7.2
14	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.0	7.0	7.2	7.2	7.2
15	7.1	7.1	7.1	7.1	7.1	7.1	7.0	7.0	7.0	7.3	7.2	7.3
16	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.0	7.1	7.3	7.2	7.3
17	7.1	7.0	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.3	7.2	7.3
18	7.0	7.0	7.0	7.1	7.1	7.1	7.2	7.1	7.1	7.3	7.3	7.3
19	7.1	7.0	7.1	7.1	7.1	7.1	7.2	7.1	7.2	7.3	7.3	7.3
20	---	---	---	7.2	7.1	7.1	7.2	7.1	7.1	7.3	7.3	7.3
21	---	---	---	7.1	7.1	7.1	7.2	7.1	7.1	7.3	7.2	7.3
22	7.3	7.2	7.2	7.2	7.1	7.1	7.2	7.2	7.2	7.3	7.2	7.3
23	7.3	7.2	7.2	7.1	7.1	7.1	7.3	7.2	7.2	7.3	7.2	7.3
24	7.2	7.1	7.2	7.1	7.1	7.1	7.2	7.1	7.2	7.4	7.3	7.3
25	7.2	7.1	7.1	7.1	7.1	7.1	7.2	7.1	7.2	7.4	7.3	7.3
26	7.2	7.2	7.2	7.1	7.1	7.1	7.2	7.2	7.2	7.3	7.3	7.3
27	7.2	7.2	7.2	7.1	7.1	7.1	7.2	7.2	7.2	7.3	7.2	7.2
28	7.2	7.2	7.2	7.1	7.1	7.1	7.2	7.2	7.2	7.3	7.2	7.3
29	7.2	7.2	7.2	7.1	7.1	7.1	7.2	7.2	7.2	7.3	7.2	7.3
30	7.2	7.2	7.2	7.1	7.1	7.1	7.2	7.2	7.2	7.3	7.2	7.2
31	7.2	7.1	7.1	---	---	---	7.2	7.2	7.2	7.3	7.2	7.2
MONTH	7.3	7.0	7.2	7.2	7.1	7.1	7.3	7.0	7.1	7.4	7.1	7.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	7.4	7.2	7.3	7.4	7.3	7.3	---	---	---	7.2	7.1	7.1
2	7.3	7.3	7.3	7.3	7.3	7.3	---	---	---	7.2	7.1	7.2
3	7.3	7.3	7.3	7.3	7.2	7.3	---	---	---	7.1	7.0	7.1
4	7.3	7.2	7.3	7.3	7.2	7.3	---	---	---	7.1	7.0	7.0
5	7.3	7.2	7.3	7.2	7.2	7.2	---	---	---	7.1	7.0	7.1
6	7.3	7.2	7.3	7.2	7.2	7.2	---	---	---	7.2	7.1	7.1
7	7.3	7.2	7.2	7.2	7.2	7.2	---	---	---	7.3	7.1	7.2
8	7.3	7.2	7.2	7.2	7.2	7.2	---	---	---	7.5	7.1	7.1
9	7.3	7.2	7.2	7.2	7.1	7.2	---	---	---	7.2	7.1	7.1
10	7.3	7.2	7.3	7.3	7.2	7.3	---	---	---	7.2	7.1	7.1
11	7.2	7.2	7.2	7.3	7.3	7.3	---	---	---	7.1	7.0	7.1
12	7.2	7.1	7.2	7.3	7.3	7.3	---	---	---	7.4	7.1	7.1
13	7.5	7.2	7.4	7.4	7.3	7.3	---	---	---	7.5	7.2	7.2
14	7.4	7.3	7.3	7.3	7.3	7.3	7.1	7.0	7.1	7.3	7.1	7.2
15	7.4	7.3	7.4	7.3	7.3	7.3	7.1	7.0	7.1	7.3	7.1	7.2
16	7.4	7.3	7.3	7.3	7.2	7.2	7.1	7.1	7.1	7.3	7.1	7.1
17	7.3	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1	7.1	7.1
18	7.4	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1	7.2	7.1	7.2
19	7.4	7.3	7.3	7.2	7.2	7.2	7.2	7.1	7.2	7.2	7.1	7.1
20	7.4	7.3	7.3	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.1	7.1
21	7.4	7.3	7.3	7.2	7.1	7.2	7.2	7.2	7.2	7.2	7.1	7.2
22	7.4	7.3	7.3	7.2	7.1	7.2	7.2	7.2	7.2	7.2	7.2	7.2
23	7.3	7.3	7.3	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
24	7.3	7.3	7.3	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
25	7.3	7.3	7.3	---	---	---	7.2	7.1	7.2	7.3	7.2	7.2
26	7.3	7.2	7.3	---	---	---	7.1	7.0	7.0	7.2	7.2	7.2
27	7.3	7.3	7.3	---	---	---	7.0	7.0	7.0	7.2	7.2	7.2
28	7.3	7.3	7.3	---	---	---	7.1	7.0	7.1	7.2	7.1	7.2
29	7.4	7.3	7.3	---	---	---	7.1	7.1	7.1	7.2	7.1	7.1
30	---	---	---	---	---	---	7.2	7.1	7.1	7.1	7.1	7.1
31	---	---	---	---	---	---	---	---	---	7.1	7.1	7.1
MONTH	7.5	7.1	7.3	7.4	7.1	7.2	7.2	7.0	7.1	7.5	7.0	7.1



## TRINITY RIVER BASIN

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.2	7.1	7.1	---	---	---	7.2	7.2	7.2	7.0	7.0	7.0
2	7.2	7.1	7.1	7.5	---	---	7.2	7.1	7.1	7.1	7.0	7.0
3	7.2	7.1	7.2	7.4	7.3	7.3	7.1	7.0	7.1	7.1	7.0	7.1
4	7.2	7.2	7.2	7.4	7.3	7.3	7.1	7.0	7.1	7.0	7.0	7.0
5	7.3	7.1	7.2	7.5	7.3	7.3	7.0	7.0	7.0	7.0	7.0	7.0
6	7.4	7.2	7.2	7.5	7.3	7.3	7.1	7.0	7.1	7.1	7.0	7.1
7	7.3	7.2	7.2	7.5	7.2	7.3	7.1	7.0	7.1	7.1	7.1	7.1
8	7.2	7.2	7.2	7.4	7.2	7.3	7.1	7.1	7.1	7.1	7.0	7.1
9	7.2	7.1	7.2	7.3	7.2	7.2	7.2	7.1	7.1	7.1	7.1	7.1
10	7.2	7.1	7.2	7.2	7.1	7.1	7.2	7.2	7.2	7.1	7.1	7.1
11	7.2	7.1	7.1	7.1	7.1	7.1	7.3	7.1	7.3	7.1	7.0	7.1
12	7.2	7.1	7.1	7.1	7.1	7.1	7.3	7.2	7.3	7.2	7.2	7.2
13	7.1	7.1	7.1	7.2	7.1	7.2	7.3	7.2	7.3	7.2	7.0	7.1
14	7.1	7.0	7.0	7.3	7.1	7.2	7.3	7.2	7.2	7.0	7.0	7.0
15	7.1	7.0	7.0	7.3	7.2	7.2	7.2	7.2	7.2	7.0	7.0	7.0
16	7.1	7.1	7.1	7.4	7.1	7.2	7.2	7.2	7.2	7.0	7.0	7.0
17	7.2	7.1	7.2	7.3	7.2	7.2	7.2	7.2	7.2	7.0	6.9	7.0
18	7.2	7.1	7.2	7.3	7.2	7.2	7.2	7.1	7.1	7.0	6.9	6.9
19	7.2	7.1	7.2	7.2	7.1	7.2	7.2	7.2	7.2	7.0	7.0	7.0
20	7.2	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.2	7.0	7.0	7.0
21	7.1	7.0	7.0	7.1	7.0	7.1	7.2	7.2	7.2	7.0	7.0	7.0
22	7.1	7.0	7.0	7.1	7.0	7.0	7.2	7.2	7.2	7.0	7.0	7.0
23	7.1	7.1	7.1	7.1	7.0	7.0	7.2	7.2	7.2	7.1	7.0	7.0
24	7.1	7.0	7.0	7.1	7.0	7.0	7.2	7.2	7.2	7.1	7.0	7.1
25	7.1	7.0	7.0	7.1	7.0	7.1	7.2	7.2	7.2	7.0	7.0	7.0
26	7.1	---	---	7.1	7.1	7.1	7.2	7.1	7.2	7.1	7.0	7.0
27	---	---	---	7.1	7.0	7.0	7.2	7.1	7.1	7.0	7.0	7.0
28	---	---	---	7.2	7.1	7.2	7.1	7.1	7.1	7.0	6.9	7.0
29	---	---	---	7.3	7.2	7.2	7.1	7.1	7.1	7.0	6.9	6.9
30	---	---	---	7.3	7.2	7.2	7.1	7.1	7.1	7.1	7.0	7.0
31	---	---	---	7.2	7.2	7.2	7.1	7.0	7.1	---	---	---
MONTH	7.4	7.0	7.1	7.5	7.0	7.2	7.3	7.0	7.2	7.2	6.9	7.0

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

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

## TRINITY RIVER BASIN

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER				NOVEMBER			DECEMBER			JANUARY		
1	4.0	2.9	3.4	3.9	.5	2.8	5.7	5.1	5.3	6.2	5.7	5.9
2	4.2	2.9	3.4	4.4	3.1	4.0	6.1	5.4	5.7	6.6	5.7	6.1
3	4.2	3.0	3.6	5.3	4.5	5.0	6.3	5.5	5.8	6.9	6.0	6.5
4	4.1	3.1	3.6	5.4	4.9	5.0	6.3	5.5	5.9	7.0	6.7	6.9
5	3.9	2.9	3.4	5.5	4.7	4.9	6.0	5.4	5.6	6.9	6.0	6.3
6	4.0	3.0	3.4	5.2	4.7	5.0	5.7	5.2	5.4	6.7	6.1	6.3
7	4.3	3.0	3.6	5.2	4.9	5.1	5.3	4.8	5.0	6.7	5.8	6.1
8	4.3	3.0	3.6	5.0	4.3	4.7	5.0	4.7	4.9	6.5	5.9	6.2
9	3.6	2.8	3.2	4.5	4.0	4.2	5.3	4.8	5.0	6.2	5.7	6.0
10	3.6	2.6	3.1	4.7	3.8	4.2	5.1	4.7	4.9	6.4	5.3	6.0
11	3.7	2.9	3.3	4.7	3.9	4.5	4.8	4.1	4.5	5.6	5.2	5.4
12	3.6	2.6	3.1	4.8	4.2	4.4	4.6	4.2	4.4	5.8	5.5	5.7
13	3.5	2.8	3.1	5.3	4.6	4.9	4.8	2.1	3.7	5.7	5.6	5.6
14	4.0	2.8	3.3	5.5	5.1	5.3	6.5	.7	3.4	5.8	4.9	5.4
15	3.3	2.7	3.0	5.6	5.0	5.2	5.6	2.2	4.5	5.1	4.7	4.9
16	2.7	2.3	2.6	5.2	4.6	4.9	6.9	5.8	6.3	4.8	4.5	4.7
17	2.3	.1	.9	5.0	4.6	4.8	7.1	6.2	6.5	4.5	4.2	4.4
18	2.1	.2	1.1	4.6	4.1	4.4	7.1	6.3	6.6	4.3	4.2	4.3
19	---	2.2	---	4.1	3.7	3.9	7.2	6.5	6.8	4.4	4.2	4.3
20	---	---	---	3.9	3.2	3.6	7.2	6.0	6.6	5.0	4.4	4.7
21	---	---	---	3.7	3.3	3.5	6.1	4.9	5.4	5.9	4.1	5.0
22	---	---	---	3.6	3.3	3.5	5.3	4.4	4.9	7.0	5.0	6.3
23	3.3	2.6	3.0	4.1	3.3	3.6	5.6	3.7	---	7.9	6.4	7.3
24	3.1	2.7	2.9	4.4	3.8	4.0	5.6	3.3	4.3	8.6	7.8	8.3
25	3.6	2.7	3.0	4.8	4.5	4.6	6.3	4.3	5.3	8.6	7.6	8.2
26	3.7	3.4	3.6	5.2	4.6	4.8	6.9	6.4	6.6	7.6	7.2	7.3
27	4.1	3.7	3.9	4.8	4.3	4.6	7.0	7.0	7.0	7.6	6.9	7.3
28	4.1	3.7	3.8	4.9	4.3	4.6	7.1	6.4	6.9	8.2	7.4	7.9
29	4.0	3.6	3.8	5.3	4.7	5.0	6.5	6.0	6.2	8.4	8.0	8.2
30	4.2	3.5	3.7	5.5	5.0	5.2	5.9	5.3	5.7	8.4	7.6	8.0
31	3.7	.2	2.2	---	---	---	6.5	5.3	6.0	8.3	7.6	8.0
MONTH	4.3	.1	3.1	5.6	.5	4.5	7.2	.7	5.5	8.6	4.1	6.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	9.7	7.8	9.0	5.8	4.6	5.1	---	---	---	3.8	3.3	3.6
2	9.2	8.3	8.9	6.1	5.4	5.7	---	---	---	4.1	2.8	3.5
3	8.4	6.9	8.0	6.1	5.5	5.7	---	---	---	3.6	.0	1.9
4	7.4	6.3	7.0	6.1	5.9	6.0	---	---	---	2.4	1.7	2.0
5	7.1	5.8	6.6	6.1	5.6	5.9	---	---	---	3.3	.7	2.8
6	6.8	4.1	5.8	6.1	5.4	5.7	---	---	---	3.9	3.1	3.5
7	6.5	4.1	5.3	5.6	2.9	4.8	---	---	---	5.1	3.6	4.4
8	7.3	5.5	6.3	4.1	2.7	3.8	---	---	---	3.7	3.0	3.4
9	9.2	7.3	7.9	5.0	3.9	4.2	---	---	---	3.5	1.5	2.8
10	9.7	9.1	9.4	5.1	3.8	4.2	---	---	---	3.4	1.5	2.5
11	9.2	9.1	9.2	4.3	3.7	4.0	---	---	---	3.3	1.6	2.6
12	9.6	7.8	8.6	4.5	3.8	4.2	---	---	---	4.1	3.0	3.6
13	9.6	8.5	9.1	4.5	3.9	4.1	---	---	---	4.2	3.5	3.9
14	8.4	6.0	6.7	4.3	3.8	4.1	5.7	4.5	5.0	3.9	2.8	3.5
15	7.2	4.0	5.7	4.4	3.9	4.2	5.9	5.3	5.6	4.9	2.8	4.0
16	6.2	5.2	5.9	4.3	3.0	3.6	5.7	5.4	5.6	4.5	2.3	3.7
17	6.7	6.1	6.4	3.8	3.0	3.4	5.3	4.1	4.5	3.4	2.8	3.1
18	7.3	6.6	7.0	3.9	3.3	3.6	4.5	3.5	3.9	3.7	3.0	3.5
19	7.4	6.1	6.9	4.2	3.4	3.8	4.1	3.5	3.8	3.0	2.5	2.8
20	6.5	5.4	6.2	4.4	3.6	4.0	4.0	3.4	3.7	3.0	2.3	2.5
21	6.5	4.9	5.8	4.5	3.5	4.0	4.1	3.2	3.6	3.1	2.3	2.5
22	5.5	4.8	5.1	4.5	3.5	4.1	4.2	3.3	3.7	3.4	2.6	3.0
23	5.2	4.3	4.8	3.9	3.3	3.7	4.2	3.2	3.7	3.3	2.0	2.8
24	5.2	4.4	4.7	3.7	3.3	3.5	3.5	2.7	3.1	3.6	1.9	2.5
25	5.6	4.8	5.2	---	---	---	4.0	2.4	3.2	3.1	1.9	2.4
26	5.5	4.9	5.2	---	---	---	2.7	.1	1.7	3.5	2.0	2.9
27	5.4	4.9	5.1	---	---	---	3.1	.6	1.8	3.8	3.2	3.4
28	5.5	4.7	5.1	---	---	---	4.4	3.2	4.0	3.9	3.4	3.6
29	5.2	4.4	4.9	---	---	---	4.6	3.9	4.3	3.8	3.0	3.5
30	---	---	---	---	---	---	4.2	3.7	3.9	3.6	2.8	3.2
31	---	---	---	---	---	---	---	---	---	3.7	2.7	3.2
MONTH	9.7	4.0	6.6	6.1	2.7	4.4	5.9	.1	3.8	5.1	.0	3.1

## TRINITY RIVER BASIN

495

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	3.6	2.8	3.1	---	---	---	3.3	1.8	2.3	2.7	1.7	2.1
2	3.6	2.9	3.2	5.8	---	---	2.8	1.2	2.1	2.8	1.7	2.2
3	3.7	3.1	3.3	5.5	1.5	4.5	3.1	1.9	2.3	2.7	1.7	2.2
4	3.9	3.2	3.6	5.9	3.5	4.5	3.0	1.4	2.2	3.1	1.9	2.4
5	4.5	1.0	3.6	6.5	3.2	4.5	3.3	1.8	2.5	2.9	1.8	2.4
6	5.3	2.9	3.8	6.3	3.3	4.5	4.9	2.3	3.4	2.3	1.5	1.9
7	4.6	2.5	3.5	6.7	3.1	4.5	5.3	2.3	3.6	2.3	1.4	1.8
8	3.8	2.5	3.1	6.9	3.1	4.7	3.0	1.8	2.5	1.8	1.0	1.5
9	3.6	2.4	3.0	6.5	3.2	4.8	2.3	1.5	1.9	2.1	1.3	1.6
10	4.6	2.6	3.5	6.7	3.4	4.9	3.2	1.6	2.2	2.6	1.4	2.0
11	5.0	2.9	3.9	6.7	2.8	4.4	3.2	1.4	2.2	2.3	1.6	2.0
12	5.0	---	---	6.3	2.8	4.2	2.9	1.5	2.1	2.3	1.5	1.9
13	6.1	3.5	4.6	6.0	2.7	4.0	3.1	1.5	2.2	2.4	1.4	1.9
14	5.0	2.7	3.9	5.9	2.4	3.8	3.3	1.9	2.4	2.4	1.5	1.9
15	4.0	2.6	3.4	5.9	2.2	3.7	2.9	1.8	2.3	2.5	1.3	1.8
16	3.8	2.7	3.2	6.1	2.2	3.8	3.4	1.9	2.4	2.1	1.2	1.7
17	4.0	2.8	3.4	4.7	2.3	3.3	3.3	1.9	2.5	2.6	1.4	2.0
18	4.1	2.8	3.4	4.3	2.0	2.9	3.6	2.0	2.6	2.4	1.6	2.0
19	3.8	2.6	3.2	3.7	1.7	2.5	4.1	2.0	2.8	2.2	1.6	1.8
20	3.0	2.5	2.7	3.1	1.5	2.1	3.9	2.0	2.8	2.0	1.5	1.8
21	3.1	.1	1.1	3.3	1.5	2.2	4.3	2.0	3.0	2.0	1.5	1.7
22	2.5	.0	.9	3.4	1.4	2.2	3.2	1.9	2.4	2.2	1.4	1.8
23	2.8	2.3	2.7	3.5	1.4	2.4	2.8	1.6	2.0	2.1	1.5	1.7
24	2.8	2.1	2.4	3.2	1.6	2.2	2.8	1.4	2.0	2.3	1.4	1.8
25	2.7	2.3	2.5	3.1	1.6	2.1	2.8	1.2	2.0	2.2	1.5	1.8
26	2.5	2.0	2.3	2.5	1.4	1.8	2.8	1.4	2.0	2.1	1.5	1.8
27	---	---	---	2.7	1.3	1.7	3.2	1.6	2.3	2.5	1.7	2.0
28	---	---	---	2.5	1.2	1.8	2.4	1.6	1.8	1.9	.9	1.3
29	---	---	---	3.0	1.2	2.1	2.2	1.4	1.8	2.3	.8	1.5
30	---	---	---	3.3	1.6	2.4	2.1	1.6	1.9	3.5	.5	2.7
31	---	---	---	2.3	.1	1.3	2.6	1.6	2.1	---	---	---
MONTH	6.1	.0	3.1	6.9	.1	3.2	5.3	1.2	2.3	3.5	.5	1.9

## 08062650 CEDAR CREEK RESERVOIR SPILLWAY OUTFLOW NEAR TRINIDAD, TX

LOCATION (revised).--Lat 32°14'16", long 96°08'36", Henderson County, Hydrologic Unit 12030107, at upstream side of highway embankment near left end of bridge on State Highway 274, 0.2 mi (0.3 km) downstream from Cedar Creek Reservoir Spillway, 1.8 mi (2.9 km) upstream from mouth of cut channel at Trinity River, and 7.6 mi (12.2 km) north of Trinidad.

DRAINAGE AREA.--1,007 mi<sup>2</sup> (2,608 km<sup>2</sup>), that of Cedar Creek Reservoir.

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 20, 1980, at site 385A (117 m) to right of present gage at present datum. Mar. 10, 1965, to July 8, 1966, nonrecording gage at 379 ft (116 m) to right of present gage at present datum. Auxiliary water-stage recorder 6,000 ft (1,830 m) downstream from base gage at same datum.

REMARKS.--Records fair. Except for a small amount of local runoff and seepage around gates, all flow is water released from Cedar Creek Reservoir (station 08063010). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years, 548 ft<sup>3</sup>/s (15.52 m<sup>3</sup>/s), 397,000 acre-ft/yr (490 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 110,000 ft<sup>3</sup>/s (3,120 m<sup>3</sup>/s) June 4, 1973, elevation, 300.75 ft (91.669 m); no flow at times each year except 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 27,300 ft<sup>3</sup>/s (773 m<sup>3</sup>/s) Jan. 22 at 1115 hours, elevation, 286.26 ft (87.252 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.25	.45	.30	.25	.20	.10	.45	.08	.25	.00	.00
2	.00	.25	.45	.30	.17	.20	.10	.45	.08	.42	.00	.00
3	.00	.25	.45	.30	.17	.20	.10	.45	.08	.33	.00	.00
4	.00	.25	.45	.30	.17	.20	.10	.45	.08	.25	.00	.00
5	.00	.25	.45	.30	.15	.20	.10	.45	.08	.17	.00	.00
6	.73	.25	.45	.30	.10	.20	.10	.45	.08	.17	.00	.00
7	.25	.25	.45	.30	.10	.20	.10	.46	.08	.17	.00	.00
8	.10	.25	.45	.30	4150	.20	.10	1.4	.42	.08	.00	.00
9	.12	.33	.45	.30	5180	.20	.10	1.4	.25	.00	.00	.00
10	.08	.40	.45	.30	2220	.17	.10	.50	.08	.00	.00	.00
11	.00	.40	.50	.30	1780	.17	.10	.50	.08	.00	.00	.00
12	.00	.40	.50	.30	1040	.08	.40	.50	.08	.00	.00	.00
13	.08	.40	.50	.30	.25	.14	3260	741	.08	.00	.00	.00
14	.22	.40	.50	.30	.20	.08	4420	1480	.08	.00	.00	.00
15	.10	.40	.50	.30	74	.08	2370	2370	.08	.00	.00	.00
16	.27	.40	.50	.30	815	.08	2000	4520	.08	.00	.00	44
17	.25	.40	.50	.30	.25	.42	666	2890	.08	.00	.00	1.4
18	.19	.40	.50	.30	.25	1040	.78	3560	.08	.00	106	.42
19	.17	.40	.50	.30	.25	.08	.45	1560	.08	.00	.25	.86
20	.17	.40	.50	.50	.25	.25	.45	.08	.42	.00	.00	.33
21	.17	.40	.75	.60	.20	.17	.45	.00	.25	.00	.00	.25
22	.31	.40	5.0	12600	.20	.08	.45	.00	.25	.00	.00	.17
23	.11	.40	2.5	10600	.20	.08	.45	.00	.17	.00	.00	.17
24	.09	.40	1.0	7720	.20	.08	.36	.00	.08	.00	.00	.17
25	.09	.40	.40	3920	.20	.08	1040	.08	.08	.00	.00	.08
26	.09	.45	.40	370	.20	.08	889	.08	.08	.00	.00	.08
27	1.2	.45	.35	1190	.20	.17	.70	.08	.08	.00	.00	.08
28	.36	.45	.35	.50	.20	1480	.45	.08	.17	.00	.00	.08
29	.28	.45	.35	.60	.20	1780	.45	.00	.17	.00	.00	.25
30	.86	.45	.35	296	---	.20	.45	.00	.17	.00	.00	.86
31	.35	---	.35	1040	---	.10	---	.00	---	.00	.00	---
TOTAL	6.72	10.98	21.30	37743.90	15263.36	4304.39	14651.94	17128.86	3.95	1.84	106.25	49.20
MEAN	.22	.37	.69	1218	526	139	488	553	.13	.059	3.43	1.64
MAX	1.2	.45	5.0	12600	5180	1780	4420	4520	.42	.42	106	.44
MIN	.00	.25	.35	.30	.10	.08	.10	.00	.08	.00	.00	.00
AC-FT	13	22	42	74870	30270	8540	29060	33980	7.8	3.6	211	98
CAL YR 1979	TOTAL	145608.25	MEAN	399	MAX	15200	MIN	.00	AC-FT	288800		
WTR YR 1980	TOTAL	89292.69	MEAN	244	MAX	12600	MIN	.00	AC-FT	177100		

## TRINITY RIVER BASIN

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08062700 TRINITY RIVER AT TRINIDAD, TX  
(National stream-quality accounting network)

LOCATION.--Lat 32°08'05", long 96°06'20", Henderson County, Hydrologic Unit 12030105, on left bank at pumping station of Texas Power and Light Co., near southwest boundary of Trinidad, 0.5 mi (0.8 km) downstream from St. Louis Southwestern Railway Lines bridge, 0.9 mi (1.4 km) downstream from bridge on State Highway 31, 8 mi (13 km) upstream from Cedar Creek, and at mile 391.2 (629.4 km).

DRAINAGE AREA.--8,538 mi<sup>2</sup> (22,113 km<sup>2</sup>), not including 1,007 mi<sup>2</sup> (2,608 km<sup>2</sup>) upstream from Cedar Creek Reservoir.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1964 to current year. Records of gage height collected in this vicinity for period October 1913 to September 1915 are contained in reports of Corps of Engineers, and records collected since October 1915 are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 239.21 ft (72.911 m) National Geodetic Vertical Datum of 1929. Prior to May 3, 1967, at site 0.9 mi (1.4 km) upstream at datum 1.28 ft (0.390 m) higher.

REMARKS.--Water-discharge records good. For regulation by upstream reservoirs, see Trinity River near Rosser (station 08062500). The spillway outflow from Cedar Creek Reservoir (station 08062650) enters the Trinity River 13 mi (21 km) upstream from station. Many diversions above station for municipal supply for the cities of Fort Worth, Dallas, and several small towns. Low flows are maintained by sewage effluent from the Dallas-Fort Worth metroplex. The National Weather Service operates a gage-height telemeter at this station.

AVERAGE DISCHARGE.--16 years, 3,494 ft<sup>3</sup>/s (98.95 m<sup>3</sup>/s), 2,531,000 acre-ft/yr (3.12 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 83,000 ft<sup>3</sup>/s (2,350 m<sup>3</sup>/s) May 8, 1969, gage height, 44.10 ft (13.442 m); minimum daily, 312 ft<sup>3</sup>/s (8.84 m<sup>3</sup>/s) Aug. 9, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1908, 49.8 ft (15.18 m) Apr. 25, 1942 (present site and datum), from records of the National Weather Service. Flood in 1908 reached a stage of 48.3 ft (14.72 m), present site and datum, from records of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17,800 ft<sup>3</sup>/s (504 m<sup>3</sup>/s) Jan. 24 at 1800 hours, gage height, 34.00 ft (10.363 m); minimum daily, 458 ft<sup>3</sup>/s (13.0 m<sup>3</sup>/s) Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	509	1700	497	630	1630	709	1260	878	834	539	622	514
2	495	2180	483	600	1180	692	900	836	805	535	549	488
3	502	1180	474	580	948	672	778	1060	779	538	552	460
4	508	724	488	560	926	675	731	2650	765	545	512	478
5	502	599	493	550	924	660	1210	2350	762	541	498	492
6	496	547	507	545	909	657	1160	1020	745	524	523	493
7	500	536	517	540	881	653	834	896	731	500	537	488
8	494	526	525	535	2650	648	794	2050	724	493	515	486
9	480	535	512	530	7260	663	775	1620	722	500	518	490
10	481	547	502	525	8300	641	778	1800	704	521	525	551
11	490	609	501	520	6370	623	771	1670	713	529	516	703
12	492	624	530	515	4500	642	756	1070	718	531	509	773
13	469	582	557	513	2650	661	2650	1170	699	530	526	597
14	458	551	1360	508	1760	679	6660	2910	680	514	534	535
15	472	550	1970	508	1400	659	8960	3540	669	498	523	491
16	493	529	1150	516	2310	637	6720	6310	653	500	522	471
17	599	525	707	518	1180	1380	3980	9850	640	508	529	502
18	1620	535	613	508	1140	1820	1350	11000	640	515	526	493
19	1210	538	574	506	1120	1260	1060	12000	600	514	557	492
20	691	509	555	672	1050	827	952	10200	594	512	523	501
21	573	527	551	1340	950	778	895	5100	600	513	521	495
22	546	546	1210	6590	867	755	846	2620	1470	499	522	489
23	534	627	1300	13500	834	752	815	1520	1460	519	513	475
24	704	604	2830	17800	794	735	800	1180	1060	567	522	482
25	655	532	2800	17400	754	767	1430	1160	901	546	510	494
26	586	499	2490	13700	762	773	3110	1090	727	533	498	494
27	535	485	1910	7530	823	709	2550	959	631	523	501	520
28	519	494	1130	2880	781	2100	1730	891	593	529	504	627
29	503	500	851	1460	719	2570	1150	865	568	560	519	1250
30	522	498	681	1230	---	2770	951	857	550	588	540	2140
31	642	---	660	2300	---	1670	---	861	---	551	529	---
TOTAL	18280	19938	29928	96609	56372	30237	57356	91983	22737	16315	16295	17964
MEAN	590	665	965	3116	1944	975	1912	2967	758	526	526	599
MAX	1620	2180	2830	17800	8300	2770	8960	12000	1470	588	622	2140
MIN	458	485	474	506	719	623	731	836	550	493	498	460
AC-FT	36260	39550	59360	191600	111800	59980	113800	182400	45100	32360	32320	35630
CAL YR 1979	TOTAL	1026541	MEAN	2812	MAX	25200	MIN	458	AC-FT	2036000		
WTR YR 1980	TOTAL	474014	MEAN	1295	MAX	17800	MIN	458	AC-FT	940200		



## TRINITY RIVER BASIN

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

## WATER-QUALITY RECORDS

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

SPECIFIC CONDUCTANCE: November 1977 to Current year.

WATER TEMPERATURES: November 1977 to Current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,000 micromhos Dec. 28, 1977; minimum daily, 241 micromhos Mar. 28, 1980.

WATER TEMPERATURES: Maximum daily, 34.0°C July 17, 1979, and July 9, 13, 1980; minimum daily 3.5°C Jan. 5, 1979.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 883 micromhos Mar. 23; minimum daily, 241 micromhos Mar. 28.

WATER TEMPERATURES: Maximum daily, 34.0°C July 9, 13; minimum daily, 6.0°C Feb. 10.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT											
22...	1320	541	545	7.4	23.0	18	3.9	45	18	2400	380
NOV											
15...	0930	545	805	7.5	12.0	1.1	6.2	56	19	220	K15
DEC											
11...	0940	492	845	7.5	13.0	9.6	6.2	59	12	100	23
JAN											
09...	1140	560	770	7.5	9.0	8.5	7.0	60	20	48	23
FEB											
12...	1630	4380	358	7.6	7.0	78	10.8	89	11	1300	920
MAR											
19...	1500	983	630	7.4	16.0	96	5.0	51	20	400	430
APR											
23...	1650	815	790	7.4	23.0	33	4.8	56	41	61	K40
MAY											
13...	1515	1040	570	7.5	24.0	120	2.2	26	25	140	100
JUN											
03...	1415	753	755	7.8	28.0	4.4	5.3	67	23	32	K6
JUL											
15...	1320	490	840	7.5	32.5	32	4.3	58	9.0	21	22
AUG											
20...	1330	496	836	7.2	30.0	16	1.2	16	17	280	210
SEP											
11...	1145	667	820	7.3	28.0	22	2.6	33	20	4000	360

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT											
22...	130	5	44	4.4	51	2.0	8.4	150	0	60	42
NOV											
15...	150	0	52	5.0	93	3.3	15	200	0	100	71
DEC											
11...	150	0	51	6.1	110	3.9	13	190	0	110	83
JAN											
09...	160	0	55	5.3	86	3.0	11	200	0	100	70
FEB											
12...	110	16	39	4.1	29	1.2	5.3	120	0	48	25
MAR											
19...	150	1	52	4.6	66	2.4	8.8	180	0	100	44
APR											
23...	190	25	66	6.0	77	2.4	9.4	200	0	120	61
MAY											
13...	160	21	54	5.1	61	2.1	7.0	170	0	83	45
JUN											
03...	160	2	56	5.3	77	2.6	9.9	200	0	94	59
JUL											
15...	140	0	45	5.5	110	4.1	12	180	0	110	86
AUG											
20...	130	11	43	5.7	120	4.6	13	150	0	130	81
SEP											
11...	120	0	40	5.5	110	4.3	13	170	0	110	81

## TRINITY RIVER BASIN

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08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	
OCT 22...	.8	8.4	317	308	3.3	3.4	2.400	2.500	.90	1.1	
NOV 15...	1.5	11	466	468	4.4	3.9	8.100	3.000	.00	.00	
DEC 11...	1.4	6.0	500	486	3.6	2.7	2.900	2.300	6.3	6.4	
JAN 09...	1.0	12	451	456	4.4	3.9	6.000	5.800	6.0	4.2	
FEB 12...	.4	5.3	211	218	.84	.56	1.200	1.000	1.6	.80	
MAR 19...	.7	11	372	366	2.0	.47	5.700	1.900	5.3	10	
APR 23...	1.2	10	407	455	4.3	1.4	5.500	2.200	3.5	7.8	
MAY 13...	.8	9.0	359	365	3.5	3.2	1.500	1.600	1.3	1.4	
JUN 03...	1.1	10	428	424	3.6	3.5	1.700	1.700	1.7	.80	
JUL 15...	1.6	12	500	491	5.0	4.3	1.200	1.100	1.2	1.5	
AUG 20...	1.6	13	513	517	9.3	8.4	--	1.900	--	--	
SEP 11...	1.4	14	551	482	5.6	5.2	2.900	2.700	2.7	1.2	
DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED (MG/L AS C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
OCT 22...	3.3	3.6	1.800	1.600	12	--	--	51	74	98	
NOV 15...	5.0	2.8	1.100	.320	15	--	--	27	40	96	
DEC 11...	9.2	8.7	5.900	.300	14	--	--	41	54	45	
JAN 09...	12	10	4.400	3.900	--	11	.3	25	38	97	
FEB 12...	2.8	1.8	.810	.470	13	--	--	198	2340	90	
MAR 19...	11	12	2.300	2.000	--	13	2.3	191	507	94	
APR 23...	9.0	10	2.600	2.100	20	--	--	89	196	98	
MAY 13...	2.8	3.0	2.300	1.900	20	--	--	183	514	96	
JUN 03...	3.4	2.5	4.500	3.200	14	--	--	54	110	87	
JUL 15...	2.4	2.6	5.300	3.700	--	12	1.5	71	94	98	
AUG 20...	--	--	6.000	6.000	--	--	--	65	87	97	
SEP 11...	5.6	3.9	6.100	5.100	--	9.2	1.3	47	85	97	
DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDED TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM, TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDED RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
DEC 11...	0940	--	--	--	--	--	--	--	--	--	--
JAN 09...	1140	7	0	9	100	60	40	1	0	2	10
FEB 12...	1630	--	--	--	--	--	--	--	--	--	--
MAR 19...	1500	9	0	11	200	200	50	2	1	<1	20
JUN 03...	1415	--	--	--	--	--	--	--	--	--	--
JUL 15...	1320	8	0	8	0	0	30	1	--	<1	10
AUG 20...	1330	--	--	--	--	--	--	--	--	--	--
SEP 11...	1145	8	0	8	100	80	20	1	0	2	10

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

[illegible]

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOT. MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	MALA- THION, TOTAL (UG/KG)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
NOV 15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/KG)	METHYL TRI- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/KG)	PARA- THION, TOTAL (UG/L)	PARA- THION, TOTAL (UG/KG)	TOX- APHENE, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/KG)	TRI- THION, TOTAL (UG/L)	TRI- THION, TOTAL (UG/KG)
NOV 15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	LENGTH OF EXPO- SURE (DAYS)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI- PHYTON BIOMASS DRY WEIGHT G/SQ M	CHLOR-A PERI- PHYTON TOTAL CHROMO- GRAPHIC FLUOROM (MG/M2)	CHLOR-B PERI- PHYTON TOTAL CHROMO- GRAPHIC FLUOROM (MG/M2)	BIOMASS CHLORO- PHYLL RATIO PERI- PHYTON (UNITS)
JUL 15...	42	13.3	19.4	45.6	6.95	134

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	DEC 11,79 0940	MAR 19,80 1500	MAY 13,80 1515	JUN 3,80 1415
TOTAL CELLS/ML	6100	870	4300	32000
DIVERSITY: DIVISION	1.6	1.1	1.5	0.9
..CLASS	1.6	1.1	1.5	0.9
..ORDER	2.2	1.7	2.2	1.4
...FAMILY	2.4	2.3	2.6	2.5
....GENUS	2.9	2.4	2.9	2.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
....CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	*	0
....COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
....MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	150	4	170	1
....MICRACTINIUM	--	-	--	-	51	1	7400#	23
...OOCYSTACEAE								
....ANKISTRODESMUS	270	4	17	2	26	1	*	0
....CHLORELLA	950#	16	--	-	*	0	630	2
....DICTYOSPHAERIUM	340	6	--	-	--	-	--	-
....KIRCHNERIELLA	100	2	--	-	--	-	*	0
...OOCYSTIS	--	-	--	-	26	1	1500	5
....SELENASTRUM	--	-	--	-	90	2	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-
....TREUBARIA	--	-	--	-	*	0	*	0
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	310	7	13000#	40
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	68	1	--	-	280	7	1300	4
....TETRASTRUM	--	-	--	-	100	2	--	-
...TETRASPORALES								
...PALMELLACEAE								
...SPHAEROCYSTIS	--	-	--	-	--	-	340	1
...VOLVOCALES								
...CHLAMYDOMONADACEAE								
...CHLAMYDOMONAS	170	3	11	1	51	1	170	1
...VOLVOCAEAE								
...EUDORINA	--	-	--	-	--	-	920	3
...ZYGNEMATALES								
...DESMIDIACEAE								
...CLOSTERIUM	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

TRINITY RIVER BASIN  
08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980--Continued

DATE TIME	DEC 11,79 0940		MAR 19,80 1500		MAY 13,80 1515		JUN 3,80 1415	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHRYSPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINODISCEAE								
...CYCLOTELLA	990#	16	140#	16	510	12	1700	5
...MELOSIRA	--	-	11	1	26	1	*	0
...THALASSIOSIRA	34	1	--	-	--	-	--	-
...PENNALES								
...CYMBELLACEAE								
...CYMBELLA	--	-	6	1	--	-	--	-
...EUNOTIACEAE								
...EUNOTIA	--	-	6	1	--	-	--	-
...FRAGILARIACEAE								
...SYNEDRA	1500#	24	11	1	*	0	*	0
...GOMPHONEMACEAE								
...GOMPHONEMA	34	1	6	1	--	-	--	-
...NAVICULACEAE								
...NAVICULA	--	-	63	7	*	0	--	-
...NITZSCHACEAE								
...NITZSCHIA	200	3	290#	33	64	1	800	2
...SURIRELLACEAE								
...SURIRELLA	--	-	17	2	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
...CRYPTOMONADACEAE								
...CRYPTOMONAS	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
...CHROOCOCCACEAE								
...AGMENELLUM	--	-	--	-	--	-	460	1
...ANACYSTIS	--	-	--	-	1200#	28	--	-
...HORMOGONALES								
...NOSTOCACEAE								
...ANABAENA	--	-	--	-	--	-	460	1
...OSCILLATORIA								
...LYNGBYA	--	-	--	-	--	-	--	-
...OSCILLATORIA	1400#	23	290#	33	1300#	30	2900	9
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
...EUGLENACEAE								
...EUGLENA	68	1	--	-	64	1	*	0
...TRACHELONAS	--	-	--	-	26	1	--	-

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

## 08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 15,80 1320	AUG 20,80 1330	SEP 11,80 1145
TOTAL CELLS/ML	32000	14000	8200
DIVERSITY: DIVISION	0.7	1.4	1.6
..CLASS	0.7	1.4	1.6
..ORDER	0.8	1.6	2.3
...FAMILY	1.4	2.5	3.1
....GENUS	2.0	3.3	3.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE						
...SCHROEDERIA	--	-	--	-	--	-
...COELASTRACEAE						
...COELASTRUM	800	2	2300#	17	--	-
...MICRACTINIACEAE						
...GOLENKINIA	*	0	650	5	*	0
...MICRACTINIUM	600	2	--	-	600	7
...OOCYSTACEAE						
...ANKISTRODESMUS	*	0	650	5	100	1
...CHLORELLA	--	-	--	-	--	-
...DICTYOSPHAERIUM	21000#	66	440	3	130	2
...KIRCHNERIELLA	600	2	--	-	400	5
...OOCYSTIS	1900	6	730	5	130	2
...SELENASTRUM	*	0	800	6	170	2
...TETRAEDRON	*	0	--	-	--	-
...TREUBARIA	--	-	73	1	--	-
...SCENEDESMACEAE						
...ACTINASTRUM	--	-	--	-	530	7
...CRUCIGENIA	1400	4	--	-	530	7
...SCENEDESMUS	300	1	1300	9	800	10
...TETRASTRUM	--	-	--	-	--	-
..TETRASPORALES						
...PALMELLACEAE						
...SPHAEROCYSTIS	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	350	1	290	2	170	2
...VOLVOCAEAE						
...EUDORINA	--	-	--	-	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
...CLOSTERIUM	--	-	--	-	170	2
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCACEAE						
...CYCLOTILLA	250	1	1000	7	900	11
...MELOSIRA	--	-	--	-	--	-
...THALASSIOSIRA	--	-	--	-	--	-
..PENNALES						
...CYMBELLACEAE						
...CYMBELLA	--	-	--	-	--	-
...EUNOTIACEAE						
...EUNOTIA	--	-	--	-	--	-
...FRAGILARIACEAE						
...SYNEDRA	--	-	--	-	*	0
...GOMPHONEMACEAE						
...GOMPHONEMA	--	-	--	-	*	0
...NAVICULACEAE						
...NAVICULA	--	-	--	-	200	2
...NITZSCHACEAE						
...NITZSCHIA	*	0	360	3	1100	13
...SURIARELLACEAE						
...SURIARELLA	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOMONADACEAE						
...CRYPTOMONAS	--	-	73	1	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%



## TRINITY RIVER BASIN

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980--Continued

DATE TIME	JUL 15,80 1320		AUG 20,80 1330		SEP 11,80 1145	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	1500	11	--	-
....ANACYSTIS	200	1	3600#	26	1400#	18
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	--	-
...OSCILLATORIACEAE						
....LYNGBYA	1900	6	--	-	--	-
....OSCILLATORIA	2400	7	--	-	600	7
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	67	1
....TRACHELOMONAS	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA,MG) (MG/L)
OCT.	1979	18280	732	411	20300	59	2920	90	4450	160
NOV.	1979	19938	685	385	20700	54	2880	84	4530	160
DEC.	1979	29928	625	353	28500	47	3770	77	6200	160
JAN.	1980	96609	378	216	56400	22	5840	46	12000	120
FEB.	1980	56372	500	284	43200	34	5160	61	9300	140
MAR.	1980	30237	658	369	30200	53	4310	81	6620	150
APR.	1980	57356	478	272	42200	31	4830	58	9040	140
MAY	1980	91983	457	260	64700	29	7130	56	13800	140
JUNE	1980	22737	690	388	23800	54	3290	85	5210	160
JULY	1980	16315	821	458	20200	71	3120	100	4470	160
AUG.	1980	16295	812	454	20000	70	3070	100	4420	160
SEPT	1980	17964	793	444	21500	67	3250	98	4750	160
TOTAL		474014	**	**	392000	**	49600	**	84800	**
WTD. AVG.		1295	541	306	**	39	**	66	**	140

## TRINITY RIVER BASIN

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08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	710	788	782	576	500	823	637	578	682	733	836	772
2	764	560	750	632	640	806	568	643	713	769	784	814
3	768	474	748	682	655	780	582	689	725	847	816	839
4	736	450	756	712	586	772	617	630	730	872	745	824
5	780	474	772	730	693	802	663	503	733	867	805	817
6	792	496	804	646	747	815	764	491	749	830	822	832
7	774	556	792	666	779	861	809	523	721	795	836	806
8	754	602	808	686	500	842	657	610	733	827	849	769
9	792	674	788	720	311	830	611	478	739	838	841	746
10	830	700	790	752	300	825	660	536	746	837	816	788
11	825	708	818	780	388	847	721	673	741	846	800	817
12	814	792	856	776	379	838	714	590	740	809	767	792
13	818	786	798	784	538	861	312	570	736	780	813	800
14	806	760	806	786	612	864	359	375	713	794	827	739
15	778	738	820	812	529	851	411	254	719	808	838	803
16	792	760	528	830	645	862	367	399	722	820	829	866
17	824	736	610	824	639	762	375	361	726	815	825	792
18	808	720	584	836	694	323	488	362	737	824	812	718
19	724	732	544	820	710	658	515	384	742	847	805	760
20	574	768	602	788	716	795	604	422	723	829	827	775
21	488	770	626	628	712	810	679	498	739	807	813	793
22	526	772	560	252	713	839	717	534	700	821	811	796
23	558	796	616	298	723	883	744	571	672	819	805	792
24	628	784	598	294	695	836	735	608	566	829	798	805
25	700	768	600	320	718	821	297	638	499	820	787	810
26	736	786	484	356	756	805	400	676	591	843	793	812
27	726	792	420	338	720	801	500	686	566	811	798	808
28	658	762	442	478	783	241	590	703	568	807	811	775
29	738	774	444	518	807	309	612	680	629	818	819	811
30	786	754	484	550	---	450	550	664	685	833	832	774
31	706	---	502	382	---	653	---	679	---	841	811	---
MEAN	733	701	662	621	627	750	575	549	693	821	812	795

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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

## 08062800 CEDAR CREEK NEAR KEMP, TX

LOCATION (revised).--Lat 32°30'18", long 96°06'57", Kaufman County, Hydrologic Unit 12030107, on left bank at downstream side of bridge on Farm Road 1836, 3.6 mi (5.8 km) upstream from Williams Creek, 8.1 mi (13.0 km) northeast of Kemp, and 51.5 mi (82.9 km) upstream from mouth.

DRAINAGE AREA.--189 mi<sup>2</sup> (490 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 341.48 ft (104.083 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those below 10 ft<sup>3</sup>/s (0.28 m<sup>3</sup>/s), which are fair. Flow is affected at times by storage in Terrell Municipal Lake, capacity 8,300 acre-ft (10.2 hm<sup>3</sup>). Records furnished by the city of Terrell show that during the current year 3,470 acre-ft (4.28 hm<sup>3</sup>) was diverted from Terrell Municipal Lake for municipal use and 1,770 acre-ft (2.18 hm<sup>3</sup>) of sewage effluent was returned to a tributary of Kings Creek that enters downstream from this station. Flow is affected at times by discharge from the flood-detention pools of 19 floodwater-retarding structures with a combined detention capacity of 18,660 acre-ft (23.0 hm<sup>3</sup>). These structures control runoff from 55.2 mi<sup>2</sup> (143.0 km<sup>2</sup>). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years (water years 1964-80), 116 ft<sup>3</sup>/s (3.285 m<sup>3</sup>/s), 84,040 acre-ft/yr (104 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft<sup>3</sup>/s (821 m<sup>3</sup>/s) Apr. 26, 1966, gage height, 16.8 ft (5.12 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1889, about 20.5 ft (6.25 m) in 1945, from information by State Department of Highways and Public Transportation and local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Jan. 23	0100	*5,580 158	13.53 4.124
Apr. 14	2100	2,400 68.0	12.85 3.917
May 17	0600	3,780 107	13.22 4.029

Minimum discharge, no flow July 5 to Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.49	1.4	1.7	12	68	5.7	29	7.0	4.4	.30	.00	.00
2	.42	1.3	1.7	9.3	47	5.1	19	8.6	3.4	.22	.00	.00
3	.33	1.3	1.6	8.8	36	5.0	13	160	2.4	.12	.00	.00
4	.30	1.3	1.5	8.1	28	5.4	9.4	60	1.6	.04	.00	.00
5	.25	1.2	1.5	7.6	23	5.6	6.6	24	1.3	.00	.00	.00
6	.23	1.2	1.5	7.2	19	4.8	5.1	16	.94	.00	.00	.00
7	.19	1.2	1.4	6.3	16	4.4	4.8	111	.71	.00	.00	.00
8	.18	1.2	1.4	5.5	126	3.9	4.2	288	.50	.00	.00	.00
9	.14	1.6	1.3	4.4	1230	3.8	3.4	113	.44	.00	.00	.00
10	.11	1.8	1.3	3.4	1690	3.5	3.2	56	.40	.00	.00	.00
11	.09	1.8	1.3	2.6	749	3.5	2.7	33	.35	.00	.00	.00
12	.09	1.8	1.4	2.0	207	12	2.6	25	.35	.00	.00	.00
13	.08	1.7	1.8	1.6	121	40	322	226	.32	.00	.00	.00
14	.06	1.7	1.6	1.4	78	14	1750	477	.30	.00	.00	.00
15	.04	1.7	1.6	1.3	59	6.7	1730	197	.27	.00	.00	.00
16	.03	1.7	7.4	1.2	47	85	414	1150	.25	.00	.00	.00
17	.05	1.7	5.0	1.2	40	391	141	3170	.25	.00	.00	.00
18	.05	1.6	4.8	1.3	36	265	69	1390	.22	.00	.00	.00
19	.06	1.6	4.5	1.4	34	39	43	225	.20	.00	.00	.00
20	.03	1.6	4.5	570	30	20	32	113	1.2	.00	.00	.00
21	.01	2.6	4.9	1380	24	12	27	72	.64	.00	.00	.00
22	.12	2.4	123	3040	21	8.0	21	48	.30	.00	.00	.00
23	.16	2.3	682	4160	17	6.3	15	38	2.7	.00	.00	.00
24	.16	2.3	1220	2120	14	5.7	12	31	2.8	.00	.00	.00
25	.12	2.2	1390	1080	12	5.1	12	24	2.2	.00	.00	.00
26	.12	2.1	492	306	9.9	4.7	22	19	1.8	.00	.00	.00
27	.09	2.1	142	166	8.5	8.0	63	15	1.1	.00	.00	.00
28	.06	2.0	66	96	7.8	289	29	12	.79	.00	.00	.00
29	.06	1.8	29	65	6.7	423	15	9.8	.60	.00	.00	.10
30	1.1	1.7	21	91	---	124	9.6	7.8	.45	.00	.00	106
31	1.6	---	15	101	---	53	---	5.9	---	.00	.00	---
TOTAL	6.82	51.9	4262.5	13261.6	4804.9	1862.2	4829.6	8132.1	33.18	.68	.00	106.10
MEAN	.22	1.73	138	428	166	60.1	161	262	1.11	.022	.000	3.54
MAX	1.6	2.6	1390	4160	1690	423	1750	3170	4.4	.30	.00	106
MIN	.01	1.2	1.3	1.2	6.7	3.5	2.6	5.9	.20	.00	.00	.00
AC-FT	14	103	8450	26300	9530	3690	9580	16130	66	1.3	.00	210
CAL YR 1979	TOTAL	40737.78	MEAN	112	MAX	4190	MIN	.00	AC-FT	80800		
WTR YR 1980	TOTAL	37351.58	MEAN	102	MAX	4160	MIN	.00	AC-FT	74090		

## 08062900 KINGS CREEK NEAR KAUFMAN, TX

LOCATION.--Lat 32°30'48", long 96°19'44", Kaufman County, Hydrologic Unit 12030107, on left bank at downstream side of bridge on Farm Road 1388, 3.6 mi (5.8 km) upstream from Big Cottonwood Creek, 4.8 mi (7.7 km) downstream from Big Brushy Creek, and 5.3 mi (8.5 km) south of Kaufman.

DRAINAGE AREA.--233 mi<sup>2</sup> (603 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 343.24 ft (104.620 m) State Department of Highways and Public Transportation datum.

REMARKS.--Water-discharge records good. During the year, the city of Terrell diverted 3,470 acre-ft (4.28 hm<sup>3</sup>) from Terrell Municipal Lake in the Cedar Creek basin and returned 1,770 acre-ft (2.18 hm<sup>3</sup>) of sewage effluent into the creek above this station. The city of Kaufman diverted 833 acre-ft (1.03 hm<sup>3</sup>) from Lavon Lake (on East Fork Trinity River) during year and returned 297 acre-ft (0.366 hm<sup>3</sup>) of sewage effluent into Kings Creek above this station. Flow is affected at times by discharge from flood-detention pools of 28 floodwater-retarding structures with combined detention capacity of 14,560 acre-ft (18.0 hm<sup>3</sup>). These structures control runoff from 46.8 mi<sup>2</sup> (121.2 km<sup>2</sup>) in the Cedar Creek drainage basins. Tarrant County Water Control and Improvement District No. 1 gage-height telemeter located at station.

AVERAGE DISCHARGE.--17 years (water years 1964-80), 157 ft<sup>3</sup>/s (4.446 m<sup>3</sup>/s), 113,700 acre-ft/yr (140 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,200 ft<sup>3</sup>/s (1,590 m<sup>3</sup>/s) Apr. 19, 1976, gage height, 26.19 ft (7.983 m), from rating curve extended above 50,000 ft<sup>3</sup>/s (1,420 m<sup>3</sup>/s); no flow at times most years. Maximum stage since at least 1942, that of Apr. 19, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1949 reached a stage of 23.1 ft (7.04 m), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft<sup>3</sup>/s (85.0 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Jan. 23	0500	*5,130	145	19.34	5.895
May 16	2245	4,040	114	18.54	5.651

Minimum discharge, 0.30 ft<sup>3</sup>/s (0.008 m<sup>3</sup>/s) July 23-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	26	2.2	20	32	5.1	6.4	5.6	.95	1.5	.73	1.3
2	2.4	13	2.4	10	19	5.0	5.4	233	.86	1.6	.53	1.4
3	2.0	7.6	2.8	8.0	12	5.5	4.7	251	1.1	1.6	.49	1.3
4	1.8	5.6	3.2	6.0	7.8	6.0	3.9	58	.75	1.5	.46	1.5
5	1.7	4.4	3.4	4.5	5.4	6.5	3.9	21	.90	1.5	.44	1.5
6	1.6	3.1	3.9	3.5	4.1	6.3	4.0	23	1.1	1.5	.44	1.5
7	1.5	2.3	4.2	3.0	3.0	6.1	3.8	861	1.2	1.5	.49	1.6
8	1.6	2.1	4.2	2.7	28	5.8	3.5	226	1.2	1.4	.62	1.5
9	1.8	7.9	4.2	2.5	149	5.6	3.3	64	.84	1.3	.60	1.1
10	1.9	13	4.0	2.3	83	5.5	2.8	28	.83	1.3	.66	1.3
11	1.5	9.5	4.2	2.1	88	5.3	3.1	11	1.2	1.1	.61	1.3
12	1.1	6.4	6.1	2.0	133	4.9	3.1	441	1.3	.85	.71	1.4
13	1.0	4.5	19	1.9	75	5.1	331	980	1.1	.99	.70	1.3
14	1.8	2.5	23	1.8	40	7.1	1250	197	1.0	.78	.77	1.2
15	1.4	1.2	8.7	1.7	30	5.6	425	496	1.0	.49	.83	1.1
16	1.5	1.4	6.1	1.7	20	5.1	111	2910	1.0	.60	.85	1.2
17	1.3	.99	5.2	1.6	15	5.1	59	2720	.99	1.1	.96	1.1
18	1.6	2.4	4.0	1.5	10	4.5	33	374	1.1	1.1	1.1	.99
19	1.5	3.5	3.6	1.5	8.0	4.3	30	134	1.2	.72	1.2	.99
20	1.5	3.1	3.6	50	7.0	9.3	21	79	2.9	.60	1.1	1.4
21	1.5	4.2	4.1	1200	6.5	18	12	46	179	.49	1.1	1.2
22	2.5	6.3	329	2510	6.0	18	8.2	26	54	.39	1.1	1.1
23	5.4	7.6	699	4440	5.8	17	6.0	15	284	.33	1.2	1.1
24	10	4.7	2060	1400	5.7	16	4.7	8.6	129	.30	1.4	1.2
25	6.1	4.4	1400	348	5.6	14	28	5.3	44	.32	1.2	1.1
26	3.6	4.4	330	172	5.5	11	146	3.5	17	.45	1.1	.78
27	6.6	4.0	160	106	5.4	8.1	94	2.4	5.6	.50	1.1	.66
28	11	3.2	100	66	5.3	9.9	32	1.8	4.8	.68	1.2	.85
29	8.5	2.3	65	45	5.2	18	12	1.5	3.6	.53	1.2	.56
30	6.3	1.9	45	52	---	12	8.1	1.4	2.8	.85	.92	960
31	16	---	30	47	---	7.8	---	1.4	---	.87	1.1	---
TOTAL	110.5	163.49	5340.1	10514.3	820.3	263.5	2658.9	10225.5	746.32	28.74	26.91	1049.97
MEAN	3.56	5.45	172	339	28.3	8.50	88.6	330	24.9	.93	.87	35.0
MAX	16	26	2060	4440	149	18	1250	2910	284	1.6	1.4	960
MIN	1.0	.99	2.2	1.5	3.0	4.3	2.8	1.4	.75	.30	.44	.66
AC-FT	219	324	10590	20860	1630	523	5270	20280	1480	57	53	2080
CAL YR 1979	TOTAL	73711.37	MEAN	202	MAX	9550	MIN	.36	AC-FT	146200		
WTR YR 1980	TOTAL	31948.53	MEAN	87.3	MAX	4440	MIN	.30	AC-FT	63370		

## TRINITY RIVER BASIN

08062900 KINGS CREEK NEAR KAUFMAN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Sediment records: October 1976 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
NOV 14...	1335	2.6	12.0	39	.28	--	--
DEC 18...	1315	3.9	5.0	67	.72	--	--
JAN 22...	1730	3780	10.5	539	5500	68	70
MAR 13...	0930	4.5	15.0	13	.16	--	--
APR 15...	1440	313	13.0	714	603	--	--
MAY 20...	1542	715	23.5	348	672	--	--
JUL 01...	1235	1.4	33.0	40	.16	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM
NOV 14...	--	--	--	--	--	--	--
DEC 18...	--	--	--	--	--	--	--
JAN 22...	72	72	79	80	87	97	100
MAR 13...	--	--	--	--	--	--	--
APR 15...	--	--	--	63	--	--	--
MAY 20...	--	--	--	--	--	--	--
JUL 01...	--	--	--	--	--	--	--

## 08063010 CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX

LOCATION.--Lat 32°14'35", long 96°08'26", Henderson County, Hydrologic Unit 12030107, inside pumphouse on lower level, 1,000 ft (300 m) north of spillway, 5.5 mi (8.8 km) upstream from Joe B. Hogsett Dam on Cedar Creek, and 8.0 mi (12.9 km) northwest of Trinidad.

DRAINAGE AREA.--1,007 mi<sup>2</sup> (2,608 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 15, 1972, at unfinished pumphouse at same site and datum. May 16, 1972, to Sept. 8, 1975, at site 0.25 mi (0.40 km) north and upstream from pumphouse at same datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 17,539 ft (5,346 m) long. The spillway is located on the right bank 5.5 mi (8.8 km) upstream from the dam and discharges into the Trinity River through a cut channel 2 mi (3 km) long. Deliberate impoundment began July 2, 1965, and the dam was completed in February 1966. The spillway is 474 ft (144 m) long and has eight 40- by 24-foot (12 by 7 m) radial gates and two automatically operated 40- by 8.5-ft (12 by 2.6 m) hinged gates. Low-flow releases may be made downstream through a 5.0-foot-diameter (1.5 m) conduit through the dam. The dam is the property of Tarrant County Water Control and Improvement District No. 1 and was built for municipal and industrial supply and for recreational purposes. The area and capacity tables were based on a survey during the period 1940-58. During the current year, records furnished by Tarrant County Water Control and Improvement District No. 1 show that a total of 88,450 acre-ft (109 hm<sup>3</sup>) was diverted from the reservoir for municipal and industrial uses by lakeside developments and by the cities of Arlington, Fort Worth, Mansfield, Kemp, Trinidad, and Mabank. Flow is affected at times by discharge from the flood-detention pools of 80 floodwater-retarding structures with a combined detention capacity of 54,080 acre-ft (66.7 hm<sup>3</sup>). These structures control runoff from 171 mi<sup>2</sup> (443 km<sup>2</sup>). Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	340.0	-
Top of radial gates.....	325.0	785,100
Top of automatic gates.....	322.5	696,400
Top of conservation pool.....	322.0	679,200
Crest of spillway (automatic gates).....	314.0	441,000
Crest of spillway (radial gates).....	302.0	197,800
Lowest gated outlet (invert).....	263.5	430

COOPERATION.--Records of diversions furnished by the Tarrant County Water Control and Improvement District No. 1. The area and capacity tables were furnished by Freese and Nichols, Consulting Engineers, for Tarrant County Water Control and Improvement District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 722,000 acre-ft (890 hm<sup>3</sup>) June 4, 1973, elevation, 323.24 ft (98.524 m); minimum since first appreciable storage in 1966, 332,900 acre-ft (410 hm<sup>3</sup>) Mar. 19, 1967, elevation, 309.42 ft (94.311 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 687,100 acre-ft (847 hm<sup>3</sup>) Mar. 20 at 1900 hours, elevation, 322.23 ft (98.216 m); minimum, 562,300 acre-ft (693 hm<sup>3</sup>) Sept. 29, elevation, 318.33 ft (97.027 m).

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

318.0	552,300	322.0	679,200
320.0	613,800	324.0	748,800

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	654700	645100	633500	662600	677600	678900	679200	676200	672600	658300	623200	586700
2	654300	644400	632500	663600	677200	674600	679200	678200	672600	657300	620600	586700
3	653300	643500	631500	663600	677900	672900	680300	678200	671600	655300	619000	586100
4	652700	642200	631500	663300	678200	677900	679200	677900	671300	654300	618300	585100
5	651300	642800	631500	662000	677900	673900	678200	677600	669600	653300	617100	584800
6	651300	641800	630900	665000	678200	673300	678200	676900	668900	652700	616400	582900
7	650000	639900	630900	663000	677200	673300	678200	677600	668900	651300	616100	582000
8	649400	640200	630300	662000	677200	673300	677200	679200	668600	650300	614800	582000
9	649700	642500	629600	660600	676900	673300	676600	678600	667900	649400	613500	580800
10	647000	640600	629000	661300	678900	673300	674900	678200	666900	648000	612600	580200
11	646400	639900	632800	663000	680600	673300	677200	677200	666000	647000	611300	579000
12	646000	639900	633500	660600	679600	672900	678600	678600	664600	645400	610700	577500
13	645700	638900	632200	661300	679900	672900	679200	679600	663000	644100	609500	576600
14	644400	638900	631200	660600	680300	672300	681300	680600	662000	642800	607000	576000
15	644400	638300	630600	661000	683000	671300	681300	684000	661000	641800	606300	575400
16	645100	637700	631500	661300	680300	677900	679200	680300	660000	640600	604500	572900
17	645100	637300	629300	661600	678200	681300	678900	680900	659600	639900	603500	573200
18	643800	637700	628300	661000	677200	680300	679200	679600	660000	638300	603200	569900
19	642800	638000	628600	663000	678200	680300	679200	679200	659000	637300	601700	571400
20	643100	638000	628600	669300	677900	679600	678600	679200	667300	635400	600700	569000
21	643100	641200	631900	675900	678600	680300	678200	679200	665300	637300	600400	567800
22	644700	638900	636700	677900	678200	678900	677600	678900	665000	633800	599500	568100
23	643500	637300	645400	680600	678900	680600	676600	677600	664300	632800	598500	568100
24	643500	637300	652700	679200	679600	679600	677900	677200	663300	631500	597300	567500
25	642800	637000	658300	678600	678600	678900	678900	677600	663300	629300	596000	566600
26	640900	636000	661300	680900	677200	678900	677900	677200	662600	627700	594800	565400
27	641200	636400	662300	678900	676900	681300	677200	677200	662000	627000	593600	564100
28	641500	635400	663300	679600	676600	680600	676900	676200	660300	627400	592600	563800
29	638900	635100	664000	679600	680600	678900	676200	674300	659300	626700	591100	566600
30	647400	633500	664300	681600	---	679900	675600	674900	658300	625400	589500	566300
31	645700	---	663300	678900	---	678200	---	674300	---	624100	587900	---
MAX	654700	645100	664300	681600	683000	681300	681300	684000	672600	658300	623200	586700
MIN	638900	633500	628300	660600	676600	671300	674900	674300	658300	624100	587900	563800
(†)	320.99	320.61	321.52	321.99	322.04	321.97	321.89	321.85	321.37	320.32	319.17	318.46
(‡)	-9300	-12200	+29800	+15600	+1700	-2400	-2600	-1300	-16000	-34200	-36200	-21600
(††)	4120	3050	2990	2950	2800	3350	4690	6770	13800	16380	16310	11240
CAL YR 1979	MAX	688500	MIN	609500	+	+59800	††	48350				
WTR YR 1980	MAX	684000	MIN	563800	+	-88700	††	88450				

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal and industrial uses by private lakeside companies, nearby cities, and cities of Arlington, Fort Worth, and Mansfield.



## TRINITY RIVER BASIN

08063010 CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

## WATER-QUALITY RECORDS

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

321111096042901 CEDAR CREEK RESERVOIR SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
24...	1630	1.0	218	7.7	10.5	10.4	95
24...	1632	10.0	218	7.7	10.5	10.4	95
24...	1634	24.0	218	7.7	10.5	10.3	94
MAY							
07...	1410	1.0	211	7.8	21.5	8.4	95
07...	1412	10.0	211	7.6	20.0	8.0	89
07...	1414	20.0	211	7.4	19.0	7.4	80
07...	1416	30.0	213	7.0	17.5	5.6	59
07...	1418	40.0	213	6.9	16.5	4.5	46
07...	1420	50.0	215	6.9	16.5	4.3	44
07...	1422	56.0	215	6.9	16.5	3.9	40
AUG							
27...	1650	1.0	225	8.0	30.0	8.3	108
27...	1652	10.0	225	8.0	29.0	8.7	112
27...	1654	21.0	225	7.4	28.5	6.7	85

321113096041201 CEDAR CREEK RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
24...	1600	1.0	218	7.8	10.5	1.20	10.5	95	64
24...	1602	10.0	218	7.8	10.5	--	10.5	95	--
24...	1604	20.0	218	7.8	10.5	--	10.4	94	--
24...	1606	30.0	218	7.7	10.5	--	10.3	93	--
24...	1608	40.0	218	7.7	10.5	--	10.3	93	--
24...	1610	50.0	218	7.7	10.5	--	10.2	93	--
24...	1612	60.0	218	7.6	10.5	--	10.1	92	64
MAY									
07...	1426	1.0	211	7.8	22.0	1.22	8.3	95	62
07...	1427	2.0	--	--	--	--	--	--	--
07...	1428	10.0	211	7.7	20.5	--	8.1	91	--
07...	1430	20.0	211	7.4	19.5	--	7.4	81	--
07...	1432	30.0	213	7.0	17.5	--	4.8	51	--
07...	1434	40.0	213	6.9	17.0	--	4.4	46	--
07...	1436	50.0	215	6.9	17.0	--	4.0	42	--
07...	1438	61.0	215	6.8	17.0	--	3.7	39	65
AUG									
27...	1605	1.0	225	8.0	30.0	1.46	8.0	104	68
27...	1606	2.4	--	--	--	--	--	--	--
27...	1607	10.0	225	7.9	29.0	--	7.9	101	--
27...	1609	20.0	225	7.5	28.0	--	7.0	88	--
27...	1611	30.0	225	6.6	27.5	--	1.6	20	--
27...	1613	35.0	225	6.6	27.5	--	.0	0	--
27...	1615	40.0	234	6.6	23.5	--	.0	0	--
27...	1617	50.0	237	6.6	20.0	--	.0	0	--
27...	1619	59.0	242	6.6	19.5	--	.0	0	69

## TRINITY RIVER BASIN

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## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321113096041201 CEDAR CREEK RESERVOIR SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
24...	10	19	4.0	16	.9	4.0	54	23	17
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	10	19	4.1	15	.8	3.9	54	23	17
MAY									
07...	14	18	4.1	15	.8	5.0	48	25	16
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	16	19	4.2	17	.9	3.8	49	25	17
AUG									
27...	14	20	4.3	16	.8	4.1	54	25	19
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	0	20	4.5	16	.8	3.9	82	11	18

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
24...	.2	3.2	119	.03	.27	.30	.030	<10	1
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	.03	.34	.37	.010	50	0
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	3.1	118	.03	.34	.37	.030	40	60
MAY									
07...	.1	2.7	115	.02	.67	.69	.020	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	.03	.76	.79	.020	10	10
07...	--	--	--	.13	1.5	1.6	.030	20	60
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	4.0	120	.14	1.3	1.4	.040	10	150
AUG									
27...	.2	3.6	125	.01	.32	.33	.000	<10	3
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	.02	.33	.35	.030	30	10
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	.02	.26	.28	.030	30	70
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	9.2	137	.01	.82	.83	.640	2000	3400

## TRINITY RIVER BASIN

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321116096035301 CEDAR CREEK RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
24...	1545	1.0	218	7.8	10.5	10.7	97
24...	1547	10.0	218	7.8	10.5	10.7	97
24...	1549	20.0	218	7.8	10.5	10.7	97
24...	1551	30.0	218	7.8	10.5	10.7	97
24...	1553	40.0	218	7.8	10.5	10.6	96
24...	1555	45.0	218	7.8	10.5	10.6	96
MAY							
07...	1355	1.0	211	8.2	22.5	9.2	107
07...	1358	10.0	211	8.1	21.0	9.1	102
07...	1400	20.0	211	7.2	18.0	6.7	71
07...	1402	30.0	213	7.0	17.5	5.8	61
07...	1404	39.0	213	6.9	17.0	4.9	51
AUG							
27...	1635	1.0	225	8.0	30.0	8.0	104
27...	1637	10.0	225	8.0	28.5	8.4	106
27...	1639	20.0	225	7.5	28.0	7.0	88
27...	1641	30.0	225	6.5	27.5	.5	6
27...	1643	40.0	234	6.7	23.5	.0	0
27...	1645	51.0	236	6.6	20.5	.0	0

321227096032701 CEDAR CREEK RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
24...	1515	1.0	218	7.7	10.5	1.20	10.5
24...	1518	10.0	218	7.7	10.5	--	10.5
24...	1520	20.0	218	7.7	10.5	--	10.4
24...	1522	30.0	218	7.7	10.5	--	10.4
24...	1524	40.0	218	7.7	10.5	--	10.3
24...	1526	49.0	218	7.6	10.5	--	10.1
MAY							
07...	1330	1.0	211	8.0	23.0	1.19	8.7
07...	1332	10.0	211	7.9	20.5	--	8.3
07...	1334	20.0	211	7.5	20.0	--	7.6
07...	1336	30.0	213	7.1	18.0	--	5.5
07...	1338	40.0	215	6.9	17.0	--	4.5
07...	1340	52.0	215	6.8	16.5	--	3.8
AUG							
27...	1540	1.0	225	8.2	31.0	1.65	8.3
27...	1542	10.0	225	8.1	29.0	--	8.5
27...	1544	20.0	225	7.1	28.5	--	5.3
27...	1546	25.0	225	6.8	28.0	--	3.7
27...	1548	30.0	225	6.5	27.5	--	.2
27...	1550	40.0	236	6.7	24.0	--	.0
27...	1552	47.0	236	6.6	21.0	--	.0

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
24...	95	.04	.22	.26	.010	10	0
24...	95	--	--	--	--	--	--
24...	94	--	--	--	--	--	--
24...	94	--	--	--	--	--	--
24...	93	--	--	--	--	--	--
24...	91	.04	.32	.36	.010	20	0
MAY							
07...	102	.02	.83	.85	.030	50	20
07...	92	--	--	--	--	--	--
07...	84	--	--	--	--	--	--
07...	59	--	--	--	--	--	--
07...	47	--	--	--	--	--	--
07...	39	.19	.86	1.1	.040	30	160
AUG							
27...	109	.01	.29	.30	.020	10	100
27...	109	--	--	--	--	--	--
27...	67	--	--	--	--	--	--
27...	46	--	--	--	--	--	--
27...	2	--	--	--	--	--	--
27...	0	--	--	--	--	--	--
27...	0	.01	.28	.29	.300	1600	2700

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321403096060601 CEDAR CREEK RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
24...	1450	1.0	218	7.8	10.5	10.7	97
24...	1452	10.0	218	7.8	10.5	10.7	97
24...	1454	20.0	218	7.8	10.5	10.7	97
24...	1456	30.0	218	7.8	10.5	10.7	97
24...	1458	40.0	218	7.8	10.5	10.7	97
24...	1500	50.0	218	7.8	10.5	10.6	96
MAY							
07...	1312	1.0	208	8.1	22.5	9.0	105
07...	1314	10.0	208	7.6	20.5	8.2	92
07...	1316	20.0	208	7.4	20.0	7.9	88
07...	1318	30.0	209	7.1	18.0	6.3	67
07...	1320	42.0	212	6.8	17.0	4.2	44
AUG							
27...	1518	1.0	225	8.3	31.0	8.8	116
27...	1520	10.0	225	7.8	29.0	7.2	92
27...	1522	20.0	225	7.3	28.5	6.0	76
27...	1524	30.0	225	6.8	28.0	2.7	34
27...	1526	35.0	225	6.6	27.5	.0	0
27...	1528	40.0	247	6.7	24.0	.0	0
27...	1530	49.0	247	6.7	22.0	.0	0

321548096082301 CEDAR CREEK RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
24...	1415	1.0	211	7.7	10.5	.80	10.5	95	60
24...	1418	10.0	211	7.7	10.5	--	10.5	95	--
24...	1420	20.0	211	7.7	10.5	--	10.5	95	--
24...	1422	30.0	211	7.7	10.5	--	10.5	95	--
24...	1424	41.0	215	7.5	10.0	--	10.1	90	60
MAY									
07...	1247	1.0	208	7.9	21.5	.64	8.7	99	61
07...	1250	10.0	208	7.4	20.0	--	7.8	87	--
07...	1252	20.0	208	7.1	18.5	--	6.4	69	--
07...	1254	30.0	208	7.0	18.0	--	5.8	62	--
07...	1256	41.0	208	6.9	18.0	--	5.2	55	61
AUG									
27...	1445	1.0	225	8.4	32.0	1.13	8.9	119	65
27...	1447	10.0	225	8.3	29.5	--	8.6	112	--
27...	1449	20.0	228	7.6	29.0	--	6.0	77	--
27...	1451	30.0	228	7.1	29.0	--	4.8	62	--
27...	1453	40.0	249	6.7	26.5	--	.0	0	74

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
24...	7	18	3.6	14	.8	3.9	53	24	18
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	6	18	3.7	15	.8	3.8	54	24	17
MAY									
07...	14	18	4.0	15	.8	3.8	48	25	16
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	15	18	4.0	14	.8	3.8	47	26	17
AUG									
27...	10	19	4.2	16	.9	4.4	55	28	19
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	0	22	4.7	16	.8	4.1	78	18	19

## TRINITY RIVER BASIN

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321548096082301 CEDAR CREEK RESERVOIR SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN								
24...	3.3	116	.04	.47	.51	.040	20	<1
24...	--	--	--	--	--	--	--	--
24...	--	--	.04	.47	.51	.040	60	0
24...	--	--	--	--	--	--	--	--
24...	3.0	117	.04	.43	.47	.030	10	5
MAY								
07...	3.3	114	.03	.71	.74	.040	230	20
07...	--	--	--	--	--	--	--	--
07...	--	--	.10	.68	.78	.040	290	40
07...	--	--	--	--	--	--	--	--
07...	3.7	115	.07	.76	.83	.050	50	10
AUG								
27...	3.3	127	.00	.19	.19	.000	40	6
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
27...	--	--	.01	.40	.41	.050	30	120
27...	7.8	138	.01	2.0	2.0	.600	0	3

321818096064301 CEDAR CREEK RESERVOIR SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
24...	1350	1.0	241	7.4	10.5	.40	10.0
24...	1352	10.0	241	7.4	10.5	--	10.0
24...	1354	20.0	222	7.3	10.5	--	9.8
MAY							
07...	1226	1.0	218	8.1	24.0	.55	8.7
07...	1228	10.0	218	7.9	22.5	--	8.0
07...	1230	21.0	218	7.2	21.5	--	6.8
AUG							
27...	1415	1.0	227	8.5	32.0	1.01	9.7
27...	1417	10.0	227	8.3	30.0	--	8.3
27...	1419	18.0	232	7.7	30.0	--	5.8

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
24...	90	.06	.44	.50	.060	70	20
24...	90	--	--	--	--	--	--
24...	89	.06	.42	.48	.070	60	10
MAY							
07...	104	.01	.79	.80	.040	20	0
07...	93	--	--	--	--	--	--
07...	77	.03	.77	.80	.050	40	0
AUG							
27...	129	.00	.53	.53	.040	80	30
27...	108	--	--	--	--	--	--
27...	75	.00	.51	.51	.060	110	20

## TRINITY RIVER BASIN

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## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321843096101701 CEDAR CREEK RESERVOIR SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
24...	1330	1.0	206	7.7	10.5	10.7	97
24...	1332	10.0	206	7.6	10.5	10.7	97
24...	1334	20.0	206	7.6	10.5	10.6	96
24...	1336	27.0	206	7.5	10.0	10.3	92
MAY							
07...	1205	1.0	206	8.2	24.0	9.1	108
07...	1208	10.0	206	7.1	21.0	7.0	79
07...	1210	20.0	206	6.8	19.0	5.4	59
07...	1212	30.0	206	6.8	18.5	4.7	51
07...	1214	35.0	206	6.7	18.5	4.5	48
AUG							
27...	1400	1.0	227	8.5	31.5	9.3	122
27...	1402	10.0	227	8.0	30.0	7.3	95
27...	1404	20.0	235	6.9	29.5	3.5	45
27...	1406	32.0	235	6.8	29.0	2.8	36

322119096104901 CEDAR CREEK RESERVOIR SITE GR

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
24...	1740	1.0	150	7.3	10.0	9.7	87
24...	1742	10.0	148	7.3	10.0	9.7	87
24...	1744	18.0	145	7.2	10.0	9.6	86
MAY							
07...	1545	1.0	200	7.2	25.5	7.6	93
07...	1548	10.0	200	7.0	21.0	6.6	74
07...	1550	18.0	200	7.0	21.5	6.3	72

322119096095401 CEDAR CREEK RESERVOIR SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CaCO3)
JAN									
24...	1715	1.0	204	7.6	10.0	.30	10.5	94	57
24...	1718	10.0	204	7.6	10.0	--	10.5	94	--
24...	1720	24.0	204	7.6	10.0	--	10.4	93	57
MAY									
07...	1530	1.0	200	7.3	23.0	.30	7.3	86	61
07...	1533	10.0	200	7.1	22.0	--	6.7	77	--
07...	1536	20.0	200	7.0	21.0	--	6.4	72	--
07...	1540	29.0	206	6.7	20.5	--	3.7	41	61
AUG									
27...	1745	1.0	233	8.4	30.0	.60	8.7	113	67
27...	1747	10.0	233	7.6	29.0	--	6.3	81	--
27...	1749	17.0	237	7.0	29.0	--	3.7	47	67



## TRINITY RIVER BASIN

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

322119096095401 CEDAR CREEK RESERVOIR SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
24...	6	17	3.6	15	.9	3.9	51	23	17
24...	--	--	--	--	--	--	--	--	--
24...	7	17	3.5	15	.9	3.8	50	24	15
MAY									
07...	18	18	3.9	13	.7	3.9	43	26	15
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	15	18	4.0	13	.7	4.0	46	26	15
AUG									
27...	11	20	4.1	16	.9	4.5	56	27	20
27...	--	--	--	--	--	--	--	--	--
27...	9	20	4.1	17	.9	4.4	58	27	20

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN								
24...	4.6	115	.10	.22	.32	.060	80	3
24...	--	--	.09	.43	.52	.040	50	0
24...	4.4	113	.10	.43	.53	.060	160	20
MAY								
07...	6.1	113	.10	.84	.94	.080	640	60
07...	--	--	--	--	--	--	--	--
07...	--	--	.19	.88	1.1	.090	540	70
07...	7.1	116	.08	1.1	1.2	.100	820	140
AUG								
27...	4.9	130	.01	.60	.61	.040	150	30
27...	--	--	.00	.41	.41	.060	10	10
27...	4.4	132	.01	.95	.96	.120	<10	100

321113096041201 CEDAR CREEK RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)
JAN							
24...	1600	1.0	1	50	<1	0	0
24...	1606	30	--	--	--	--	--
24...	1612	60	1	50	<1	0	1
MAY							
07...	1430	20	--	--	--	--	--
07...	1432	30	--	--	--	--	--
07...	1438	61	1	50	2	0	0
AUG							
27...	1605	1.0	2	40	<1	0	0
27...	1609	20.0	--	--	--	--	--
27...	1613	35.0	--	--	--	--	--
27...	1619	59.0	11	90	<1	0	0

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN							
24...	<10	0	1	.0	0	0	<3
24...	50	--	0	--	--	--	--
24...	40	0	60	.0	0	0	3
MAY							
07...	10	--	10	--	--	--	--
07...	20	--	60	--	--	--	--
07...	10	0	150	.4	0	0	<3
AUG							
27...	<10	0	3	.0	0	0	<3
27...	30	--	10	--	--	--	--
27...	30	--	70	--	--	--	--
27...	2000	5	3400	.0	0	0	<3

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321113096041201 CEDAR CREEK RESERVOIR SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JAN 24,80 1601	MAY 7,80 1427	AUG 27,80 1606
TOTAL CELLS/ML	25000	5300	110000
DIVERSITY: DIVISION	1.4	1.1	0.1
..CLASS	1.4	1.1	0.1
..ORDER	1.5	1.5	0.7
...FAMILY	1.8	2.1	1.4
....GENUS	2.7	3.0	2.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
....HYDRODICTYACEAE						
....PEDIASTRUM	260	1	--	-	--	-
....MICRACTINIAEAE						
....GOLINKINIA	--	-	50	1	--	-
....OOCYSTACEAE						
....ANKISTRODESMUS	450	2	570	11	*	0
....CHLORELLA	1500	6	--	-	--	-
....CHODATELLA	190	1	150	3	--	-
....DICTYOSPHAERIUM	--	-	--	-	*	0
....KIRCHNERIELLA	320	1	67	1	--	-
....OOCYSTIS	260	1	84	2	--	-
....SELENASTRUM	--	-	--	-	*	0
....TETRAEDRON	*	0	--	-	*	0
....TREUBARIA	--	-	*	0	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	870#	16	--	-
....SCENEDESMUS	1400	6	1300#	24	--	-
....TETRASTRUM	450	2	130	3	--	-
..TETRASPORALES						
...PALMELLACEAE						
....GLOEOCYSTIS	--	-	67	1	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	190	1	--	-	*	0
..ZYGNEATALES						
...DESMIDIACEAE						
....EUASTRUM	--	-	*	0	--	-
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
....COSCINODISCACEAE						
....CYCLOTELLA	4800#	19	*	0	*	0
....MELOSIRA	640	3	34	1	--	-
...PENNALES						
....ACHNANTHACEAE						
....ACHNANTHES	*	0	--	-	--	-
....FRAGILARIACEAE						
....SYNEDRA	--	-	50	1	--	-
....NITZSCHACEAE						
....NITZSCHIA	--	-	*	0	--	-
....SURIARELLACEAE						
....SURIARELLA	130	1	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
....CRYPTOMONADACEAE						
....CRYPTOMONAS	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
....CHROOCOCCACEAE						
....AGMENELLUM	5100#	21	--	-	700	1
....ANACYSTIS	9000#	36	1400#	26	15000	14
....COCCOCHLORIS	--	-	130	3	--	-
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	16000	15
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	52000#	48
....OSCILLATORIA	--	-	340	6	21000#	20
...RIVULARIACEAE						
....RAPHIIDIOPSIS	--	-	--	-	1800	2
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
....EUGLENACEAE						
....EUGLENA	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## TRINITY RIVER BASIN

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

322119096095401 CEDAR CREEK RESERVOIR SITE GC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JAN 24, 80 1716	MAY 7, 80 1531	AUG 27, 80 1746			
TOTAL CELLS/ML	87000	5000	390000			
DIVERSITY: DIVISION	1.5	1.7	0.2			
..CLASS	1.5	1.7	0.2			
..ORDER	1.6	2.2	0.7			
...FAMILY	1.9	2.3	1.2			
....GENUS	2.5	2.6	2.1			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...HYDRODICTYACEAE						
...PEDIASTRUM	3900	4	--	-	--	-
...OOCYSTACEAE						
...ANKISTRODESMUS	2300	3	180	4	*	0
...CHLORELLA	1600	2	25	1	--	-
...CHODATELLA	*	0	25	1	--	-
...DICTYOSPHAERIUM	--	-	--	-	*	0
...KIRCHNERIELLA	2900	3	--	-	--	-
...OOCYSTIS	1300	1	--	-	--	-
...SELENASTRUM	--	-	--	-	*	0
...TREUBARIA	--	-	--	-	*	0
...SCENEDESMACEAE						
...SCENEDESMUS	--	-	800#	16	*	0
...TETRASTRUM	4500	5	--	-	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	-	500	10	*	0
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCACEAE						
...CYCLOTELLA	21000#	25	1200#	25	*	0
...MELOSIRA	650	1	150	3	--	-
...PENNALES						
...NITZSCHACEAE						
...NITZSCHIA	2300	3	230	5	*	0
...SURIRELLACEAE						
...SURIRELLA	--	-	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
...CHROOMONAS	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	10000	12	--	-	16000	4
...ANACYSTIS	36000#	41	1700#	34	37000	9
...COCCOCHLORIS	--	-	50	1	--	-
...HORMOGONALES						
...NOSTOCACEAE						
...ANABAENOPSIS	--	-	--	-	31000	8
...OSCILLATORIA						
...LYNGBYA	--	-	--	-	150000#	39
...OSCILLATORIA	--	-	--	-	140000#	37
...RIVULARIACEAE						
...RAPHIDIOPSIS	--	-	--	-	4500	1
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...PHACUS	--	-	25	1	--	-
...TRACHELOMONAS	--	-	25	1	*	0
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...PERIDINIALES						
...GLENODINIACEAE						
...GLENODINIUM	--	-	25	1	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 08063050 NAVARRO MILLS LAKE NEAR DAWSON, TX

LOCATION.--Lat 31°57'27", long 96°41'21", Navarro County, Hydrologic Unit 12030108, in left abutment of spillway of Navarro Mills Dam on Richland Creek, 1.7 mi (2.7 km) upstream from bridge on State Highway 31, 3.0 mi (4.8 km) upstream from St. Louis Southwestern Railway Lines bridge, 4.2 mi (6.8 km) upstream from Post Oak Creek, 4.6 mi (7.4 km) north of Dawson, and 63.9 mi (102.8 km) upstream from mouth.

DRAINAGE AREA.--320 mi<sup>2</sup> (829 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1962 to current year. Prior to October 1970, published as Navarro Mills Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 8, 1962, nonrecording gage in low-water channel at same datum. Corps of Engineers gage-height telemeter at station.

REMARKS.--The lake is formed by a rolled earthfill dam 7,570 ft (2,310 m) long, including a 240-foot (73 m) off-channel gated spillway with six 40.0- by 29.0-foot (12.2 by 8.8 m) tainter gates. From Aug. 27, 1962, to Mar. 14, 1963, the lake was operated as a detention basin only. Deliberate impoundment began Mar. 15, 1963, and the dam was completed in September 1963. The low-flow outlet works consist of two 36-inch-diameter (914 mm) gate-controlled conduits. The lake was built for flood control and water conservation. The capacity table prior to September 1976 is based on a survey made in February 1956 by the Corps of Engineers. Capacity table after Aug. 31, 1976, is based on a sedimentation survey made in September 1972. Flow is affected at times by discharge from flood-detention pools of 49 floodwater-retarding structures with combined detention capacity of 25,760 acre-ft (31.8 hm<sup>3</sup>). These structures control runoff from 85.6 mi<sup>2</sup> (221.7 km<sup>2</sup>) in the Richland 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.....	457.0	
Design flood.....	451.9	329,500
Top of gates (top of flood-control storage pool).....	443.0	206,200
Top of conservation pool.....	424.5	56,960
Crest of spillway.....	414.0	18,840
Lowest gated outlet (invert).....	400.0	1,150

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 183,300 acre-ft (226 hm<sup>3</sup>) May 18, 1968, elevation, 440.36 ft (134.222 m); minimum since initial filling in May 1965, 32,490 acre-ft (40.1 hm<sup>3</sup>) Dec. 28, 1978, elevation, 418.89 ft (127.678 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 92,060 acre-ft (114 hm<sup>3</sup>) May 20 at 0800 hours, elevation, 430.39 ft (131.183 m); minimum, 42,850 acre-ft (52.8 hm<sup>3</sup>) Sept. 24 at 2200 hours, elevation, 421.50 ft (128.473 m).

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

421.0	40,710	427.0	70,390
423.0	49,590	429.0	82,620
425.0	59,520	431.0	96,400

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53670	52300	50700	57720	57670	57620	57010	66120	59830	54510	49260	45420
2	53520	52200	50550	57370	57470	57570	57520	63950	58540	54310	49070	45370
3	53370	52100	50550	56960	57170	57570	59110	61660	57570	54160	48840	45240
4	53180	51950	50500	56760	57010	57620	59310	59160	57220	54010	48650	45110
5	53130	51950	50500	56810	57120	57570	59470	57720	57170	53770	48410	44940
6	52930	51760	50410	56860	57120	57570	59680	57830	57120	53620	48320	44760
7	52880	51760	50360	56810	57120	57670	59520	60560	57120	53570	48180	44720
8	52780	51760	50260	56760	56920	57720	58850	64710	57010	53370	48040	44590
9	52490	51710	50220	56760	62510	57720	58240	64380	57010	53180	47900	44670
10	52340	51570	50220	56860	63310	57780	57570	62820	56960	53030	47760	44540
11	52250	51470	50170	56760	63040	58240	58590	61030	56910	52830	47670	44410
12	52100	51420	50310	56710	61610	58590	62030	59620	56760	52640	47580	44320
13	52000	51320	50220	56710	59930	58490	74970	58750	56660	52440	47440	44240
14	51860	51280	50120	56710	58390	58390	78600	59880	56610	52250	47260	44110
15	52250	51230	50070	56760	57220	58390	78220	74010	56510	52050	47120	43980
16	52300	51180	49980	56810	57010	58800	75820	86810	56410	51860	46940	43890
17	52250	51130	49930	56760	56910	58800	72820	89200	56310	51660	46850	43800
18	52200	51280	49830	56760	57010	58800	70330	90720	56160	51520	46670	43670
19	52100	51280	49830	56760	57060	58800	68010	91910	56100	51280	46530	43540
20	52050	51230	49830	57620	57170	58850	65630	90580	55960	51180	46350	43460
21	52000	51230	50700	58180	57220	58750	63250	88030	55900	51030	46170	43280
22	52000	51420	51910	67840	57320	58640	60980	84930	55800	50890	46040	43240
23	51860	51280	56460	70210	57370	58850	58490	81590	55700	50700	45900	43110
24	51760	51280	58750	71130	57420	58700	58180	78410	55700	50500	45770	42980
25	51660	51280	59160	69820	57270	58700	75270	75210	55500	50410	45640	43370
26	51570	51230	59270	68010	57370	58700	76670	71890	55300	50260	45550	43280
27	51520	51130	59060	65580	57420	59680	77230	69130	55150	50020	46040	43330
28	51370	51080	58850	63360	57470	59730	75210	66730	55000	49880	45950	43540
29	51180	50890	58850	61290	57620	58340	71890	64270	54860	49740	45820	43760
30	52250	50740	58640	59000	---	57370	68460	62510	54660	49590	45680	43760
31	52340	---	58180	57980	---	57010	---	61240	---	49400	45550	---
MAX	53670	52300	59270	71130	63310	59730	78600	91910	59830	54510	49260	45420
MIN	51180	50740	49830	56710	56910	57010	57010	57720	54660	49400	45550	42980
(†)	423.57	423.24	424.74	424.70	424.63	424.51	426.66	425.33	424.04	422.96	422.12	421.71
(+)	-1480	-1600	+7440	-200	-360	-610	+11450	-7220	-6580	-5260	-3850	-1790
(††)	566	507	519	505	486	499	480	504	617	735	682	580
CAL YR 1979	MAX	105600	MIN	33170	+	+24610	††	6400				
WTR YR 1980	MAX	91910	MIN	42980	+	-10060	††	6680				

† Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by cities of Dawson, Corsicana, and Post Oak.

## TRINITY RIVER BASIN

08063050 NAVARRO MILLS LAKE NEAR DAWSON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
AUG 20...	1720	328	26.5	120	9	44	3.5	15	.6

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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)
AUG 20...	4.6	140	0	33	13	.4	8.0	191

## TRINITY RIVER BASIN

521

08063100 RICHLAND CREEK NEAR DAWSON, TX

LOCATION.--Lat 31°56'18", long 96°40'52", Navarro County, Hydrologic Unit 12030108, at downstream side of bridge on State Highway 31, 1.3 mi (2.1 km) upstream from St. Louis Southwestern Railway Lines bridge, 1.7 mi (2.7 km) downstream from Navarro Mills Dam, 2.5 mi (4.0 km) upstream from Post Oak Creek, and 3.6 mi (5.8 km) north-east of Dawson.

DRAINAGE AREA.--333 mi<sup>2</sup> (862 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 370.52 ft (112.934 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 21, 1960, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow regulated since Mar. 15, 1963, by Navarro Mills Lake (station 08063050). Water is diverted from Navarro Mills Lake for municipal use. Flow is affected at times by discharge from the flood-detention pool of a floodwater-retarding structure with a detention capacity of 297 acre-ft (366,000 m<sup>3</sup>). This structure controls runoff from 1.28 mi<sup>2</sup> (3.32 km<sup>2</sup>). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 153 ft<sup>3</sup>/s (4.333 m<sup>3</sup>/s), 110,800 acre-ft/yr (137 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,500 ft<sup>3</sup>/s (722 m<sup>3</sup>/s) July 3, 1961, gage height, 22.50 ft (6.858 m), from rating curve extended above 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s); no flow at times. Maximum discharge since completion of Navarro Mills Dam in 1963, 3,850 ft<sup>3</sup>/s (109 m<sup>3</sup>/s) Nov. 24, 1974, gage height, 19.85 ft (6.050 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, about 28 ft (8.5 m) June 19, 1929, from information by local residents. Floods in 1946 and 1957 reached a stage of about 23 ft (7.0 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,950 ft<sup>3</sup>/s (55.2 m<sup>3</sup>/s) Apr. 29 at 0230 hours, gage height, 17.16 ft (5.230 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	8.4	9.1	188	159	.90	2.5	1480	671	6.0	10	11
2	2.5	8.0	9.1	186	158	.80	1.9	1340	661	7.0	10	11
3	2.5	8.0	9.1	186	156	.80	3.5	1320	472	7.0	10	11
4	2.5	8.0	9.1	79	111	.80	.81	1300	204	7.0	10	11
5	2.7	8.0	9.0	1.5	3.6	.80	.53	997	1.4	7.0	10	11
6	2.7	8.0	8.9	1.2	2.2	.60	.53	263	.51	7.0	10	11
7	2.7	8.0	8.7	1.1	2.1	.60	.99	7.2	.19	7.0	10	11
8	3.0	8.0	8.2	1.0	104	.60	304	128	.14	7.0	10	8.1
9	2.7	8.2	8.2	1.0	64	.60	309	597	.10	7.0	10	.55
10	2.5	8.2	8.5	1.0	16	.45	306	1150	.19	7.0	11	.04
11	2.5	8.2	8.2	1.1	291	.45	230	1120	.06	7.0	11	.00
12	2.5	8.2	8.2	.86	958	6.1	30	1110	.04	7.0	11	.00
13	2.5	8.2	8.2	1.1	1070	.36	270	797	.02	7.0	11	.00
14	2.5	8.2	8.2	1.1	1050	.08	49	301	.01	7.0	11	.00
15	4.5	8.2	8.2	1.1	813	.01	618	800	.01	7.0	11	.00
16	4.9	8.4	8.2	1.3	130	.04	1580	496	.00	7.6	11	.00
17	4.9	8.5	8.2	1.4	64	1.4	1720	26	.00	7.6	11	.00
18	4.7	8.8	7.7	1.4	31	.23	1570	18	.00	7.8	11	.00
19	4.7	8.9	1.3	1.4	2.0	.07	1390	16	.00	8.0	11	.00
20	4.7	8.8	2.9	1.8	1.5	.07	1370	809	.00	8.0	11	.00
21	4.7	9.6	1.6	2.2	1.0	.07	1350	1560	.00	9.1	11	.00
22	6.0	9.5	56	191	1.0	.05	1330	1660	.00	9.8	11	.00
23	6.5	9.5	220	18	1.0	.05	1310	1800	.00	9.8	11	.00
24	6.5	9.3	37	6.3	1.0	.05	762	1770	.00	10	11	.00
25	6.2	9.2	5.1	713	1.0	.05	855	1740	.00	10	11	.00
26	6.2	9.1	2.8	1480	.90	.07	55	1720	.05	10	11	.00
27	6.2	9.1	110	1400	.90	.23	24	1560	.00	10	11	.00
28	6.2	9.1	192	1380	.90	.272	964	1390	.00	10	11	.00
29	6.2	9.1	195	1350	.90	1100	1940	1370	1.0	10	11	.05
30	8.0	9.1	194	1320	---	630	1760	1040	5.8	10	11	.29
31	8.7	---	191	746	---	175	---	683	---	10	11	---
TOTAL	136.1	257.8	1361.7	9264.86	5195.00	2216.10	20204.77	30368.2	2017.52	251.7	332	86.03
MEAN	4.39	8.59	43.9	299	179	71.5	673	980	67.3	8.12	10.7	2.87
MAX	8.7	9.6	220	1480	1070	1100	1940	1800	671	10	11	11
MIN	2.5	8.0	1.3	.86	.90	.01	.53	7.2	.00	6.0	10	.00
AC-FT	270	511	2700	18380	10300	4400	40080	60240	4000	499	659	171

CAL YR 1979 TOTAL 45246.82 MEAN 124 MAX 1650 MIN .17 AC-FT 89750  
WTR YR 1980 TOTAL 71691.78 MEAN 196 MAX 1940 MIN .00 AC-FT 142200



## TRINITY RIVER BASIN

08063500 RICHLAND CREEK NEAR RICHLAND, TX

LOCATION.--Lat 31°57'02", long 96°25'16", Navarro County, Hydrologic Unit 12030108, at left end of downstream bridge on U.S. Highway 75 (Interstate Highway 45), 800 ft (240 m) downstream from Texas and New Orleans Railroad Co. bridge, 1.0 mi (1.6 km) north of Richland, 3.5 mi (5.6 km) downstream from Pin Oak Creek, and 36.7 mi (59.1 km) upstream from mouth.

DRAINAGE AREA.--734 mi<sup>2</sup> (1,901 km<sup>2</sup>).

PERIOD OF RECORD.--December 1924 to February 1925 (discharge measurements and gage heights only), March 1939 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 299.12 ft (91.172 m) National Geodetic Vertical Datum of 1929. Dec. 11, 1924, to Feb. 11, 1925, nonrecording gage at site 800 ft (240 m) upstream. Mar. 17, 1939, to Feb. 14, 1958, water-stage recorder at site 50 ft (15 m) upstream. Feb. 15, 1958, to Jan. 28, 1959, nonrecording gage at present site. June 8, 1955, to Feb. 14, 1958, and since Feb. 6, 1959, supplementary water-stage recorder in overflow channel 3,900 ft (1,190 m) to right of main channel gage. All gages at present datum.

REMARKS.--Records good except those below 200 ft<sup>3</sup>/s (5.66 m<sup>3</sup>/s), which are fair. Since October 1962, flow is partly regulated by Navarro Mills Lake (station 08063050) located 25 mi (40 km) upstream. Flow is also affected at times by discharge from the flood-detention pools of 73 floodwater-retarding structures with combined detention capacity of 42,060 acre-ft (51.9 hm<sup>3</sup>). These structures control runoff from 143 mi<sup>2</sup> (370 km<sup>2</sup>) in the Richland Creek drainage basin. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years (water years 1940-62) prior to regulation by Navarro Mills Lake, 404 ft<sup>3</sup>/s (11.44 m<sup>3</sup>/s), 292,700 acre-ft/yr (361 hm<sup>3</sup>/yr); 18 years (water years 1963-80) regulated, 352 ft<sup>3</sup>/s (9.969 m<sup>3</sup>/s), 255,000 acre-ft/yr (314 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,900 ft<sup>3</sup>/s (1,670 m<sup>3</sup>/s) May 12, 1948, gage height, 24.16 ft (7.364 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1899, 25.5 ft (7.77 m) in December 1913 (discharge not determined), from information by Texas and New Orleans Railroad Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,260 ft<sup>3</sup>/s (262 m<sup>3</sup>/s) May 17 at 0830 hours, gage height, 21.81 ft (6.648 m); maximum gage height at main channel, 21.82 ft (6.651 m) May 17, from stage graph; no flow Sept. 13-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	16	16	279	611	53	210	1930	712	1.4	12	12
2	7.2	24	24	237	331	48	45	1700	697	2.0	12	9.0
3	7.2	18	13	219	321	43	46	1600	677	7.3	11	8.6
4	5.5	15	12	212	314	40	55	1550	401	7.5	11	9.0
5	5.1	12	12	93	220	34	35	1500	168	7.2	10	9.1
6	5.7	9.3	11	27	109	29	27	1400	34	7.2	10	9.3
7	7.1	9.0	11	20	98	24	25	1200	25	7.5	10	8.8
8	7.3	9.7	11	22	352	19	145	1000	23	7.5	10	9.3
9	6.8	10	11	20	1320	15	318	900	22	7.5	10	9.5
10	5.9	9.0	12	11	1470	10	320	700	18	7.5	11	7.6
11	5.9	9.1	12	7.1	1120	5.8	330	520	16	7.3	11	2.7
12	6.7	9.6	16	5.0	1140	14	610	460	16	7.2	11	.08
13	7.3	9.8	60	3.7	1350	55	912	1000	15	7.3	11	.00
14	13	9.3	64	3.0	1430	34	2740	1200	12	7.4	11	.00
15	7.8	9.7	30	2.8	1380	19	2500	1460	10	7.6	11	.00
16	6.9	10	20	2.3	726	11	1810	5070	10	7.7	11	.00
17	9.7	15	15	1.7	264	11	1820	8580	9.1	8.0	11	.00
18	8.4	11	11	1.7	203	29	1770	4240	7.8	8.3	10	.00
19	6.7	9.5	9.5	1.5	147	22	1500	1130	6.5	8.5	10	.00
20	6.6	8.9	9.2	5.6	104	17	1360	830	6.9	8.5	9.0	.00
21	9.8	9.3	7.6	75	98	12	1320	1950	5.9	9.6	7.5	.00
22	8.1	7.8	290	833	92	8.6	1290	1960	5.4	9.9	7.3	.00
23	7.3	9.4	813	1810	86	6.3	1260	2060	5.9	10	7.6	.00
24	8.4	9.5	1290	1570	84	4.6	1210	2050	5.1	11	7.8	.00
25	12	11	1030	791	80	4.0	1780	1940	4.0	11	7.4	.00
26	8.3	11	515	1360	77	3.8	4150	1850	3.3	10	7.2	.00
27	7.7	10	280	1750	70	5.9	2540	1770	3.0	12	5.3	.00
28	7.5	9.3	295	1530	63	421	861	1480	2.4	13	5.9	.00
29	7.8	9.3	366	1320	5 <sup>a</sup>	929	1900	1350	2.0	15	6.9	.00
30	13	9.6	543	1260	---	1340	2170	1320	1.7	16	9.0	.00
31	15	---	366	1210	---	750	---	834	---	13	10	---
TOTAL	249.9	330.1	6175.3	14683.4	13718	4018.0	35059	56534	2925.0	270.9	294.9	94.98
MEAN	8.06	11.0	199	474	473	130	1169	1824	97.5	8.74	9.51	3.17
MAX	15	24	1290	1810	1470	1340	4150	8580	712	16	12	12
MIN	5.1	7.8	7.6	1.5	58	3.8	25	460	1.7	1.4	5.3	.00
AC-FT	496	655	12250	29120	27210	7970	69540	112100	5800	537	585	188
CAL YR 1979	TOTAL	143212.15	MEAN	392	MAX	13700	MIN	.96	AC-FT	284100		
WTR YR 1980	TOTAL	134353.48	MEAN	367	MAX	8580	MIN	.00	AC-FT	266500		

## 08063700 BARDWELL LAKE NEAR ENNIS, TX

LOCATION.--Lat 32°15'00", long 96°38'49", Ellis County, Hydrologic Unit 12030109, in intake structure of Bardwell Dam on Waxahachie Creek, 5 mi (8 km) south of Ennis, and 5.6 mi (9.0 km) upstream from mouth.

DRAINAGE AREA.--178 mi<sup>2</sup> (461 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1965 to current year. Prior to October 1970, published as Bardwell Reservoir. Water Quality records: Chemical analyses: October 1969 to September 1978.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Apr. 25, 1966, nonrecording gage on intake structure at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 15,400 ft (4,690 m) long, including a 350-foot (107 m) uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 20, 1965, and the dam was completed Mar. 27, 1966. The controlled low-flow outlet works consists of a 10.0-foot-diameter (3.0 m) concrete conduit with two 5.0- by 10.0-foot (1.5 by 3.0 m) sluice gates. The lake was built for flood control and water conservation. The capacity table beginning October 1976 is based on a survey completed in 1972. Flow from 81.4 mi<sup>2</sup> (210.8 km<sup>2</sup>) above this lake is modified by Lake Waxahachie, with a capacity of 13,500 acre-ft (16.6 hm<sup>3</sup>), at spillway elevation. During the current year, the city of Waxahachie diverted 2,800 acre-ft (3.45 hm<sup>3</sup>) from Lake Waxahachie and returned 2,070 acre-ft (2.55 hm<sup>3</sup>) to Waxahachie Creek. Inflow is affected at times by discharge from the flood-detention pools of 23 floodwater-retarding structures with combined detention capacity of 15,370 acre-ft (19.0 hm<sup>3</sup>). These structures control runoff from 52.4 mi<sup>2</sup> (135.7 km<sup>2</sup>) in the Chambers Creek watershed. Corps of Engineers gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	460.0	-
Design flood.....	455.9	-
Crest of spillway (top of flood-control pool).....	439.0	137,600
Top of conservation pool.....	421.0	52,300
Lowest gated outlet (invert).....	391.0	690

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 103,300 acre-ft (127 hm<sup>3</sup>) May 19, 1969, elevation, 432.35 ft (131.780 m); minimum since initial filling, 39,720 acre-ft (49.0 hm<sup>3</sup>) Nov. 10, 1978, elevation, 417.21 ft (127.166 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 62,220 acre-ft (76.7 hm<sup>3</sup>) May 20 at 0930 hours, elevation, 423.66 ft (129.132 m); minimum, 42,220 acre-ft (52.1 hm<sup>3</sup>) Sept. 24 at 2100 hours, elevation, 418.33 ft (127.507 m).

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

418.0	42,170	422.0	55,920
420.0	48,780	424.0	63,550

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51230	50450	49820	51330	52220	52360	53110	52330	52180	50310	47470	44670
2	51090	50350	49750	51330	52220	52330	53290	52760	52180	50210	47370	44570
3	51050	50350	49720	51330	52290	52260	53360	52860	52150	50100	47240	44340
4	50950	50240	49720	51330	52290	52540	53360	52930	52110	50000	47070	44470
5	50880	50240	49650	51330	52400	52400	53330	53010	52110	49890	46930	44380
6	50840	50210	49680	51260	52400	52400	53330	53110	52040	49820	46900	44340
7	50630	50100	49650	51300	52400	52470	53360	53220	52040	49720	46830	44340
8	50740	50100	49650	51260	53110	52540	52970	53290	52040	49580	46730	44340
9	50700	50350	49650	51230	53470	52580	52580	53180	52010	49510	46660	44340
10	50520	50280	49610	51260	53540	52580	52180	52860	51940	49400	46560	44310
11	50420	50170	49820	51300	53510	52580	52540	52760	51860	49260	46490	44210
12	50380	50210	49860	51190	53010	52830	52900	52580	51790	49200	46460	44150
13	50310	50140	49790	51190	52470	52830	54670	52540	51690	49060	46460	44050
14	49960	50140	49720	51190	52260	52720	55080	52860	51580	48950	46290	44020
15	50520	50100	49720	51230	52650	52290	54640	56290	51480	48810	46090	43990
16	50490	50070	49720	51330	52610	52720	53440	59600	51440	48710	45990	43860
17	50520	50070	49650	51330	52610	52580	52540	60640	51400	48610	45920	43790
18	50450	50070	49580	51330	52720	52540	52220	61520	51300	48500	45820	43660
19	50380	50070	49580	51480	52790	52540	52220	62020	51230	48430	45720	43540
20	50350	50240	49580	51620	52900	52580	52290	61020	51300	48330	45660	43470
21	50350	50310	49890	51970	53010	52580	52290	58690	51260	48300	45520	43440
22	50420	50170	49960	54740	52970	52470	52330	57040	51190	48190	45460	43310
23	50310	50070	50310	55180	52900	52830	52330	55850	51160	48090	45390	43280
24	50240	50070	51160	55370	52760	52580	52580	54710	51050	47990	45290	43340
25	50210	50070	51160	55150	52580	52500	53260	53540	50950	47920	45230	43440
26	50100	50000	51190	54120	52360	52540	53290	52580	50910	47820	45130	43540
27	50100	50070	51230	52760	52330	52860	53290	52150	50770	47950	45000	43570
28	50070	49930	51370	52110	52360	52970	53260	52220	50660	47920	45030	43570
29	49930	49930	51400	52110	52360	53110	52970	52220	50560	47780	44960	43730
30	50450	49820	51400	52330	---	53110	52580	52220	50450	47710	44900	43860
31	50450	---	51330	52220	---	53010	---	52220	---	47580	44800	---
MAX	51230	50450	51400	55370	53540	53110	55080	62020	52180	50310	47470	44670
MIN	49930	49820	49580	51190	52220	52260	52180	52150	50450	47580	44800	43280
(†)	420.48	420.30	420.73	420.98	421.02	421.20	421.08	420.98	420.48	419.65	418.82	418.53
(‡)	-850	-630	+1510	+890	+140	+650	-430	-360	-1770	-2870	-2780	-940
(††)	178	148	143	129	125	140	146	142	191	280	296	234
CAL YR 1979	MAX	70010	MIN	40830	+	-10250	††	1920				
WTR YR 1980	MAX	62020	MIN	43280	+	-7440	††	2150				

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Ennis.

## TRINITY RIVER BASIN

08063700 BARDWELL LAKE NEAR ENNIS, TX--Continued

## WATER-QUALITY RECORDS

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

321506096382601 BARDWELL LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, SATUR- ATION	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
JAN										
24...	1010	1.0	304	8.2	10.0	.60	10.7	96	110	1
24...	1012	10	304	8.2	10.0	--	10.6	95	--	--
24...	1014	20	304	8.2	10.0	--	10.4	93	--	--
24...	1016	30	304	8.2	10.0	--	10.4	93	--	--
24...	1018	40	304	8.1	10.0	--	10.2	91	110	1
MAY										
07...	0845	1.0	316	7.3	20.5	1.16	7.7	86	120	15
07...	0847	10	316	7.3	20.5	--	7.6	84	--	--
07...	0849	20	318	7.1	20.0	--	6.8	76	--	--
07...	0851	30	325	6.8	19.0	--	4.8	52	--	--
07...	0853	43	342	6.5	16.5	--	1.0	10	130	1
AUG										
27...	0930	1.0	289	7.7	28.0	.91	7.1	90	99	9
27...	0932	10	289	7.7	28.0	--	6.6	84	--	--
27...	0934	20	293	7.3	27.5	--	4.5	56	--	--
27...	0936	25	293	7.2	27.5	--	3.8	48	--	--
27...	0938	29	298	7.0	27.5	--	2.0	25	100	3

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
24...	39	2.6	16	.7	3.5	130	0	26	13
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	39	2.5	17	.7	3.5	130	0	28	13
MAY									
07...	44	2.8	17	.7	3.5	130	0	28	13
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	48	3.1	17	.6	3.5	160	0	27	14
AUG									
27...	35	2.8	19	.8	4.3	110	0	28	16
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	36	2.8	19	.8	4.1	120	0	28	18

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
24...	.3	1.4	166	.17	.37	.54	.030	<10	<1
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	.16	.40	.56	.040	10	0
24...	--	--	--	--	--	--	--	--	--
24...	--	1.5	169	.17	.52	.69	.130	<10	1
MAY									
07...	.4	.6	173	.27	.78	1.1	.030	<10	2
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	.28	.60	.88	.030	20	10
07...	--	--	--	.28	.81	1.1	.040	10	60
07...	--	3.8	196	.25	1.2	1.5	.060	<10	450
AUG									
27...	.4	3.4	163	.00	.95	.95	.110	<10	<1
27...	--	--	--	.00	.88	.88	.120	20	0
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	3.8	171	.08	.89	.97	.140	50	9

## TRINITY RIVER BASIN

525

## BARDWELL LAKE NEAR ENNIS, TX--Continued

321704096393501 BARDWELL LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
24...	0940	1.0	303	8.2	10.0	.50	10.5	94	110
24...	0942	10	303	8.1	9.5	--	10.4	92	--
24...	0945	21	303	8.1	9.5	--	10.4	92	110
MAY									
07...	0910	1.0	311	7.3	21.5	.82	8.1	92	120
07...	0915	10	311	7.4	21.5	--	8.2	93	--
07...	0921	21	311	7.4	21.5	--	8.1	92	120
AUG									
27...	1010	1.0	276	7.8	29.0	.61	7.5	96	91
27...	1012	10	276	7.8	29.0	--	7.4	95	--
27...	1014	19	282	7.7	29.0	--	7.2	92	94

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
24...	4	40	2.5	16	.7	3.5	130	0	28
24...	--	--	--	--	--	--	--	--	--
24...	4	40	2.7	17	.7	3.5	130	0	27
MAY									
07...	12	43	2.8	17	.7	3.5	130	0	30
07...	--	--	--	--	--	--	--	--	--
07...	13	43	3.0	17	.7	3.4	130	0	29
AUG									
27...	9	32	2.8	19	.9	4.2	100	0	28
27...	--	--	--	--	--	--	--	--	--
27...	4	33	2.8	19	.9	4.3	110	0	29

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
24...	12	1.6	168	.31	.38	.69	.040	<10	<1
24...	--	--	--	.38	.29	.67	.040	0	0
24...	14	1.7	170	.38	.37	.75	.040	<10	1
MAY									
07...	14	.7	175	.23	.63	.86	.040	40	3
07...	--	--	--	.24	.66	.90	.030	30	0
07...	14	.5	174	.24	.74	.98	.030	<10	2
AUG									
27...	16	3.5	155	.00	1.1	1.1	.130	<10	<1
27...	--	--	--	.00	.85	.85	.150	30	0
27...	17	3.4	163	.00	1.0	1.0	.150	<10	<1

## TRINITY RIVER BASIN

## BARDWELL LAKE NEAR ENNIS, TX--Continued

321830096404001 BARDWELL LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
24...	1045	1.0	268	8.0	9.0	.20	10.1
24...	1050	4.0	268	8.0	9.0	--	10.1
MAY							
07...	0944	1.0	300	7.3	23.5	.43	7.8
07...	0951	6.0	300	7.3	23.5	--	7.8
AUG							
27...	1040	1.0	276	7.9	28.5	.30	7.2
27...	1042	3.0	276	7.9	29.0	--	7.2

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
24...	89	2.4	--	--	.160	50	0
24...	89	2.3	--	--	.160	10	0
MAY							
07...	93	.13	.69	.82	.050	20	10
07...	93	.11	.68	.79	.050	20	10
AUG							
27...	92	.00	1.0	1.0	.150	10	0
27...	92	.00	.87	.87	.280	10	0

321758096412901 BARDWELL LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
24...	1100	1.0	300	8.1	9.5	.20	10.4	92	110
24...	1105	7.0	300	8.1	9.5	--	10.3	91	110
MAY									
07...	0930	1.0	300	7.2	22.5	.37	8.2	95	110
07...	0937	8.0	300	7.2	22.5	--	8.2	95	110
AUG									
27...	1103	1.0	278	7.8	30.5	.30	7.0	92	91
27...	1105	6.0	278	7.7	30.0	--	6.7	88	91

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
24...	8	39	2.3	14	.6	3.6	120	0	28
24...	3	40	2.4	15	.6	3.6	130	0	27
MAY									
07...	15	41	2.8	17	.7	3.5	120	0	29
07...	8	41	3.0	17	.7	3.5	130	0	29
AUG									
27...	9	32	2.7	15	.7	4.0	100	0	27
27...	9	32	2.7	16	.7	4.2	100	0	29

## TRINITY RIVER BASIN

527

BARDWELL LAKE NEAR ENNIS, TX--Continued

321758096412901 BARDWELL LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
24...	11	3.0	160	1.1	.41	1.5	.100	10	<1
24...	11	3.3	166	1.2	.54	1.7	.130	20	1
MAY									
07...	14	1.2	168	.11	.76	.87	.060	140	20
07...	13	.9	172	.14	.70	.84	.050	70	10
AUG									
27...	16	3.6	150	.00	.97	.97	.170	<10	<1
27...	17	3.7	154	.00	1.2	1.2	.180	<10	<1



## TRINITY RIVER BASIN

BARDWELL LAKE NEAR ENNIS, TX--Continued

321506096382601 BARDWELL LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JAN 24,80 1011	MAY 7,80 0846	AUG 27,80 0931
TOTAL CELLS/ML	34000	3600	370000
DIVERSITY: DIVISION	0.9	1.6	0.1
..CLASS	0.9	1.6	0.1
..ORDER	0.9	2.1	0.7
...FAMILY	0.9	2.8	1.0
....GENUS	1.0	3.1	1.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	26	1	--	-
...COELASTRACEAE						
....COELASTRUM	--	-	770#	21	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	8100#	24	300	8	*	0
...CHLORELLA	970	3	64	2	--	-
...DICTYOSPHAERIUM	--	-	--	-	*	0
...KIRCHNERIELLA	320	1	--	-	--	-
...OOCYSTIS	--	-	*	0	--	-
...SELENASTRUM	--	-	64	2	*	0
...TETRAEDRON	--	-	--	-	*	0
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	100	3	*	0
...TETRASTRUM	--	-	210	6	--	-
...TETRASPORALES						
...COCCOMYXACEAE						
...ELAKATOTHRIX	--	-	26	1	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	26	1	--	-
...ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	*	0
CHRYSTOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	25000#	72	360	10	*	0
..PENNALES						
...NITZSCHACEAE						
....NITZSCHIA	--	-	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	170	5	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	*	0	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	16000	4
...ANACYSTIS	--	-	760#	21	41000	11
...COCCOCHLORIS	--	-	64	2	--	-
...HORMOGONALES						
...NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	20000	5
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	200000#	54
...OSCILLATORIA	--	-	640#	18	87000#	24

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## BARDWELL LAKE NEAR ENNIS, TX--Continued

321758096412901 BARDWELL LAKE SITE DC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	JAN 24, 80 1101	MAY 7, 80 0933	AUG 27, 80 1102
TOTAL CELLS/ML	15000	9000	130000
DIVERSITY: DIVISION	0.9	1.9	0.3
..CLASS	0.9	1.9	0.3
...ORDER	1.3	2.6	0.6
...FAMILY	1.3	3.1	1.0
....GENUS	1.8	3.5	1.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE						
...SCHROEDERIA	--	-	* 0		--	-
...MICRACTINIACEAE						
...GOLENKINIA	--	-	--	-	* 0	
...MICRACTINIUM	--	-	270 3		--	-
...OOCYSTACEAE						
...ANKISTRODESMUS	4400# 29		270 3		930 1	
...CHLORELLA	120 1		130 1		--	-
...DICTYOSPHAERIUM	--	-	130 1		* 0	
...OOCYSTIS	--	-	100 1		* 0	
...SELENASTRUM	--	-	200 2		--	-
...TETRAEDRON	--	-	--	-	* 0	
...SCENEDESMACEAE						
...CRUCIGENIA	--	-	--	-	* 0	
...SCENEDESMUS	--	-	200 2		* 0	
...TETRASTRUM	--	-	270 3		--	-
..TETRASPORALES						
...PALMELLACEAE						
...SPHAEROCYSTIS	970 7		--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	--	-	* 0		* 0	
CHRYSOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCACEAE						
...CYCLOTELLA	7200# 48		940 10		* 0	
...MELOSIRA	2100 14		--	-	--	-
..PENNALES						
...FRAGILARIACEAE						
...SYNEDRA	--	-	--	-	* 0	
...NAVICULACEAE						
...NAVICULA	--	-	300 3		930 1	
...NITZSCHACEAE						
...NITZSCHIA	240 2		810 9		* 0	
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOMONADACEAE						
...CRYPTOMONAS	--	-	300 3		--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	--	-	--	-	800 1	
...ANACYSTIS	--	-	2800# 31		4900 4	
...COCCOCHLORIS	--	-	130 1		--	-
...HORMOGONALES						
...NOSTOCACEAE						
...ANABAENA	--	-	540 6		--	-
...ANABAENOPSIS	--	-	--	-	9300 7	
...OSCILLATORIACEAE						
...LYNGBYA	--	-	--	-	47000# 35	
...OSCILLATORIA	--	-	810 9		67000# 50	
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...EUGLENA	--	-	670 7		* 0	
...TRACHELOMONAS	--	-	100 1		* 0	
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...PERIDINIALES						
...GLENODINIACEAE						
...GLENODINIUM	--	-	--	-	* 0	

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## TRINITY RIVER BASIN

## 08063800 WAXAHACHIE CREEK NEAR BARDWELL, TX

LOCATION.--Lat 32°14'36", long 96°38'24", Ellis County, Hydrologic Unit 12030109, on right bank 0.8 mi (1.3 km) downstream from Bardwell Dam, 3.6 mi (5.8 km) southeast of Bardwell, 3.8 mi (6.1 km) downstream from bridge on State Highway 34, and 4.1 mi (6.6 km) upstream from mouth.

DRAINAGE AREA.--178 mi<sup>2</sup> (461 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 370.18 ft (112.831 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Records fair. Flow is regulated by Bardwell Lake (station 08063700) 0.8 mi (1.3 km) upstream. Several observations of water temperature were made during the year. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--17 years, 75.9 ft<sup>3</sup>/s (2.149 m<sup>3</sup>/s), 54,990 acre-ft/yr (67.8 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,960 ft<sup>3</sup>/s (83.8 m<sup>3</sup>/s) Feb. 9, 1965, gage height, 17.55 ft (5.349 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1944, about 23 ft (7.0 m) in 1944 and 1945, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,480 ft<sup>3</sup>/s (41.9 m<sup>3</sup>/s) May 20 at 2015 hours, gage height, 13.83 ft (4.215 m); minimum daily, 0.23 ft<sup>3</sup>/s (0.007 m<sup>3</sup>/s) Mar. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.8	2.0	1.8	5.5	1.3	1.5	81	3.0	2.1	1.9	1.5
2	1.1	1.8	1.9	1.9	5.0	1.2	1.5	6.4	2.9	2.1	2.1	1.5
3	1.1	1.8	1.9	1.8	4.7	1.1	1.3	6.1	2.8	2.1	2.4	1.5
4	.99	1.8	1.9	1.8	4.2	1.1	1.4	5.8	2.7	2.3	2.1	1.5
5	.96	1.8	1.9	1.8	4.0	1.1	1.4	5.8	2.7	1.7	2.1	1.5
6	.96	1.9	2.0	1.9	3.7	.92	1.5	5.7	2.8	2.4	2.5	1.5
7	.90	1.9	2.0	1.9	3.6	.95	50	5.5	2.7	2.1	2.6	1.5
8	1.0	2.0	2.0	1.9	3.8	.92	134	5.1	2.9	2.0	2.5	1.3
9	.91	2.1	1.9	1.9	4.0	.88	135	46	3.2	1.6	2.4	1.1
10	.78	2.5	2.0	1.8	3.6	.70	103	72	2.9	1.2	2.3	1.2
11	.87	2.5	2.3	1.9	136	.26	3.6	71	3.0	2.2	1.9	1.1
12	.95	2.5	2.4	1.8	326	.23	3.3	70	2.8	2.7	1.7	1.1
13	1.1	2.5	2.3	1.9	320	.55	4.3	41	2.9	2.7	1.8	1.1
14	1.2	2.5	2.3	1.9	153	38	4.0	5.7	3.0	2.5	1.8	1.1
15	1.3	2.5	2.3	2.0	4.3	127	242	9.3	2.9	2.5	1.9	1.1
16	1.2	2.5	2.2	2.0	3.6	53	518	57	2.7	2.6	1.9	2.1
17	1.2	2.5	2.2	2.0	3.1	2.2	416	18	2.7	2.4	1.9	3.0
18	1.2	2.5	2.3	2.1	3.0	1.8	114	4.8	2.8	2.4	1.8	3.0
19	1.2	2.5	2.4	2.3	3.0	1.8	3.1	4.9	2.7	2.2	1.7	3.0
20	1.2	2.5	2.5	4.5	2.7	1.8	2.7	783	2.9	2.3	1.7	2.8
21	1.4	2.7	2.7	2.9	1.6	1.7	2.5	1460	2.7	2.3	1.7	2.9
22	1.5	2.3	3.3	11	38	1.6	2.5	1030	2.6	2.1	1.6	2.4
23	1.3	2.3	4.9	2.8	61	1.5	2.5	661	2.4	1.9	1.5	1.9
24	1.3	2.3	2.1	2.4	61	1.4	3.2	654	2.5	1.9	1.5	2.0
25	1.5	2.3	1.8	195	60	1.5	6.2	653	2.7	2.0	1.5	2.2
26	1.6	2.2	1.7	647	60	1.5	4.2	527	2.3	2.0	1.5	2.0
27	1.7	2.2	1.7	676	27	1.6	4.0	190	2.4	2.0	1.5	2.0
28	1.7	2.1	1.8	442	2.1	1.7	31	3.0	2.7	2.0	1.5	2.2
29	1.5	2.0	1.8	7.3	1.9	1.6	120	2.8	2.2	1.9	1.5	2.3
30	1.7	2.0	1.8	6.4	---	1.6	150	2.9	2.2	1.7	1.5	2.4
31	1.8	---	1.9	6.0	---	1.6	---	3.1	---	2.1	1.5	---
TOTAL	38.32	66.8	68.2	2039.7	1309.4	254.11	2067.7	6490.9	81.7	66.0	57.8	55.8
MEAN	1.24	2.23	2.20	65.8	45.2	8.20	68.9	209	2.72	2.13	1.86	1.86
MAX	1.8	2.7	4.9	676	326	127	518	1460	3.2	2.7	2.6	3.0
MIN	.78	1.8	1.7	1.8	1.6	.23	1.3	2.8	2.2	1.2	1.5	1.1
AC-FT	76	132	135	4050	2600	504	4100	12870	162	131	115	111
CAL YR 1979	TOTAL	28441.33	MEAN	77.9	MAX	1190	MIN	.08	AC-FT	56410		
WTR YR 1980	TOTAL	12596.43	MEAN	34.4	MAX	1460	MIN	.23	AC-FT	24990		

## TRINITY RIVER BASIN

531

08064500 CHAMBERS CREEK NEAR CORSICANA, TX

LOCATION.--Lat 32°06'29", long 96°22'14", Navarro County, Hydrologic Unit 12030109, near center of channel at downstream side of downstream bridge on State Highway 31, 430 ft (131 m) upstream from St. Louis Southwestern Railway Lines bridge, 6,000 ft (1,829 m) upstream from city of Corsicana diversion dam, 5.3 mi (8.5 km) east of Corsicana, and 23.0 mi (37.0 km) upstream from mouth.

DRAINAGE AREA.--963 mi<sup>2</sup> (2,494 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 294.28 ft (89.696 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Since November 1965, flow from 178 mi<sup>2</sup> (461 km<sup>2</sup>) has been affected by Bardwell Lake (station 08063700). In addition, flow from 293 mi<sup>2</sup> (759 km<sup>2</sup>) is affected by discharge from the flood-detention pools of 100 floodwater-retarding structures with a combined detention capacity of 84,330 acre-ft (104 hm<sup>3</sup>). During year, records furnished by the city of Corsicana show 6,220 acre-ft (7.67 hm<sup>3</sup>) was diverted for municipal supply from Lake Halbert located on a tributary that enters the creek below the gage. Daily discharge given in the following table does not include water diverted by the city. During the current year, records furnished by the city of Corsicana show that 3,370 acre-ft (4.16 hm<sup>3</sup>) of sewage effluent was returned to a tributary that enters the creek below the gage.

AVERAGE DISCHARGE.--41 years (water years 1940-80), 446 ft<sup>3</sup>/s (12.63 m<sup>3</sup>/s), 323,100 acre-ft/yr (398 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft<sup>3</sup>/s (1,360 m<sup>3</sup>/s), May 3, 1944; maximum gage height, 28.10 ft (8.565 m) May 3, 1958; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, 30 ft (9.1 m) Aug. 27, 1887, from information by local residents. Flood in December 1913 reached a stage of 27.5 ft (8.38 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,300 ft<sup>3</sup>/s (320 m<sup>3</sup>/s) May 17 at 0545 hours, gage height, 24.05 ft (7.330 m), no peak above base of 13,000 ft<sup>3</sup>/s (368 m<sup>3</sup>/s); no flow Aug. 19 to Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	48	1.1	34	135	62	79	356	81	6.1	1.3	.00
2	2.0	24	1.1	26	114	57	67	286	72	5.4	.86	.00
3	1.9	14	1.2	22	103	52	74	427	64	5.3	.49	.00
4	1.4	8.0	1.8	19	94	45	420	282	58	4.9	.28	.00
5	1.0	4.0	2.3	15	86	43	233	170	53	4.6	.20	.00
6	.73	2.8	1.9	14	80	41	123	134	47	3.3	.12	.00
7	.53	2.0	2.2	13	74	41	95	193	41	2.8	.11	.00
8	.40	2.0	2.1	11	279	40	184	249	38	2.1	.10	.00
9	.30	1.8	1.9	9.5	1340	40	245	476	35	1.6	.10	.00
10	.18	2.0	1.9	9.1	1310	41	227	356	32	1.6	.08	.00
11	.22	2.8	2.2	9.1	537	41	138	271	30	1.4	.07	.00
12	.26	2.6	2.2	9.1	583	39	57	234	28	1.4	.07	.00
13	.18	2.6	2.6	8.7	554	46	745	237	26	.96	.05	.00
14	.13	2.6	3.4	7.6	485	48	5140	236	22	1.1	.04	.00
15	.26	2.3	3.8	7.2	242	123	2820	1600	20	2.3	.04	.00
16	.91	2.2	3.5	7.2	178	227	1220	7680	18	2.3	.05	.00
17	4.2	2.1	2.8	6.9	148	620	1040	10600	21	2.1	.04	.00
18	4.0	1.9	2.6	6.9	122	224	681	9050	20	1.9	.02	.00
19	3.0	1.9	2.4	6.9	113	103	262	5570	18	1.7	.00	.00
20	2.8	3.0	2.0	1080	107	71	191	1600	17	1.7	.00	.00
21	1.8	2.8	2.2	1150	101	57	161	1760	19	1.6	.00	.00
22	1.1	2.5	317	3130	92	49	138	1700	17	1.5	.00	.00
23	.91	3.4	571	8320	154	44	122	1060	15	1.2	.00	.00
24	.91	3.5	2720	5380	172	44	109	888	13	.95	.00	.00
25	.72	2.8	1110	1490	167	44	2870	822	12	.77	.00	.00
26	.72	2.3	269	1040	162	43	8870	772	12	.61	.00	.00
27	.72	2.1	152	981	153	47	2280	599	11	.42	.00	.00
28	1.0	1.6	104	841	79	92	585	185	9.9	2.4	.00	.01
29	1.0	1.2	77	350	62	210	456	128	8.6	1.7	.00	1.1
30	1.8	1.2	57	210	---	147	427	111	6.7	5.0	.00	1.5
31	23	---	43	169	---	105	---	94	---	3.0	.00	---
TOTAL	60.38	156.0	5467.2	24383.2	7826	2886	30059	48126	865.2	73.71	4.02	2.61
MEAN	1.95	5.20	176	787	270	93.1	1002	1552	28.8	2.38	.13	.087
MAX	23	48	2720	8320	1340	620	8870	10600	81	6.1	1.3	1.5
MIN	.13	1.2	1.1	6.9	62	39	57	94	6.7	.42	.00	.00
AC-FT	120	309	10840	48360	15520	5720	59620	95460	1720	146	8.0	5.2

CAL YR 1979 TOTAL 158224.48 MEAN 433 MAX 11200 MIN .13 AC-FT 313800  
WTR YR 1980 TOTAL 119909.32 MEAN 328 MAX 10600 MIN .00 AC-FT 237800

## TRINITY RIVER BASIN

08064500 CHAMBERS CREEK NEAR CORSICANA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1961 to current year. Water temperatures: September 1961 to September 1970.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 02...	1500	2.1	512	22.5	170	21	61	3.9	37
DEC 18...	1630	2.6	756	6.0	220	35	80	5.7	74
MAR 12...	1350	38	644	14.0	210	42	78	4.7	45
APR 17...	0915	1060	386	15.5	150	27	55	3.2	17
MAY 20...	1800	1150	403	22.5	160	28	59	3.0	19
JUL 01...	1650	6.4	700	31.0	210	50	77	5.2	63

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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...	1.2	5.1	180	0	65	31	.4	7.0	299
DEC 18...	2.2	6.5	230	0	100	65	.5	6.1	451
MAR 12...	1.3	3.8	210	0	100	42	.4	.9	378
APR 17...	.6	3.8	150	0	42	13	.3	4.3	213
MAY 20...	.7	4.2	160	0	47	11	.4	11	233
JUL 01...	1.9	4.5	200	0	100	62	.5	6.4	417

## TRINITY RIVER BASIN

533

08064600 RICHLAND CREEK NEAR FAIRFIELD, TX

LOCATION.--Lat 31°57'08", long 96°05'50", Freestone County, Hydrologic Unit 12030108, on downstream side of highway embankment near left end of bridge on Farm Road 488, 2.1 mi (3.4 km) upstream from Alligator Creek, 5.4 mi (8.7 km) upstream from mouth, 9.0 mi (14.5 km) downstream from Chambers Creek, and 16 mi (26 km) north of Fairfield.

DRAINAGE AREA.--1,957 mi<sup>2</sup> (5,069 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1972 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 230.83 ft (70.357 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair above 500 ft<sup>3</sup>/s (14.2 m<sup>3</sup>/s) and good below. Flow is partly regulated by Navarro Mills Lake (station 08063050) on Richland Creek and Bardwell Lake (station 08063700) on Waxahachie Creek. Flow is affected at times by discharge from the flood-detention pools of 176 floodwater-retarding structures with a combined detention capacity of 128,000 acre-ft (158 hm<sup>3</sup>). These structures control runoff from 440 mi<sup>2</sup> (1,140 km<sup>2</sup>) in the Richland and Chambers Creeks drainage basins. Records furnished by the city of Corsicana show that during the year about 3,370 acre-ft (4.16 hm<sup>3</sup>) of sewage effluent was returned to a tributary upstream.

AVERAGE DISCHARGE.--8 years (water years 1973 80), 1,011 ft<sup>3</sup>/s (28.63 m<sup>3</sup>/s), 732,500 acre-ft/yr (903 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 29,500 ft<sup>3</sup>/s (835 m<sup>3</sup>/s) Apr. 26, 1973, gage height, 28.76 ft (8.766 m); minimum daily, 0.02 ft<sup>3</sup>/s (0.01 m<sup>3</sup>/s) July 26, Aug. 26 to Sept. 2, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1971 reached a stage of 31.5 ft (9.60 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,600 ft<sup>3</sup>/s (527 m<sup>3</sup>/s) May 19 at 2400 hours, gage height, 27.93 ft (8.513 m), from graph based on once-daily gage readings; minimum daily, 5.0 ft<sup>3</sup>/s (0.14 m<sup>3</sup>/s) Sept. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	139	18	406	1070	98	490	2200	710	13	14	10
2	19	102	17	337	470	101	280	2060	604	11	14	10
3	18	66	19	304	350	92	162	1680	598	7.9	13	10
4	18	56	24	283	335	87	209	1510	545	7.7	12	10
5	16	45	22	271	321	78	482	1320	408	7.4	11	9.7
6	16	34	21	173	254	72	283	1080	257	7.4	11	9.7
7	14	28	20	91	164	70	196	650	134	9.1	11	10
8	12	24	19	67	232	68	163	434	100	9.1	11	12
9	11	22	19	60	3030	66	356	1200	80	8.8	11	13
10	11	19	19	61	5420	66	517	1820	69	8.5	11	12
11	11	19	23	56	5180	64	506	1390	60	7.9	11	15
12	11	20	122	48	2790	69	430	1310	55	7.4	10	14
13	10	20	586	43	1830	75	442	1800	51	7.7	10	12
14	10	21	299	40	1600	112	3500	2220	46	8.5	10	11
15	11	20	165	37	1390	122	5620	2730	40	10	12	10
16	17	20	89	36	1060	164	6220	4730	35	9.7	12	7.7
17	33	20	57	35	576	326	3870	9130	34	10	11	6.9
18	29	19	42	34	342	506	2640	10700	32	11	10	6.7
19	24	21	35	33	280	239	1990	16700	31	11	9.1	6.2
20	24	22	31	38	232	157	1410	15900	33	10	9.1	6.0
21	19	22	28	1240	186	115	1220	7700	30	10	8.8	5.6
22	19	22	706	2400	167	94	1160	4870	29	10	8.8	5.6
23	18	22	1800	7680	154	82	1100	3620	25	11	9.1	5.4
24	31	22	3560	10400	207	72	1060	2730	24	12	8.8	5.0
25	21	21	4470	10400	211	66	1100	2350	23	12	9.1	5.0
26	16	24	2880	8840	203	67	2630	2190	18	11	8.8	5.4
27	16	22	825	5220	197	66	7260	2000	17	14	9.1	10
28	16	19	454	3910	190	104	6800	1660	17	19	9.1	12
29	14	18	438	2260	133	609	4600	1280	15	16	9.7	9.7
30	18	18	515	1420	---	1190	2630	1120	13	24	9.7	9.4
31	186	---	532	1250	---	1020	---	991	---	16	9.4	---
TOTAL	709	947	17855	57373	28574	6117	59326	111075	4133	338.1	323.6	275.0
MEAN	22.9	31.6	576	1851	985	197	1978	3583	138	10.9	10.4	9.17
MAX	186	139	4470	10400	5420	1190	7260	16700	710	24	14	15
MIN	10	18	17	33	133	64	162	434	13	7.4	8.8	5.0
AC-FT	1410	1880	35420	113800	56680	12130	117700	220300	8200	671	642	545
CAL YR 1979	TOTAL	345351.0	MEAN	946	MAX	11600	MIN	10	AC-FT	685000		
WTR YR 1980	TOTAL	287045.7	MEAN	784	MAX	16700	MIN	5.0	AC-FT	569400		



## TRINITY RIVER BASIN

08064600 RICHLAND CREEK NEAR FAIRFIELD, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: April 1956 to September 1966, March 1972 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1956 to September 1966, March 1972 to current year.

WATER TEMPERATURES: April 1956 to September 1966, March 1972 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 22,000 micromhos Aug. 22, 1956; minimum daily, 154 micromhos June 17, 1977.

WATER TEMPERATURES: Maximum daily, 37.0°C Aug. 14, 1961; minimum daily, 0.0°C Jan. 3, 4, 1959.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,290 micromhos July 26; minimum daily, 220 micromhos Jan. 25.

WATER TEMPERATURES: Maximum daily, 35.0°C July 9, 10; minimum daily, 5.0°C Feb. 10.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 18...	1830	25	964	--	25.0	230	38	79	7.1	110
NOV 17...	1730	19	744	--	14.0	220	44	78	7.2	68
DEC 25...	2030	4370	274	--	12.5	110	8	38	2.9	12
FEB 29...	2230	151	504	8.2	16.0	170	26	59	4.4	34
MAR 31...	1800	837	397	--	17.0	140	27	50	4.1	24
APR 16...	1115	6830	331	--	16.0	120	16	44	3.0	13
JUN 30...	2300	18	884	--	31.5	250	56	89	7.5	88
JUL 28...	1830	20	1240	--	33.0	300	110	100	11	140
AUG 31...	2300	9.1	905	--	29.0	220	38	74	8.1	110

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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 18...	3.2	8.2	230	0	100	140	.5	7.6	566
NOV 17...	2.0	7.5	220	0	100	66	.5	6.7	442
DEC 25...	.5	6.8	120	0	23	11	.2	10	163
FEB 29...	1.2	4.3	170	0	63	34	.4	1.8	285
MAR 31...	.9	4.5	140	0	48	20	.4	5.1	225
APR 16...	.5	5.2	130	0	28	11	.2	9.4	178
JUN 30...	2.4	5.8	240	0	120	100	.6	7.9	537
JUL 28...	3.5	7.5	230	0	160	200	.6	7.0	739
AUG 31...	3.2	7.6	220	0	91	130	.6	6.4	536

## TRINITY RIVER BASIN

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08064600 RICHLAND CREEK NEAR FAIRFIELD, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	709	768	446	855	77	148	98	188	230
NOV.	1979	947	694	402	1030	63	160	89	228	220
DEC.	1979	17855	314	181	8700	14	664	41	2000	110
JAN.	1980	57373	291	168	26000	11	1780	39	5980	110
FEB.	1980	28574	327	189	14500	15	1140	43	3340	120
MAR.	1980	6117	541	313	5170	40	669	70	1160	180
APR.	1980	59326	336	194	31000	15	2430	44	7120	120
MAY	1980	111075	313	180	53900	13	3800	41	12400	120
JUNE	1980	4133	447	258	2880	28	315	58	651	150
JULY	1980	338.1	1070	627	573	150	135	130	122	270
AUG.	1980	323.6	862	502	439	95	83	110	96	250
SEPT	1980	275.0	911	531	394	110	79	120	85	260
TOTAL		287045.7	**	**	146000	**	11400	**	33400	**
WTD. AVG.		784	326	188	**	15	**	43	**	120

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	646	640	900	366	353	544	429	329	365	920	933	907
2	656	588	898	372	400	635	463	345	356	940	871	985
3	670	636	864	382	429	657	525	353	355	980	874	957
4	676	686	908	390	439	754	650	368	361	962	862	980
5	682	608	820	394	445	715	754	348	403	987	853	953
6	690	595	726	442	449	701	578	361	447	1010	865	882
7	712	590	742	500	529	696	637	397	523	990	866	773
8	736	620	828	574	500	715	777	483	568	991	844	753
9	744	684	788	602	317	736	580	333	606	996	838	798
10	756	672	780	632	243	754	425	360	615	1010	840	937
11	780	664	770	644	246	788	414	349	625	1020	836	1010
12	792	678	590	675	305	774	404	342	647	1020	844	968
13	802	728	270	702	330	782	376	310	674	1000	848	885
14	830	748	246	726	356	825	338	306	699	990	830	882
15	835	754	408	746	361	949	293	329	722	1010	820	880
16	840	734	500	760	356	924	331	272	738	1020	826	844
17	888	740	560	776	415	420	359	255	762	1010	854	829
18	964	744	570	784	489	400	363	281	760	1020	849	835
19	988	752	610	800	505	492	369	290	788	1040	842	837
20	952	734	644	798	543	594	367	325	760	1060	826	844
21	1100	710	672	400	593	625	377	347	774	1070	825	851
22	930	694	550	370	619	658	375	324	803	1170	823	868
23	796	716	368	294	626	668	371	327	780	1220	809	887
24	742	786	268	242	622	680	370	324	790	1240	816	930
25	756	898	250	220	510	683	379	323	808	1140	852	949
26	758	914	296	274	493	680	248	325	876	1290	901	998
27	772	892	320	320	497	651	287	322	904	1260	936	1000
28	824	904	328	354	497	697	300	320	855	1240	953	964
29	820	906	316	346	504	550	307	319	870	1210	949	1010
30	732	882	354	342	---	425	327	327	884	1040	938	1030
31	660	---	334	346	---	397	---	335	---	990	905	---
MEAN	791	730	564	502	447	664	426	333	671	1060	862	908

## TRINITY RIVER BASIN

08064600 RICHLAND CREEK NEAR FAIRFIELD, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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

## TRINITY RIVER BASIN

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08064700 TEHUACANA CREEK NEAR STREETMAN, TX

LOCATION.--Lat 31°50'54", long 96°17'23", Freestone County, Hydrologic Unit 12030201, on downstream side of bridge on U.S. Highway 75, 2.8 mi (4.5 km) southeast of Streetman, 3.1 mi (5.0 km) downstream from Chicago, Rock Island, and Pacific Railroad Co. bridge, 3.8 mi (6.1 km) upstream from Caney Creek, and 25 mi (40 km) upstream from mouth.

DRAINAGE AREA.--142 mi<sup>2</sup> (368 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 287.58 ft (87.654 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good.

AVERAGE DISCHARGE.--12 years, 76.0 ft<sup>3</sup>/s (2.152 m<sup>3</sup>/s), 7.27 in/yr (185 mm/yr), 55,060 acre-ft/yr (67.9 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,100 ft<sup>3</sup>/s (654 m<sup>3</sup>/s) May 10, 1968, gage height, 25.00 ft (7.620 m); no flow at times most years.  
Maximum stage since at least 1932, that of May 10, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1932 reached a stage of about 24 ft (7.3 m), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Dec. 24	0045	2,600 73.6	20.44 6.230	May 13	0245	*6,190 175	23.41 7.135
Jan. 22	1545	4,740 134	22.86 6.968	May 16	0430	4,450 126	22.69 6.916

Minimum discharge, no flow June 26 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.64	17	.26	16	8.4	1.1	1.9	2.6	1.6	.00	.00	.00
2	.50	6.5	.20	9.5	7.7	1.1	1.2	2.5	1.3	.00	.00	.00
3	.48	2.9	.16	7.0	7.0	1.0	.85	2.3	1.1	.00	.00	.00
4	.39	1.6	.13	5.7	6.5	.96	.61	3.1	.92	.00	.00	.00
5	.35	1.1	.11	4.5	5.9	.91	.59	2.2	.75	.00	.00	.00
6	.30	.39	1.1	3.5	5.3	.84	.42	2.0	.61	.00	.00	.00
7	.36	.31	.26	2.8	4.9	.72	.36	2.3	.46	.00	.00	.00
8	.39	.24	.28	2.2	4.9	.67	.34	621	.32	.00	.00	.00
9	.43	.17	.45	1.7	4.9	.63	.30	156	.28	.00	.00	.00
10	.45	.12	1.7	1.5	4.8	.59	.28	41	.27	.00	.00	.00
11	.46	.08	2.4	1.4	4.7	.56	.25	18	.23	.00	.00	.00
12	.52	.05	290	1.3	4.5	.71	12	1780	.17	.00	.00	.00
13	.55	.03	643	1.1	4.4	.74	1090	3470	.14	.00	.00	.00
14	.53	.03	63	1.0	4.3	.68	896	1090	.10	.00	.00	.00
15	.67	.03	15	.88	4.2	.52	96	1140	.07	.00	.00	.00
16	.81	.04	5.6	.87	4.1	.45	29	2600	.05	.00	.00	.00
17	.96	.04	3.0	1.3	3.9	.45	15	476	.03	.00	.00	.00
18	1.2	.05	1.6	1.5	3.8	.38	9.9	100	.03	.00	.00	.00
19	1.4	.07	1.0	1.3	3.7	.36	7.7	43	.02	.00	.00	.00
20	1.6	.07	.63	7.5	3.8	.38	6.2	23	.10	.00	.00	.00
21	1.6	.09	.63	16	3.7	.33	5.4	16	.07	.00	.00	.00
22	1.7	.09	665	3040	3.5	.29	4.6	12	.05	.00	.00	.00
23	1.8	.09	624	1560	3.3	.30	4.3	8.8	.03	.00	.00	.00
24	1.9	.09	1250	143	2.9	.33	3.9	7.4	.02	.00	.00	.00
25	2.0	.08	104	43	2.3	.32	88	5.9	.01	.00	.00	.00
26	2.0	.90	29	25	1.9	.38	66	5.1	.00	.00	.00	.00
27	2.2	.72	15	18	1.4	1.7	13	4.3	.00	.00	.00	.00
28	2.6	.26	9.0	14	1.2	118	6.2	3.5	.00	.00	.00	.00
29	2.9	.42	366	12	1.2	22	4.3	2.9	.00	.00	.00	.00
30	9.5	.33	163	11	---	8.4	3.3	2.4	.00	.00	.00	.00
31	142	---	38	9.6	---	3.7	---	2.0	---	.00	.00	---
TOTAL	183.19	33.89	4293.51	4964.15	123.1	169.50	2367.90	11645.3	8.73	.00	.00	.00
MEAN	5.91	1.13	139	160	4.24	5.47	78.9	376	.29	.000	.000	.000
MAX	142	17	1250	3040	8.4	118	1090	3470	1.6	.00	.00	.00
MIN	.30	.03	.11	.87	1.2	.29	.25	2.0	.00	.000	.000	.000
CFSM	.04	.008	.98	1.13	.03	.04	.56	2.65	.002	.000	.000	.000
IN.	.05	.01	1.12	1.30	.03	.04	.62	3.05	.00	.00	.00	.00
AC-FT	363	67	8520	9850	244	336	4700	23100	17	.00	.00	.00
CAL YR 1979	TOTAL	37348.39	MEAN	102	MAX	5390	MIN	.00	CFSM	.72	IN	9.78
WTR YR 1980	TOTAL	23789.27	MEAN	65.0	MAX	3470	MIN	.00	CFSM	.46	IN	6.23
										AC-FT	74080	
										AC-FT	47190	

## TRINITY RIVER BASIN

08064700 TEHUACANA CREEK NEAR STREETMAN, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 03...	1115	.48	876	22.0	210	54	51	20	100
DEC 19...	1210	.99	560	4.0	120	41	31	11	61
JAN 30...	1300	11	634	4.5	150	46	38	14	66
MAR 11...	1640	.54	1340	15.0	310	120	77	29	150
APR 16...	1330	28	343	16.5	78	21	20	6.8	31
MAY 21...	1500	16	748	26.5	170	43	45	15	87

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 03...	3.0	6.4	190	0	98	130	.2	11	510
DEC 19...	2.4	7.3	100	0	54	89	.2	9.1	312
JAN 30...	2.3	5.7	130	0	74	87	.2	10	359
MAR 11...	3.7	6.4	230	0	180	220	.3	9.5	786
APR 16...	1.5	5.7	70	0	37	45	.1	9.2	189
MAY 21...	2.9	6.4	160	0	84	110	.3	14	441

## 08064800 CATFISH CREEK NEAR TENNESSEE COLONY, TX

LOCATION.--Lat 31°52'51", long 95°52'07", Anderson County, Hydrologic Unit 12030201, on left bank 35 ft (11 m) downstream from bridge on U.S. Highway 287, 2 mi (3 km) upstream from Beaver Creek, 3.5 mi (5.6 km) northwest of Tennessee Colony, 12 mi (19 km) downstream from Coon Creek Lake, and 12 mi (19 km) upstream from mouth.

DRAINAGE AREA.--207 mi<sup>2</sup> (536 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 234.93 ft (71.607 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulation upstream by Coon Creek Lake. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 103 ft<sup>3</sup>/s (2.917 m<sup>3</sup>/s), 74,620 acre-ft/yr (92.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,550 ft<sup>3</sup>/s (214 m<sup>3</sup>/s) May 11, 1968, gage height, 15.90 ft (4.846 m); minimum daily, 0.8 ft<sup>3</sup>/s (0.023 m<sup>3</sup>/s) Aug. 19-21, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1927, 22 ft (6.7 m) in June 1944 as a result of dam failure at Coon Creek Lake, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 618 ft<sup>3</sup>/s (17.5 m<sup>3</sup>/s) Apr. 16 (time unknown), gage height, 10.30 ft (3.139 m), no peak above base of 1,400 ft<sup>3</sup>/s (39.6 m<sup>3</sup>/s); minimum daily, 3.3 ft<sup>3</sup>/s (0.093 m<sup>3</sup>/s) Aug. 24-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	72	51	125	145	85	200	74	50	22	14	7.5
2	36	82	45	117	148	84	160	70	45	20	11	7.6
3	33	82	41	109	134	84	140	68	41	18	8.6	7.8
4	29	72	41	105	123	84	120	64	37	15	7.1	7.8
5	27	59	43	109	117	84	110	62	34	13	6.3	7.0
6	25	49	47	112	112	83	98	60	33	12	5.7	5.6
7	23	45	49	107	108	83	90	60	30	11	5.8	4.9
8	22	44	51	99	136	80	84	85	26	10	7.0	4.8
9	21	37	49	94	283	78	78	78	26	9.2	7.6	5.6
10	20	36	47	89	473	78	74	74	28	8.8	7.9	6.5
11	21	38	46	88	537	78	70	72	27	8.5	7.8	6.8
12	19	39	80	86	437	82	150	82	26	7.9	7.7	6.1
13	16	35	140	87	340	86	390	126	24	7.6	8.0	5.2
14	14	33	276	84	276	90	540	145	22	7.2	8.1	4.8
15	13	31	326	82	234	88	600	250	18	6.9	8.1	4.8
16	15	30	260	82	196	84	480	368	15	6.6	8.5	4.9
17	18	30	180	78	173	80	400	396	14	6.5	6.9	4.8
18	18	31	135	79	158	80	320	474	14	6.1	5.4	4.5
19	19	36	112	79	137	78	250	436	14	5.8	4.5	5.3
20	24	43	95	79	120	82	200	320	41	5.5	4.0	5.2
21	22	57	87	94	113	120	160	235	86	6.2	3.7	5.6
22	21	82	113	187	108	160	120	177	110	9.4	3.7	5.5
23	22	98	151	302	103	130	96	139	143	8.6	3.6	5.0
24	26	113	240	472	97	110	80	111	166	10	3.3	4.6
25	25	105	317	455	93	90	90	94	131	11	3.3	4.8
26	23	85	316	326	91	80	100	86	86	10	3.3	5.6
27	22	69	250	233	91	74	96	80	59	9.4	3.6	6.2
28	21	61	183	176	90	76	88	76	42	19	4.6	7.3
29	20	56	150	155	86	90	84	70	32	20	6.3	7.9
30	26	54	134	144	---	130	78	63	26	20	7.1	9.1
31	61	---	127	143	---	200	---	56	---	18	7.4	---
TOTAL	741	1704	4182	4577	5259	2911	5546	4551	1446	349.2	199.9	179.1
MEAN	23.9	56.8	135	148	161	93.9	185	147	48.2	11.3	6.45	5.97
MAX	61	113	326	472	537	200	600	474	166	22	14	9.1
MIN	13	30	41	78	86	74	70	56	14	5.5	3.3	4.5
AC-FT	1470	3380	8290	9080	10430	5770	11000	9030	2870	693	397	355
CAL YR 1979	TOTAL	50545.4	MEAN	138	MAX	2510	NIN	9.8	AC-FT	100300		
WTR YR 1980	TOTAL	31645.2	MEAN	86.5	MAX	600	NIN	3.3	AC-FT	62770		

NOTE.--No gage-height record Apr. 13-17.



## TRINITY RIVER BASIN

08065000 TRINITY RIVER NEAR OAKWOOD, TX

LOCATION.--Lat 31°38'54", long 95°47'21", Anderson County, Hydrologic Unit 12030201, on left bank at downstream side of bridge on U.S. Highways 79 and 84, 1.5 mi (2.4 km) upstream from Missouri Pacific Railroad Co. bridge, 6 mi (10 km) northeast of Oakwood, and at mile 313.4 (504.3 km).

DRAINAGE AREA.--12,833 mi<sup>2</sup> (33,237 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to September 1924 (monthly discharge only), October 1924 to current year. Records of January 1905 to September 1923, published in WSP 850 and 878, have been found unreliable and should not be used. Gage-height records collected in this vicinity since 1904 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1442: 1934. See also PERIOD OF RECORD. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 175.06 ft (53.358 m) National Geodetic Vertical Datum of 1929. Prior to July 15, 1932, nonrecording gage at site 1.5 mi (2.4 km) downstream at datum 1.06 ft (0.323 m) lower. July 15, 1932, to Oct. 7, 1934, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Twenty-one major reservoirs with a capacity of 4,200,000 acre-ft (5.18 km<sup>3</sup>), of which 1,362,000 acre-ft (1.68 km<sup>3</sup>) is for flood control, partly regulate the flow. Flow is affected at times by discharge from the flood-detention pools of 244 floodwater-retarding structures with a combined detention capacity of 182,180 acre-ft (225 hm<sup>3</sup>). These structures control runoff from 608 mi<sup>2</sup> (1,575 km<sup>2</sup>) in the Richland, Chambers, and Tehuacana Creeks drainage basins. The Industrial Generating Co., Fairfield, makes a minor diversion from the river at a site about 34 mi (55 km) upstream. The diversion to Big Brown Lake (formerly Fairfield Lake) is used to maintain the normal pool elevation for that lake. The National Weather Service operates a gage-height telemeter at this station.

AVERAGE DISCHARGE.--30 years (water years 1924-53) unregulated, 5,045 ft<sup>3</sup>/s (142.9 m<sup>3</sup>/s), 3,655,000 acre-ft/yr (4.51 km<sup>3</sup>/yr); 26 years (water years 1954-79) regulated, 4,472 ft<sup>3</sup>/s (126.6 m<sup>3</sup>/s), 3,240,000 acre-ft/yr (3.99 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 153,000 ft<sup>3</sup>/s (4,330 m<sup>3</sup>/s), Apr. 29, 1942, gage height, 51.64 ft (15.740 m); minimum observed, 28 ft<sup>3</sup>/s (0.79 m<sup>3</sup>/s) Aug. 24, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1890 reached a stage of 53 ft (16.2 m), discharge about 180,000 ft<sup>3</sup>/s (5,100 m<sup>3</sup>/s) and was the highest since that date, from information in local newspapers. Flood of June 4, 1908, reached a stage of 52.2 ft (15.91 m), present site and datum, from information by the National Weather Service, discharge about 164,000 ft<sup>3</sup>/s (4,640 m<sup>3</sup>/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,000 ft<sup>3</sup>/s (793 m<sup>3</sup>/s) May 18, gage height, 41.15 ft (12.543 m); minimum daily, 419 ft<sup>3</sup>/s (11.9 m<sup>3</sup>/s) Oct. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	771	1220	660	2160	5960	1290	4070	4690	2440	682	665	465
2	755	1700	652	1930	4390	1200	2900	3950	2100	655	622	480
3	722	2450	642	1680	3050	1150	2050	3500	1830	638	644	460
4	691	2220	631	1490	2190	1120	1510	3190	1720	618	595	421
5	681	1450	621	1370	1880	1090	1260	3970	1650	605	595	410
6	678	990	633	1310	1790	1060	1520	4540	1460	602	560	400
7	667	797	639	1230	1700	1030	1910	3530	1240	587	526	410
8	653	724	649	1080	2130	1020	1530	2400	1050	564	524	450
9	651	697	666	991	6290	1000	1240	2490	913	545	544	480
10	624	677	676	937	10900	994	1230	3560	897	540	534	461
11	597	666	666	928	12600	995	1500	3740	876	534	534	441
12	597	683	714	909	13600	989	1970	3800	835	530	560	500
13	603	740	1210	890	13100	1010	4820	3870	815	524	540	665
14	601	749	2480	868	10000	988	6430	4960	841	520	516	676
15	577	707	2580	860	6500	1000	10100	6950	845	514	500	530
16	569	683	2730	856	4430	1060	11900	9350	803	506	514	441
17	604	673	2490	853	4040	1060	12700	11400	785	494	520	404
18	615	655	1730	850	3230	1340	11900	12800	776	484	506	395
19	1030	656	1240	843	2300	2270	8640	13800	760	474	496	441
20	1740	677	1040	979	1990	2370	5330	14600	803	470	488	436
21	1290	870	941	1300	1840	1590	3590	15400	980	474	500	419
22	865	926	1650	3950	1680	1200	3050	16100	996	546	500	400
23	729	801	3400	9190	1510	1090	2790	16600	1310	576	490	419
24	674	806	6100	12200	1400	1060	2640	15300	2020	520	480	395
25	697	878	7770	13500	1360	1030	2580	11100	1830	540	472	386
26	825	855	9470	14800	1320	1000	3310	6780	1510	576	464	386
27	797	782	9410	15900	1280	1100	6470	4720	1260	570	480	432
28	721	720	6580	16900	1300	1360	7700	4010	997	654	480	480
29	672	670	3710	17600	1330	1840	8020	3550	815	813	476	516
30	665	662	2480	15600	---	3350	6640	2950	723	665	465	670
31	923	---	2370	10100	---	4650	---	2610	---	626	455	---
TOTAL	23284	27784	77230	154054	125090	43306	141300	220210	35880	17646	16245	13869
MEAN	751	926	2491	4969	4313	1397	4710	7104	1196	569	524	462
MAX	1740	2450	9470	17600	13600	4650	12700	16600	2440	813	665	676
MIN	569	655	621	843	1280	988	1230	2400	723	470	455	386
AC-FT	46180	55110	153200	305600	248100	85900	280300	436800	71170	35000	32220	27510
CAL YR 1979	TOTAL	1643870	MEAN	4504	MAX	27800	MIN	569	AC-FT	3261000		
WTR YR 1980	TOTAL	895898	MEAN	2448	MAX	17600	MIN	386	AC-FT	1777000		

## TRINITY RIVER BASIN

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08065000 TRINITY RIVER NEAR OAKWOOD, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Sediment analyses: December 1976 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1976 to current year.

WATER TEMPERATURES: December 1976 to current year.

SUSPENDED-SEDIMENT DISCHARGE: December 1976 to current year.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 991 micromhos Sept. 14, 1977; minimum daily, 204 micromhos June 20, 1977.

WATER TEMPERATURES: Maximum daily, 32.0°C June 11, 1977; minimum daily, 2.0°C Jan. 9, 1977.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,920 mg/L Jan. 22, 1979; minimum daily mean, 20 mg/L Aug. 6, 1977, Oct. 14, 1977, Jan. 4, 1978.

SEDIMENT LOADS: Maximum daily, 43,800 tons Jan. 24, 1980; minimum daily, 34 tons Jan. 4, 1978.

## EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,490 mg/L Dec. 27; minimum daily mean, 37 mg/L Dec. 11.

SEDIMENT LOADS: Maximum daily, 43,800 tons Jan. 24; minimum daily, 46 tons Sept. 6, 7.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE, WATER (DEG C)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
DEC 27...	0900	9880	12.0	1510	40300	53	55
JAN 22...	0900	2240	13.0	1380	8350	64	69
FEB 16...	1000	4420	10.0	292	3490	79	88
MAY 12...	0900	3990	23.0	1310	14100	83	84
16...	0900	8640	22.0	983	22900	66	68

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
DEC 27...	59	64	75	92	97	99	100
JAN 22...	76	80	83	89	95	99	100
FEB 16...	93	96	97	98	99	99	100
MAY 12...	90	94	95	99	99	100	--
16...	75	79	84	94	98	99	100

## TRINITY RIVER BASIN

08065000 TRINITY RIVER NEAR OAKWOOD, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	501	626	703	388	323	644	434	378	478	616		
2	604	626	729	391	409	668	437	384	481	674		
3	606	741	711	380	328	665	585	377	521	673		
4	602	736	708	451	535	685	540	409	521	673		
5	657	488	705	519	567	685	541	452	545	758		
6	655	493	715	518	563	731	539	449	544	---		
7	741	451	718	519	558	701	537	574	569	---		
8	738	540	716	584	561	698	644	574	572	---		
9	716	542	709	587	470	710	645	422	643	---		
10	752	542	711	589	480	736	697	424	641	---		
11	752	508	737	584	293	732	697	427	695	---		
12	754	507	739	581	290	749	350	420	695	---		
13	741	654	669	656	298	752	358	462	709	---		
14	741	645	671	658	300	752	358	460	712	---		
15	741	647	667	683	298	736	354	347	---	---		
16	801	737	670	688	383	719	339	351	---	---		
17	793	737	673	690	393	757	351	319	---	857		
18	802	692	678	688	460	763	338	320	---	---		
19	799	728	464	696	457	753	356	300	---	---		
20	799	749	464	696	548	423	356	309	---	---		
21	802	728	467	647	547	421	358	305	---	---		
22	741	639	484	422	605	420	420	319	---	---		
23	741	639	482	419	601	547	418	318	---	---		
24	744	639	366	251	626	738	478	349	---	---		
25	615	639	370	248	646	738	478	358	---	---		
26	582	680	383	261	643	748	493	418	---	---		
27	524	678	326	262	638	750	584	415	---	---		
28	527	679	332	291	638	710	468	424	---	---		
29	625	695	356	295	646	746	293	425	620	---		
30	683	703	373	317	---	728	377	433	616	---		
31	686	---	354	328	---	724	---	433	---	---		
MEAN	696	637	576	493	486	688	461	399	598	709		

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	18.0	9.0	9.0	6.0	12.0	16.0	20.0	27.0	31.0		
2	25.0	16.0	9.0	5.0	7.0	11.0	18.0	20.0	27.0	31.0		
3	25.0	15.0	9.0	9.0	7.0	10.0	18.0	20.0	27.0	31.0		
4	25.0	15.0	9.0	8.0	7.0	12.0	18.0	21.0	27.0	31.0		
5	21.5	15.0	9.0	8.0	8.0	12.0	18.0	22.0	27.0	31.0		
6	21.0	15.0	9.0	8.0	8.0	15.0	18.0	23.0	27.0	---		
7	24.5	15.0	9.0	8.0	9.0	17.0	18.0	23.0	28.0	---		
8	25.0	16.0	8.5	9.0	9.0	15.0	19.0	22.0	27.5	---		
9	24.0	17.5	9.0	9.0	7.0	15.0	18.0	22.0	27.0	---		
10	21.0	17.0	10.5	10.0	7.0	18.0	19.0	21.0	26.0	---		
11	20.0	12.0	13.0	11.5	6.0	18.0	18.0	23.0	26.5	---		
12	20.5	12.0	12.0	11.0	7.0	18.0	18.0	23.0	27.0	---		
13	20.0	11.5	8.5	11.0	7.0	19.0	14.0	23.0	27.0	---		
14	19.0	11.0	9.0	11.0	10.0	18.0	13.0	23.0	27.0	---		
15	---	10.5	9.0	13.0	11.0	18.0	13.0	23.0	---	---		
16	21.0	11.0	10.5	14.0	10.0	18.0	14.0	22.0	---	---		
17	22.5	11.0	10.0	12.0	7.0	16.0	13.0	22.0	---	34.0		
18	23.0	11.0	9.0	13.0	8.0	16.0	17.0	22.0	---	---		
19	23.0	13.0	9.5	13.0	9.0	16.0	18.0	22.0	---	---		
20	23.0	18.0	10.0	13.0	14.0	16.5	18.0	24.0	---	---		
21	24.0	17.0	12.0	14.0	16.0	15.0	18.0	24.0	---	---		
22	23.0	14.0	14.5	13.5	17.0	15.0	19.0	24.0	---	---		
23	19.5	12.0	14.0	11.0	16.0	17.0	20.0	24.0	---	---		
24	19.0	12.0	12.0	10.0	15.0	16.0	21.0	24.0	---	---		
25	18.5	13.0	11.0	10.0	12.0	16.0	21.0	25.0	---	---		
26	18.0	13.0	12.0	10.0	12.0	16.0	21.0	25.0	---	---		
27	19.0	15.0	12.0	10.0	12.5	16.0	19.0	25.0	---	---		
28	20.0	13.0	12.0	9.0	13.0	16.0	18.0	26.0	---	---		
29	22.0	10.0	12.0	8.0	13.0	16.0	19.0	26.5	31.0	---		
30	22.0	9.0	10.5	8.0	---	16.0	19.0	27.0	31.0	---		
31	22.5	---	9.0	5.0	---	16.0	---	27.0	---	---		
MEAN	22.0	13.5	10.5	10.5	10.0	15.5	17.5	23.0	27.5	31.5		

## 08065000 TRINITY RIVER NEAR OAKWOOD, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	771	80	167	1220	180	593	660	42	75
2	755	64	130	1700	205	941	652	42	74
3	722	66	129	2450	295	1950	642	38	66
4	691	62	116	2220	265	1590	631	38	65
5	681	66	121	1450	192	752	621	46	77
6	678	70	128	990	152	406	633	55	94
7	667	67	121	797	125	269	639	54	93
8	653	60	106	724	110	215	649	56	98
9	651	60	105	697	120	226	666	38	68
10	624	62	104	677	120	219	676	38	69
11	597	65	105	666	102	183	666	37	67
12	597	68	110	683	90	166	714	200	386
13	603	59	96	740	72	144	1210	850	2780
14	601	59	96	749	67	135	2480	900	6030
15	577	58	90	707	54	103	2580	700	4880
16	569	53	81	683	73	135	2730	250	1840
17	604	60	98	673	66	120	2490	220	1480
18	615	55	91	655	66	117	1730	220	1030
19	1030	80	222	656	66	117	1240	150	502
20	1740	122	573	677	68	124	1040	120	337
21	1290	110	383	870	85	200	941	150	381
22	865	60	140	926	175	438	1650	734	3690
23	729	55	108	801	90	195	3400	792	7410
24	674	60	109	806	78	170	6100	1380	22800
25	697	67	126	878	82	194	7770	1320	27700
26	825	82	183	855	78	180	9470	1300	33200
27	797	77	166	782	80	169	9410	1490	37800
28	721	82	160	720	80	156	6580	1130	20600
29	672	75	136	670	86	156	3710	582	5950
30	665	80	144	662	41	73	2480	570	3820
31	923	90	224	---	---	---	2370	550	3520
TOTAL	23284	---	4668	27784	---	10436	77230	---	186982

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	2160	470	2740	5960	151	2380	1290	96	334
2	1930	450	2340	4390	250	2960	1200	98	318
3	1680	330	1500	3050	155	1280	1150	94	292
4	1490	160	644	2190	187	1110	1120	85	257
5	1370	122	451	1880	135	685	1090	80	235
6	1310	120	424	1790	150	725	1060	66	189
7	1230	115	382	1700	172	789	1030	72	200
8	1080	85	248	2130	233	1540	1020	76	209
9	991	85	227	6290	791	14200	1000	68	184
10	937	85	215	10900	801	23300	994	66	177
11	928	85	213	12600	575	19600	995	64	172
12	909	80	196	13600	525	19300	989	62	166
13	890	60	144	13100	340	12000	1010	61	166
14	868	65	152	10000	300	8100	988	58	155
15	860	72	167	6500	310	5440	1000	100	270
16	856	70	162	4430	285	3410	1060	84	240
17	853	70	161	4040	275	3000	1060	50	143
18	850	60	138	3230	260	2270	1340	66	239
19	843	75	171	2300	250	1550	2270	127	778
20	979	100	264	1990	160	860	2370	460	2940
21	1300	560	1970	1840	161	800	1590	600	2580
22	3950	1420	15800	1680	144	653	1200	600	1940
23	9190	1290	31500	1510	136	554	1090	160	471
24	12200	1330	43800	1400	140	529	1060	100	286
25	13500	810	29500	1360	94	345	1030	79	220
26	14800	560	22400	1320	94	335	1000	70	189
27	15900	475	20400	1280	87	301	1100	75	223
28	16900	250	11400	1300	92	323	1360	145	532
29	17600	225	10700	1330	95	341	1840	213	1190
30	15600	147	6260	---	---	---	3350	670	6260
31	10100	131	3580	---	---	---	4650	650	8160
TOTAL	154054	---	208249	125090	---	128680	43306	---	29715

## SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4070	430	4730	4690	530	6710	2440	219	1440
2	2900	480	3760	3950	425	4530	2100	210	1190
3	2050	340	1880	3500	340	3210	1830	184	909
4	1510	245	999	3190	475	4090	1720	203	943
5	1260	222	755	3970	435	4660	1650	150	668
6	1520	115	472	4540	450	5520	1460	168	662
7	1910	142	732	3530	530	5050	1240	119	398
8	1530	245	1010	2400	520	3370	1050	128	363
9	1240	270	904	2490	475	3190	913	95	234
10	1230	160	531	3560	600	5770	897	90	218
11	1500	210	850	3740	1250	12600	876	72	170
12	1970	510	2710	3800	1160	11900	835	82	185
13	4820	822	11100	3870	560	5850	815	70	154
14	6430	874	15500	4960	580	7770	841	68	154
15	10100	1100	29500	6950	1100	20600	845	80	183
16	11900	875	28100	9350	1000	25200	803	80	173
17	12700	570	19500	11400	550	16900	785	78	165
18	11900	500	16100	12800	575	19900	776	75	157
19	8640	330	7700	13800	515	19200	760	75	154
20	5330	325	4680	14600	330	13000	803	85	184
21	3590	410	3970	15400	300	12500	980	135	357
22	3050	400	3290	16100	250	10900	996	125	336
23	2790	370	2790	16600	275	12300	1310	110	389
24	2640	310	2210	15300	160	6610	2020	185	1010
25	2580	300	2090	11100	162	4680	1830	200	988
26	3310	360	3220	6780	341	6130	1510	155	632
27	6470	749	13200	4720	406	5180	1260	112	381
28	7700	974	20400	4010	340	3680	997	90	242
29	8020	970	21000	3550	325	3120	815	87	191
30	6640	620	11100	2950	325	2590	723	95	185
31	---	---	---	2610	280	1970	---	---	---
TOTAL	141300	---	234783	220210	---	268680	35880	---	13415

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	682	90	166	665	50	90	465	45	56
2	655	85	150	622	50	84	480	45	58
3	638	95	164	644	45	78	460	45	56
4	618	125	209	595	50	80	421	45	51
5	605	115	188	595	50	80	410	44	49
6	602	105	171	560	52	79	400	43	46
7	587	92	146	526	55	78	410	42	46
8	564	90	137	524	48	68	450	41	50
9	545	92	135	544	45	66	480	40	52
10	540	95	139	534	42	61	461	45	56
11	534	80	115	534	51	74	441	45	54
12	530	72	103	560	55	83	500	55	74
13	524	65	92	540	55	80	665	100	180
14	520	60	84	516	60	84	676	108	197
15	514	60	83	500	57	77	530	75	107
16	506	62	85	514	55	76	441	60	71
17	494	55	73	520	52	73	404	60	65
18	484	55	72	506	47	64	395	55	59
19	474	55	70	496	45	60	441	50	60
20	470	52	66	488	45	59	436	48	57
21	474	55	70	500	50	67	419	50	57
22	546	55	81	500	52	70	400	50	54
23	576	52	81	490	51	67	419	50	57
24	520	52	73	480	50	65	395	50	53
25	540	52	76	472	45	57	386	45	47
26	576	52	81	464	50	63	386	45	47
27	570	52	80	480	52	67	432	52	61
28	654	72	127	480	57	74	480	55	71
29	813	105	230	476	55	71	516	50	70
30	665	92	165	465	50	63	670	70	127
31	626	70	118	455	45	55	---	---	---
TOTAL	17646	---	3630	16245	---	2213	13869	---	2088
YEAR	895898		1093539						

## TRINITY RIVER BASIN

545

08065200 UPPER KEECHI CREEK NEAR OAKWOOD, TX

LOCATION.--Lat 31°34'11", long 95°53'17", Leon County, Hydrologic Unit 12030201, at right bank 20 ft (6 m) downstream from bridge on U.S. Highway 79, 1.9 mi (3.1 km) upstream from Missouri Pacific Railroad Co. bridge, 2 mi (3 km) southwest of Oakwood, 11 mi (18 km) upstream from Buffalo Creek, and 21 mi (34 km) upstream from mouth.

DRAINAGE AREA.--150 mi<sup>2</sup> (388 km<sup>2</sup>).

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

Water-quality records: Chemical analyses: June 1962 to April 1964, November 1967 to September 1975.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 240.11 ft (73.186 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--18 years (water years 1963-80), 80.2 ft<sup>3</sup>/s (2.271 m<sup>3</sup>/s), 7.26 in/yr (184 mm/yr), 58,100 acre-ft/yr (71.6 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 ft<sup>3</sup>/s (680 m<sup>3</sup>/s) May 16, 1965, gage height, 14.91 ft (4.545 m), and Apr. 25, 1966, from rating curve extended above 5,800 ft<sup>3</sup>/s (164 m<sup>3</sup>/s); maximum gage height, 15.46 ft (4.712 m) Oct. 31, 1974; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, about 21 ft (6.4 m) in 1932, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,250 ft<sup>3</sup>/s (35.4 m<sup>3</sup>/s) Feb. 10 at 1500 hours, gage height, 12.55 ft (3.825 m), no peak above base of 2,000 ft<sup>3</sup>/s (56.5 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	14	72	14	89	59	77	58	27	13	1.7	.98	.00		
2	13	46	14	57	53	72	49	24	12	2.5	.77	.00		
3	11	25	14	51	51	54	46	22	11	2.8	.55	.00		
4	8.9	16	14	49	48	49	43	21	9.7	2.2	.49	.00		
5	7.6	13	15	49	46	47	39	19	8.6	1.6	.42	.00		
6	7.4	11	15	44	45	43	37	18	7.4	1.3	.37	.00		
7	6.6	9.9	15	40	43	42	38	16	6.2	1.2	.29	.01		
8	6.4	9.7	14	36	96	43	38	23	5.4	1.0	.17	.09		
9	6.5	10	14	34	353	43	34	34	4.7	.99	.12	.42		
10	5.9	10	16	33	889	42	30	42	4.1	.94	.13	.23		
11	5.4	9.2	16	35	836	41	29	28	3.6	.93	.17	.04		
12	5.1	8.8	20	33	475	47	83	33	3.2	.90	.26	.00		
13	5.0	9.7	50	30	153	58	550	58	2.9	.75	.25	.00		
14	4.7	8.2	53	29	85	53	660	123	2.7	.63	.12	.00		
15	4.5	7.9	46	29	74	43	727	165	2.5	.57	.31	.00		
16	5.3	8.1	36	34	68	41	258	179	2.3	.50	.65	.00		
17	6.8	8.4	28	37	60	43	127	205	2.0	.40	.31	.00		
18	7.9	10	24	34	56	40	82	322	1.7	.37	.15	.00		
19	12	13	23	32	55	37	68	299	1.7	.34	.06	.10		
20	7.7	13	23	84	54	37	56	66	4.6	.34	.04	.06		
21	6.2	71	23	131	52	35	49	43	11	.35	.03	.03		
22	5.9	81	70	269	49	32	44	36	9.0	.50	.03	.01		
23	7.4	60	190	400	45	35	40	31	5.9	.40	.03	.01		
24	7.1	43	361	660	42	64	35	28	4.9	.28	.03	.01		
25	6.0	32	412	405	41	48	60	25	4.2	.39	.03	.02		
26	5.4	25	292	131	38	43	64	24	3.3	.49	.03	.07		
27	4.9	21	109	68	37	66	50	21	3.0	.17	.04	.07		
28	4.4	18	59	56	37	195	43	19	2.7	3.1	.06	.07		
29	4.7	15	91	58	39	187	34	17	2.1	2.9	.29	.10		
30	14	14	112	72	---	131	30	16	1.8	2.4	.07	.67		
31	76	---	132	69	---	77	---	15	---	1.5	.01	---		
TOTAL	293.7	698.9	2315	3178	3979	1865	3501	1999	157.2	34.44	7.26	2.01		
MEAN	9.47	23.3	74.7	103	137	60.2	117	64.5	5.24	1.11	.23	.067		
MAX	76	81	412	660	889	195	727	322	13	3.1	.98	.67		
MIN	4.4	7.9	14	29	37	32	29	15	1.7	.17	.01	.00		
CFSM	.06	.16	.50	.69	.91	.40	.78	.43	.04	.007	.002	.000		
IN.	.07	.17	.57	.79	.99	.46	.87	.50	.04	.01	.00	.00		
AC-FT	583	1390	4590	6300	7890	3700	6940	3970	312	68	14	4.0		
CAL YR 1979	TOTAL	40537.44	MEAN	111	MAX	2230	MIN	.94	CFSM	.74	IN	10.05	AC-FT	80410
WTR YR 1980	TOTAL	18030.51	MEAN	49.3	MAX	889	MIN	.00	CFSM	.33	IN	4.47	AC-FT	35760



## TRINITY RIVER BASIN

08065350 TRINITY RIVER NEAR CROCKETT, TX  
(National stream-quality accounting network)

LOCATION.--Lat 31°20'08", long 95°39'27", Leon County, Hydrologic Unit 12030201, on right bank 30 ft (9 m) downstream from bridge on State Highway 7, 7.1 mi (11.4 km) downstream from Upper Keechi Creek, 11.9 mi (19.1 km) west of Crockett, and at mile 265.2 (426.7 km).

DRAINAGE AREA.--13,911 mi<sup>2</sup> (36,029 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 136.59 ft (41.633 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair. For statement regarding regulation by upstream reservoirs, see station 08065000. Flow from 44 mi<sup>2</sup> (114 km<sup>2</sup>) of Elkhart Creek basin affected by storage in Houston County Lake near Crockett, capacity 19,500 acre-ft (24.0 hm<sup>3</sup>). Diversions above station for irrigation, municipal, and industrial uses.

AVERAGE DISCHARGE.--16 years (water years 1965-80), 5,676 ft<sup>3</sup>/s (160.7 m<sup>3</sup>/s), 4,112,000 acre-ft/yr (5.07 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,000 ft<sup>3</sup>/s (2,210 m<sup>3</sup>/s) May 15, 1969, gage height, 52.24 ft (15.923 m); minimum, 275 ft<sup>3</sup>/s (7.79 m<sup>3</sup>/s) Aug. 13, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 56.1 ft (17.10 m) Apr. 30 or May 1, 1942, from information by Texas Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,500 ft<sup>3</sup>/s (552 m<sup>3</sup>/s) May 17, gage height, 32.50 ft (9.906 m); minimum daily, 542 ft<sup>3</sup>/s (15.3 m<sup>3</sup>/s) Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1110	1650	873	3200	12000	3020	5540	6530	3050	1100	820	605
2	1070	1650	815	2940	6910	3380	4640	5000	2820	1030	820	624
3	1050	2020	812	2630	4850	2400	3390	4340	2440	980	796	625
4	981	2500	898	2250	3580	2030	2520	3840	2200	920	807	609
5	923	2270	877	1930	2840	1860	1960	3680	2070	880	765	575
6	893	1540	855	1800	2520	1750	1680	4530	1960	840	744	542
7	874	1200	848	1710	2400	1670	1960	4690	1750	800	710	544
8	848	1020	871	1610	2830	1620	2220	3700	1510	780	684	584
9	841	942	885	1450	6700	1580	1870	2730	1260	760	686	652
10	830	904	898	1350	10800	1540	1570	3120	1200	750	696	653
11	819	885	886	1310	13300	1510	1580	4090	1160	740	685	632
12	812	874	1090	1280	15000	1510	1870	4420	1130	730	682	609
13	830	867	1860	1230	16300	1540	5410	5570	1100	720	681	649
14	830	904	2430	1200	15500	1550	8830	8090	1070	710	675	799
15	812	912	3000	1180	11700	1530	9260	10300	1040	700	651	862
16	783	882	2980	1250	7560	1540	12100	17900	1020	699	644	751
17	758	850	2990	1370	5400	1590	14000	18700	992	685	646	658
18	776	839	2700	1340	4810	1590	14500	17200	960	670	640	598
19	794	835	1970	1290	3800	1960	13100	16500	935	660	631	598
20	1040	852	1520	1330	3030	2830	9210	16600	942	660	631	604
21	1580	1210	1300	2720	2730	2740	5810	16900	1330	660	634	610
22	1430	3400	1290	4930	2530	2000	4150	17300	1300	700	645	595
23	1120	2720	2310	9320	2320	1610	3480	17600	1200	750	626	587
24	923	1710	5130	11500	2120	1550	3190	17900	1650	720	613	586
25	837	1470	7180	13500	1990	1550	3810	17000	2280	720	613	580
26	867	1320	8660	15000	1920	1500	3660	12600	2060	750	610	576
27	942	1200	9960	16500	1860	1670	4610	7660	1730	750	609	586
28	923	1090	9830	17500	1810	3040	7130	5370	1490	850	614	615
29	874	1010	7640	18200	1870	3260	8170	4560	1330	900	627	635
30	837	939	5020	18700	---	3340	8130	3990	1200	800	612	693
31	1220	---	3510	17600	---	4640	---	3400	---	852	594	---
TOTAL	29227	40465	91888	179120	170980	64900	169350	285810	46179	24266	20891	18836
MEAN	943	1349	2964	5778	5896	2094	5645	9220	1539	783	674	628
MAX	1580	3400	9960	18700	16300	4640	14500	18700	3050	1100	820	862
MIN	758	835	812	1180	1810	1500	1570	2730	935	660	594	542
AC-FT	57970	80260	182300	355300	339100	128700	335900	566900	91600	48130	41440	37360
CAL YR 1979	TOTAL	2130031	MEAN	5836	MAX	28000	MIN	616	AC-FT	4225000		
WTR YR 1980	TOTAL	1141912	MEAN	3120	MAX	18700	MIN	542	AC-FT	2265000		

## 08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1964 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1971 to current year. Sediment records: October 1967 to September 1968.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1964 to current year.

pH: March 1975 to current year.

WATER TEMPERATURES: February 1964 to September 1971, March 1975 to current year.

DISSOLVED OXYGEN: March 1975 to current year.

INSTRUMENTATION.--Water-quality monitor since Mar. 11, 1975.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Where maximum or minimum values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituent 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 D.O. and pH based on less than 80 percent of flow.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,370 micromhos Sept. 22, 1964; minimum, 105 micromhos July 28, 1979.

pH: Maximum, 9.5 units Aug. 24, 1977; minimum, 5.9 units Aug. 12, 1977.

WATER TEMPERATURES: Maximum, 37.0°C July 4, 1970, Sept. 4, 1978; minimum, 1.0°C Jan. 17, 1978.

DISSOLVED OXYGEN: Maximum, 17.0 mg/L Aug. 5, 1976; minimum, 0.0 mg/L Apr. 20, 1976.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 855 micromhos Aug. 18; minimum, 236 micromhos May 15.

pH: Maximum, 8.6 units June 11; minimum, 6.5 units Mar. 2.

WATER TEMPERATURES: Minimum, 35.0°C on several days during July.

DISSOLVED OXYGEN: Maximum, 14.3 mg/L June 17; minimum, 0.8 mg/L May 8.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM UNINHIB 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
NOV 08...	1105	1010	500	7.7	16.5	20	27	7.7	--	2.1	110	22
DEC 19...	1300	1950	631	6.6	9.5	35	58	8.7	75	7.9	130	27
JAN 30...	1145	18700	294	7.5	9.0	50	120	8.7	75	2.1	100	26
MAR 12...	1710	1520	660	7.6	18.0	15	11	10.9	--	7.0	160	46
APR 22...	1400	4030	412	7.1	20.5	15	160	6.7	74	.6	140	29
MAY 09...	1010	2760	476	7.1	22.5	30	140	4.0	--	2.4	140	34
JUN 20...	1000	904	759	8.0	30.5	30	13	9.3	124	1.2	170	21
JUL 17...	1740	675	802	7.8	34.5	30	13	9.8	136	2.7	150	0
SEP 05...	1200	580	794	7.6	31.0	22	7.5	7.6	101	4.9	130	11

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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
NOV 08...	37	4.8	55	2.3	8.2	110	0	67	51	.6	10	288
DEC 19...	40	6.3	75	2.9	10	120	0	92	66	.9	12	361
JAN 30...	35	3.4	18	.8	5.4	92	0	40	16	.2	7.9	171
MAR 12...	52	7.5	64	2.2	6.9	140	0	91	66	.6	9.6	367
APR 22...	47	4.5	26	1.0	4.8	130	0	49	29	.2	6.9	232
MAY 09...	48	5.1	33	1.2	5.3	130	0	67	29	.5	7.2	259
JUN 20...	57	6.5	81	2.7	8.5	180	0	92	74	1.2	7.9	417
JUL 17...	49	5.8	100	3.6	12	210	0	100	90	1.1	8.0	470
SEP 05...	44	5.8	100	3.8	11	150	0	110	91	1.2	11	448

## TRINITY RIVER BASIN

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (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)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
NOV 08...	43	0	3.3	.120	3.4	.180	.82	1.0	1.300	7.4	0	.10
DEC 19...	88	14	3.3	.100	3.4	2.500	1.8	4.3	2.800	18	4	.10
JAN 30...	234	22	.79	.040	.83	.250	1.1	1.3	.520	9.7	1	.00
MAR 12...	33	11	3.0	.170	3.2	.640	1.3	1.9	1.400	13	2	.10
APR 22...	333	21	1.7	.000	1.7	.010	1.3	1.3	.430	12	0	.00
MAY 09...	322	21	2.0	.000	2.0	.010	1.3	1.3	.820	11	2	--
JUN 20...	33	11	2.2	.040	2.2	.040	1.9	1.9	2.000	12	3	.20
JUL 17...	30	0	2.6	.020	2.6	.040	1.7	1.7	2.500	14	2	.20
SEP 05...	15	0	5.5	.040	5.5	.040	1.7	1.7	3.200	8.7	0	.00

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 30...	1145	3	40	<1	0	0	100
APR 22...	1400	3	50	<1	0	8	<10
JUL 17...	1740	11	50	<1	0	3	<10
SEP 05...	1200	12	40	<1	0	2	<10

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 30...	0	<1	.1	0	0	<3
APR 22...	0	<1	.1	0	0	<3
JUL 17...	0	<1	.0	0	0	5
SEP 05...	0	<1	.0	0	0	10

DATE	TIME	PCB TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)
JAN 30...	1145	.00	.00	.00	.0	.00	.00	.00	.10

DATE	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)
JAN 30...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 30...	.00	.00	.00	.00	0	.00	.05	.01	.00

## TRINITY RIVER BASIN

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08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	29227	658	366	28900	63	4950	79	6220	160
NOV.	1979	40465	541	301	32900	46	5070	63	6850	150
DEC.	1979	91888	439	245	60700	34	8530	50	12300	130
JAN.	1980	179120	352	196	94800	25	12300	39	18900	110
FEB.	1980	170980	396	221	102000	30	13800	44	20500	120
MAR.	1980	64900	593	330	57800	54	9400	70	12300	150
APR.	1980	169350	392	219	99900	29	13200	44	20000	130
MAY	1980	285810	353	197	152000	25	19200	39	30000	120
JUNE	1980	46179	612	340	42500	56	6970	72	9020	150
JULY	1980	24266	719	399	26200	72	4690	87	5710	160
AUG.	1980	20891	794	441	24900	83	4690	98	5520	160
SEPT	1980	18836	794	441	22400	83	4230	98	4980	160
TOTAL		1141912	**	**	745000	**	107000	**	152000	**
WTD. AVG.		3120	434	241	**	35	**	49	**	130

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	490	467	473	559	463	497	644	620	631	---	---	375
2	506	479	484	602	523	559	640	637	638	---	---	410
3	578	484	493	617	580	596	644	638	641	---	---	410
4	526	493	506	678	487	585	659	639	651	---	---	400
5	575	514	545	705	501	631	678	657	670	---	---	455
6	596	577	591	714	674	701	672	666	669	---	---	505
7	606	590	596	672	513	623	666	644	323	---	---	540
8	628	607	620	521	493	506	667	650	656	518	509	513
9	629	625	627	521	462	496	664	651	654	539	520	531
10	687	654	664	475	453	460	674	659	668	546	538	541
11	729	672	692	525	476	502	674	662	670	564	547	553
12	746	706	715	540	527	535	662	569	622	586	565	579
13	738	703	713	528	509	518	569	385	479	582	567	574
14	747	699	710	511	504	506	426	363	389	582	566	573
15	765	721	732	543	512	524	---	---	400	599	583	590
16	776	728	737	583	548	566	---	---	420	601	599	600
17	752	718	724	629	583	609	461	427	440	587	585	586
18	778	716	727	650	629	639	649	475	587	586	586	586
19	782	741	751	673	651	659	649	626	636	---	---	590
20	786	758	770	704	673	688	632	573	617	---	---	600
21	801	778	790	706	350	601	566	508	525	---	---	610
22	789	773	778	---	---	400	511	472	497	---	---	575
23	796	779	790	---	---	350	530	471	495	---	---	430
24	778	771	774	463	431	444	---	---	480	---	---	425
25	777	768	773	532	468	509	---	---	385	---	---	260
26	768	724	757	558	534	544	---	---	390	---	---	255
27	720	692	699	591	561	574	---	---	400	---	---	270
28	694	552	633	622	593	609	---	---	345	---	---	280
29	554	534	540	624	621	623	---	---	350	294	287	290
30	567	523	552	624	613	617	---	---	370	298	292	295
31	518	448	478	---	---	---	---	---	395	301	299	300
MONTH	801	448	659	714	350	556	678	363	519	601	287	468

## TRINITY RIVER BASIN

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	350	647	378	508	643	429	501	401	375	381
2	---	---	345	403	330	360	---	---	435	438	407	424
3	---	---	425	534	394	481	---	---	440	425	415	421
4	---	---	350	574	538	558	---	---	545	415	404	408
5	---	---	515	608	575	592	---	---	520	431	407	419
6	---	---	535	638	609	625	---	---	520	500	432	457
7	---	---	530	662	641	657	---	---	520	584	509	558
8	---	---	525	669	660	665	---	---	515	590	526	566
9	---	---	525	662	649	658	---	---	575	518	451	476
10	---	---	470	658	645	650	---	---	580	454	432	438
11	---	---	475	660	653	658	---	---	600	638	446	510
12	280	263	269	665	655	660	---	---	610	543	340	457
13	303	267	293	677	665	672	---	---	370	380	332	353
14	290	283	286	697	674	690	---	---	380	340	290	313
15	626	291	319	696	682	690	---	---	370	328	236	303
16	---	---	310	682	671	675	361	307	330	---	---	300
17	---	---	400	701	674	690	361	280	304	---	---	295
18	---	---	410	719	702	711	350	303	330	282	---	290
19	---	---	460	735	709	719	360	331	345	301	---	286
20	---	---	455	799	736	761	360	343	354	301	293	297
21	---	---	420	791	650	736	502	361	383	313	301	307
22	---	---	420	642	549	593	417	402	411	434	316	330
23	---	---	555	542	411	472	435	415	422	347	340	344
24	---	---	575	418	402	408	464	435	449	357	348	351
25	640	631	636	564	419	472	468	322	381	363	355	359
26	727	639	644	652	572	624	467	376	438	391	356	369
27	646	640	644	675	459	629	502	466	480	409	389	401
28	651	641	647	451	380	424	569	278	440	428	411	422
29	649	640	645	513	374	436	386	290	332	440	426	432
30	---	---	---	611	517	571	387	373	382	448	440	445
31	---	---	---	794	459	680	---	---	---	549	444	456
MONTH	727	263	463	799	330	604	643	278	442	638	236	393

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	485	461	472	592	539	575	800	755	774	804	771	788
2	489	485	487	582	527	548	794	288	726	813	784	803
3	492	487	490	539	525	530	738	281	691	812	777	799
4	510	485	493	593	---	550	826	743	796	798	785	789
5	543	512	534	627	595	613	827	816	821	804	793	797
6	552	542	547	629	610	620	816	794	798	804	795	800
7	563	546	555	620	609	616	829	798	804	816	802	806
8	567	560	563	641	605	621	832	801	809	824	817	821
9	578	567	571	682	642	661	832	801	807	822	806	816
10	614	580	599	702	677	690	841	808	814	813	784	798
11	637	256	610	753	706	726	830	771	794	787	---	776
12	679	638	657	762	745	753	807	770	779	807	---	783
13	711	682	695	769	748	757	813	771	789	839	812	830
14	712	697	704	809	767	787	798	751	762	834	791	817
15	709	699	703	826	807	818	818	793	797	825	785	803
16	724	708	719	819	804	813	837	799	809	830	805	821
17	724	719	721	---	---	815	850	814	822	803	767	781
18	736	722	731	---	---	820	855	815	826	769	752	763
19	740	734	736	---	---	822	844	819	823	790	752	775
20	740	684	719	---	---	825	824	803	810	807	791	798
21	698	657	680	---	---	820	804	794	799	803	792	795
22	695	644	664	---	---	790	800	772	789	806	790	795
23	763	625	697	---	---	780	804	770	787	808	797	803
24	694	628	676	---	---	790	815	804	810	802	777	794
25	723	688	704	---	---	790	822	812	817	776	739	751
26	700	621	662	---	---	780	818	806	813	852	759	812
27	702	690	696	---	---	780	813	795	805	852	---	822
28	712	700	705	---	---	750	811	794	805	771	746	765
29	715	639	682	---	---	760	804	770	789	750	734	741
30	635	528	564	800	778	788	809	783	800	787	752	773
31	---	---	---	835	788	812	807	785	800	---	---	---
MONTH	763	256	635	835	525	729	855	281	796	852	734	794

## TRINITY RIVER BASIN

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08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.9	7.6	7.7	7.2	7.0	7.1	7.6	7.4	7.5	---	---	---
2	8.0	7.7	7.8	7.2	7.0	7.1	7.6	7.5	7.6	---	---	---
3	8.3	7.8	7.9	7.1	7.0	7.0	7.6	7.5	7.6	---	---	---
4	8.1	7.8	7.9	7.0	6.9	7.0	7.7	7.6	7.6	---	---	---
5	8.2	7.9	8.0	6.9	6.8	6.9	7.7	7.6	7.6	---	---	---
6	8.2	7.9	8.0	6.9	6.8	6.9	7.6	7.5	7.6	---	---	---
7	8.2	8.0	8.1	7.1	6.8	6.9	7.7	7.1	7.4	---	---	---
8	8.2	8.0	8.1	7.2	7.1	7.1	7.3	7.2	7.2	8.2	7.0	7.8
9	8.1	8.0	8.0	7.5	7.2	7.4	7.3	7.2	7.3	8.2	8.2	8.2
10	8.0	7.8	7.9	7.5	7.4	7.5	7.3	7.2	7.3	8.2	8.2	8.2
11	7.9	7.7	7.8	7.5	7.3	7.4	7.3	7.2	7.3	8.2	7.9	8.1
12	7.8	7.6	7.7	7.4	7.3	7.4	7.3	7.2	7.2	7.9	7.8	7.8
13	7.8	7.6	7.7	7.4	7.3	7.4	7.1	6.9	7.0	7.9	7.6	7.8
14	7.8	7.6	7.7	7.5	7.3	7.4	7.0	6.9	6.9	7.9	7.7	7.8
15	7.8	7.5	7.6	7.4	7.3	7.4	---	---	---	7.9	7.8	7.8
16	7.7	7.5	7.6	7.4	7.3	7.4	---	---	---	7.8	7.8	7.8
17	7.8	7.5	7.7	7.4	7.3	7.4	7.1	7.0	7.1	8.3	---	7.2
18	7.9	7.6	7.7	7.5	7.3	7.4	7.3	7.0	7.2	---	---	---
19	7.8	7.6	7.7	7.6	7.4	7.5	---	---	---	---	---	---
20	7.7	7.6	7.7	7.6	7.6	7.6	---	---	---	---	---	---
21	7.7	7.4	7.6	7.6	7.3	7.5	---	---	---	---	---	---
22	7.5	7.3	7.4	---	---	---	---	---	---	---	---	---
23	7.4	7.3	7.4	---	---	---	---	---	---	---	---	---
24	7.4	7.3	7.3	7.2	7.1	7.1	---	---	---	---	---	---
25	7.4	7.3	7.3	7.2	7.1	7.1	---	---	---	---	---	---
26	7.5	7.3	7.4	7.2	7.1	7.2	---	---	---	---	---	---
27	7.4	7.2	7.3	7.3	7.1	7.2	---	---	---	---	---	---
28	7.4	7.3	7.3	7.4	7.3	7.3	---	---	---	---	---	---
29	7.5	7.3	7.4	7.3	7.2	7.3	---	---	---	7.5	7.3	7.4
30	7.5	7.4	7.4	7.6	6.9	7.3	---	---	---	7.6	7.5	7.5
31	7.4	7.1	7.2	---	---	---	---	---	---	7.5	7.5	7.5
MONTH	8.3	7.1	7.7	7.6	6.8	7.3	7.7	6.9	7.3	8.3	7.0	7.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	7.3	6.9	7.1	7.3	7.0	7.2	7.1	7.1	7.1
2	---	---	---	6.9	6.5	6.7	---	---	---	7.2	7.1	7.1
3	---	---	---	7.2	6.9	7.0	---	---	---	7.2	7.2	7.2
4	---	---	---	7.3	7.2	7.2	---	---	---	7.3	7.2	7.2
5	---	---	---	7.4	7.2	7.3	---	---	---	7.3	7.2	7.3
6	---	---	---	7.4	7.2	7.3	---	---	---	7.4	7.2	7.2
7	---	---	---	7.4	7.3	7.3	---	---	---	7.3	7.1	7.2
8	---	---	---	7.3	7.2	7.3	---	---	---	7.2	6.9	7.0
9	---	---	---	7.4	7.2	7.3	---	---	---	7.2	6.9	7.1
10	---	---	---	7.7	7.3	7.5	---	---	---	7.3	7.2	7.2
11	---	---	---	7.5	7.3	7.4	---	---	---	7.3	7.2	7.3
12	7.5	7.4	7.5	7.6	7.2	7.4	---	---	---	7.3	7.2	7.2
13	7.5	7.4	7.5	7.8	7.3	7.5	---	---	---	7.3	7.1	7.2
14	7.5	7.5	7.5	7.8	7.4	7.6	---	---	---	7.1	7.0	7.1
15	7.5	7.2	7.5	7.7	7.3	7.5	---	---	---	7.2	7.0	7.1
16	---	---	---	7.4	7.1	7.2	7.7	7.4	7.5	7.1	6.9	7.0
17	---	---	---	7.3	7.1	7.2	7.5	7.4	7.5	7.3	6.9	7.1
18	---	---	---	7.8	7.3	7.5	7.4	7.3	7.4	7.3	7.2	7.3
19	---	---	---	7.5	7.2	7.4	7.4	7.3	7.4	7.3	7.2	7.2
20	---	---	---	7.3	7.2	7.2	7.4	7.3	7.4	7.2	7.1	7.2
21	---	---	---	7.2	7.0	7.1	7.4	7.1	7.3	7.1	7.0	7.1
22	---	---	---	7.1	6.9	7.0	7.2	7.1	7.1	7.1	7.0	7.1
23	---	---	---	7.3	7.1	7.2	7.2	7.1	7.1	7.1	7.0	7.1
24	---	---	---	7.3	7.2	7.3	7.2	7.1	7.2	7.1	7.1	7.1
25	7.3	7.2	7.2	7.3	7.0	7.2	7.2	7.0	7.1	7.1	7.1	7.1
26	7.3	7.1	7.2	7.1	7.0	7.0	7.1	7.0	7.1	7.1	7.0	7.1
27	7.3	7.2	7.2	7.1	6.9	7.0	7.2	7.1	7.1	7.2	7.1	7.2
28	7.4	7.2	7.3	6.9	6.8	6.9	7.3	7.0	7.1	7.3	7.2	7.2
29	7.4	7.3	7.3	6.9	6.8	6.9	7.2	7.0	7.1	7.3	7.3	7.3
30	---	---	---	7.0	6.9	7.0	7.1	7.0	7.0	7.3	7.3	7.3
31	---	---	---	7.1	6.9	7.0	---	---	---	7.9	7.3	7.3
MONTH	7.5	7.1	7.4	7.8	6.5	7.2	7.7	7.0	7.2	7.9	6.9	7.2



## PH (STANDARD UNITS), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.4	7.3	7.3	7.9	7.4	7.6	7.3	7.1	7.2	7.5	7.2	7.4
2	7.4	7.3	7.4	7.7	7.4	7.5	8.4	7.1	7.2	7.5	7.2	7.4
3	7.4	7.3	7.4	7.7	7.3	7.5	8.4	7.1	7.2	7.6	7.3	7.4
4	7.4	7.4	7.4	7.9	7.4	7.6	7.4	7.2	7.3	7.4	7.3	7.3
5	7.4	7.3	7.4	7.9	7.4	7.6	7.2	7.2	7.2	7.5	7.2	7.3
6	7.5	7.4	7.4	7.9	7.5	7.7	7.6	7.2	7.3	7.4	7.2	7.3
7	7.5	7.4	7.4	7.8	7.4	7.6	7.7	7.2	7.3	7.3	7.1	7.2
8	7.5	7.4	7.4	8.3	7.4	7.8	7.7	7.2	7.4	7.1	7.0	7.1
9	7.4	7.4	7.4	7.9	7.5	7.7	7.7	7.2	7.4	7.5	7.0	7.2
10	7.5	7.3	7.4	7.8	7.4	7.6	7.6	7.2	7.3	7.6	7.3	7.5
11	8.6	7.3	7.5	7.7	7.3	7.5	7.5	7.2	7.4	7.7	7.3	7.5
12	7.7	7.4	7.6	7.7	7.3	7.5	7.6	7.2	7.4	7.7	7.3	7.5
13	8.0	7.6	7.8	7.5	7.2	7.4	7.7	7.3	7.4	7.8	7.4	7.6
14	8.1	7.8	7.9	7.4	7.2	7.3	7.7	7.3	7.5	7.7	7.4	7.6
15	8.2	7.8	8.0	7.3	7.1	7.2	7.5	7.3	7.4	7.7	7.5	7.6
16	8.3	7.8	8.1	7.2	7.1	7.1	7.7	7.3	7.4	7.8	7.5	7.6
17	8.5	8.0	8.2	---	---	---	7.7	7.3	7.5	7.8	7.5	7.6
18	8.4	8.1	8.3	---	---	---	7.7	7.3	7.5	7.9	7.5	7.7
19	8.4	8.0	8.2	---	---	---	7.8	7.4	7.6	7.9	7.5	7.7
20	8.2	7.8	8.0	---	---	---	7.8	7.4	7.5	7.8	7.5	7.7
21	7.7	7.4	7.6	---	---	---	7.8	7.4	7.6	8.0	7.5	7.7
22	7.4	7.1	7.3	---	---	---	7.8	7.4	7.5	7.8	7.5	7.6
23	7.3	7.1	7.2	---	---	---	7.8	7.4	7.5	7.8	7.4	7.6
24	7.4	7.2	7.3	---	---	---	7.7	7.4	7.5	7.8	7.5	7.6
25	7.4	7.3	7.3	---	---	---	7.7	7.3	7.5	7.7	7.5	7.6
26	7.3	7.1	7.2	---	---	---	7.6	7.3	7.4	7.7	7.5	7.5
27	7.4	7.2	7.3	---	---	---	7.6	7.3	7.4	7.6	7.4	7.5
28	7.5	7.3	7.4	---	---	---	7.6	7.3	7.4	7.5	7.3	7.4
29	7.6	7.3	7.4	---	---	---	7.5	7.3	7.4	7.5	7.3	7.4
30	7.8	7.3	7.5	7.2	7.1	7.2	7.6	7.3	7.4	7.5	7.3	7.4
31	---	---	---	8.1	7.1	7.2	7.6	7.2	7.4	---	---	---
MONTH	8.6	7.1	7.6	8.3	7.1	7.5	8.4	7.1	7.4	8.0	7.0	7.5

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

## 08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	28.0	27.5	27.5	34.0	32.5	33.0	33.0	31.5	32.0	31.5	29.5	30.5
2	28.5	27.0	27.5	34.5	32.5	33.5	33.0	31.5	32.0	32.0	29.5	30.5
3	29.0	27.5	28.5	34.5	33.0	33.5	32.5	31.5	31.5	32.0	30.0	31.0
4	29.5	28.0	28.5	34.5	33.0	33.5	31.5	30.5	31.0	32.0	30.0	30.5
5	30.0	28.5	29.0	34.5	32.5	33.5	30.5	30.5	30.5	32.0	30.0	31.0
6	30.0	29.0	29.5	34.5	32.5	33.5	32.0	30.5	31.0	30.5	30.0	30.0
7	30.5	29.0	29.5	34.5	32.5	33.5	32.5	30.5	31.5	30.5	29.5	30.0
8	30.5	29.0	30.0	34.5	32.5	33.5	33.0	31.0	32.0	30.0	29.0	29.5
9	30.0	29.0	29.5	34.5	32.5	33.5	33.0	31.0	31.5	30.5	29.0	29.5
10	30.0	28.5	29.0	35.0	32.5	33.5	32.0	31.0	31.5	30.5	29.0	29.5
11	30.0	28.0	29.0	35.0	32.5	33.5	32.0	30.5	31.0	31.0	29.0	30.0
12	30.0	28.0	29.0	35.0	32.5	33.5	32.5	30.5	31.5	31.5	27.0	30.0
13	30.0	28.0	29.0	35.0	32.5	33.5	32.5	31.0	31.5	31.5	29.0	30.0
14	30.0	28.5	29.0	35.0	32.5	33.5	33.0	31.0	32.0	31.0	29.5	30.0
15	30.5	28.5	29.5	35.0	32.5	33.5	31.5	30.5	31.0	31.0	30.0	30.5
16	30.5	29.0	30.0	34.5	32.5	33.0	32.0	30.0	31.0	31.5	30.0	30.5
17	31.0	29.5	30.5	---	---	---	32.0	30.0	31.0	31.5	30.0	30.5
18	31.5	30.0	31.0	---	---	---	32.0	30.0	31.0	32.0	30.0	30.5
19	32.0	30.5	31.0	---	---	---	32.5	30.0	31.5	31.5	29.5	30.5
20	31.0	29.5	30.5	---	---	---	32.5	30.5	31.5	31.0	29.0	30.0
21	30.5	29.0	29.5	---	---	---	33.5	30.5	32.0	30.5	29.0	30.0
22	30.0	29.5	29.5	---	---	---	33.5	31.0	32.0	31.0	29.0	30.0
23	31.0	29.0	30.0	---	---	---	33.5	31.0	32.0	31.5	29.5	30.5
24	32.0	29.5	30.5	---	---	---	33.0	31.0	32.0	31.5	29.5	30.5
25	32.0	30.5	31.0	---	---	---	33.0	30.5	31.5	31.5	29.5	30.5
26	32.5	31.0	31.5	---	---	---	32.5	30.5	31.5	29.5	28.0	29.0
27	33.0	31.5	32.0	---	---	---	32.5	30.5	31.5	28.0	27.0	27.5
28	33.5	31.5	32.5	---	---	---	32.0	30.0	31.0	28.0	26.5	27.0
29	33.5	31.5	32.5	---	---	---	32.0	30.0	31.0	27.5	26.0	27.0
30	33.5	32.0	32.5	32.0	32.0	32.0	32.0	30.0	30.5	26.5	25.5	26.0
31	---	---	---	33.0	31.5	32.0	31.5	29.5	30.5	---	---	---
MONTH	33.5	27.0	30.0	35.0	31.5	33.5	33.5	29.5	31.5	32.0	25.5	30.0

TRINITY RIVER BASIN  
08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.4	7.0	7.2	8.1	7.9	8.0	7.7	7.2	7.4	---	---	---
2	7.5	7.1	7.3	8.0	7.6	7.8	7.9	7.4	7.6	---	---	---
3	8.0	7.2	7.5	7.7	7.3	7.6	8.1	7.5	7.7	---	---	---
4	7.9	7.5	7.7	7.4	6.9	7.2	8.2	7.7	7.8	---	---	---
5	8.3	7.6	8.0	7.2	6.4	6.7	8.1	7.5	7.7	---	---	---
6	8.5	8.0	8.2	6.6	6.4	6.5	8.0	7.4	7.6	---	---	---
7	8.4	8.1	8.2	7.4	6.5	6.8	8.5	7.2	7.7	---	---	---
8	8.4	8.0	8.2	7.9	7.4	7.7	8.4	7.7	7.9	10.3	10.2	10.3
9	8.0	7.8	7.9	8.3	7.8	8.0	8.6	7.7	8.0	10.2	9.9	10.1
10	8.8	8.4	8.6	8.6	8.3	8.5	8.3	7.6	7.8	10.0	9.7	9.8
11	8.7	8.3	8.5	8.8	8.6	8.7	7.9	7.3	7.5	9.6	9.2	9.4
12	8.7	8.1	8.3	9.0	8.8	8.9	7.7	7.3	7.5	9.3	9.1	9.2
13	8.7	8.1	8.3	9.3	9.0	9.2	8.3	7.8	8.0	9.3	9.0	9.2
14	8.8	8.2	8.4	9.5	9.3	9.4	8.4	8.3	8.4	9.2	8.9	9.1
15	8.7	8.1	8.3	9.6	8.3	9.1	---	---	---	8.9	8.7	8.8
16	8.5	8.1	8.2	8.6	7.9	8.2	---	---	---	8.7	8.6	8.6
17	8.6	8.0	8.2	8.4	7.8	8.0	9.2	9.2	9.2	8.0	7.9	8.0
18	8.5	7.9	8.2	8.2	7.7	7.9	9.2	8.8	9.0	7.9	7.9	7.9
19	8.1	7.6	7.9	8.0	7.3	7.6	8.8	8.6	8.7	---	---	---
20	7.8	7.5	7.6	7.5	6.7	7.1	8.8	8.7	8.7	---	---	---
21	7.4	6.3	7.0	6.7	6.5	6.6	8.7	8.5	8.6	---	---	---
22	6.5	5.9	6.2	---	---	---	8.9	8.6	8.7	---	---	---
23	6.8	6.2	6.5	---	---	---	8.7	8.4	8.5	---	---	---
24	7.2	6.7	6.9	7.0	6.9	7.0	---	---	---	---	---	---
25	7.7	7.0	7.4	7.3	6.9	7.1	---	---	---	---	---	---
26	8.2	7.4	7.7	7.3	7.0	7.2	---	---	---	---	---	---
27	7.6	7.1	7.4	7.4	7.0	7.2	---	---	---	---	---	---
28	7.6	7.1	7.4	7.3	6.9	7.0	---	---	---	---	---	---
29	7.8	7.4	7.6	7.0	7.0	7.0	---	---	---	8.6	8.6	8.6
30	8.0	7.6	7.7	7.7	7.2	7.5	---	---	---	8.8	8.6	8.7
31	8.0	7.7	7.9	---	---	---	---	---	---	8.8	8.8	8.8
MONTH	8.8	5.9	7.8	9.6	6.4	7.7	9.2	7.2	8.1	10.3	7.9	9.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	8.8	7.1	7.9	7.3	4.1	6.3	5.5	5.2	5.4
2	---	---	---	10.4	8.9	10.0	---	---	---	5.9	5.0	5.5
3	---	---	---	9.8	9.4	9.6	---	---	---	6.5	6.0	6.3
4	---	---	---	9.8	9.3	9.5	---	---	---	7.0	6.6	6.8
5	---	---	---	10.7	9.2	9.9	---	---	---	6.9	6.5	6.7
6	---	---	---	10.5	9.2	9.8	---	---	---	6.5	4.9	6.0
7	---	---	---	9.7	8.9	9.3	---	---	---	4.9	2.5	3.4
8	---	---	---	9.3	8.1	8.7	---	---	---	3.5	.8	1.9
9	---	---	---	10.3	8.0	9.2	---	---	---	5.6	3.9	3.9
10	---	---	---	11.8	9.0	10.4	---	---	---	6.3	5.6	6.0
11	---	---	---	10.5	9.2	9.8	---	---	---	6.3	4.8	5.6
12	11.2	11.0	11.1	11.3	7.8	9.6	---	---	---	5.8	4.0	5.0
13	11.1	10.7	10.9	12.9	8.9	10.9	---	---	---	6.0	5.6	5.8
14	10.7	10.6	10.7	12.9	10.1	11.6	---	---	---	5.8	5.3	5.6
15	10.6	7.3	10.3	12.1	9.8	11.0	---	---	---	6.5	5.2	5.7
16	---	---	---	10.5	6.3	8.0	8.1	7.7	8.0	---	---	---
17	---	---	---	9.1	6.0	7.3	8.5	7.7	8.2	5.8	---	5.5
18	---	---	---	12.4	8.6	10.5	8.2	6.8	7.6	5.7	---	---
19	---	---	---	10.6	8.0	9.4	7.5	6.5	7.0	4.7	4.0	4.4
20	---	---	---	7.7	5.9	6.6	7.7	7.2	7.4	4.3	4.0	4.2
21	---	---	---	5.9	2.8	4.5	8.1	6.4	7.4	4.6	4.3	4.4
22	---	---	---	3.5	2.0	2.5	6.8	6.5	6.7	4.7	4.6	4.7
23	---	---	---	8.1	4.0	6.6	6.9	6.8	6.8	4.8	4.6	4.7
24	---	---	---	8.9	8.1	8.5	6.8	6.4	6.6	4.9	4.7	4.8
25	7.6	7.4	7.5	8.9	6.3	8.0	7.0	6.4	6.7	4.9	4.6	4.8
26	7.8	7.2	7.5	6.2	5.8	6.0	6.7	6.3	6.5	4.8	4.4	4.6
27	8.1	7.3	7.7	7.2	5.8	6.2	6.6	5.5	6.2	5.6	4.8	5.2
28	8.4	7.6	8.0	7.3	6.6	7.0	5.9	3.3	4.4	5.9	5.6	5.8
29	8.7	7.6	8.2	6.9	---	---	5.6	3.1	4.6	6.1	5.8	6.0
30	---	---	---	6.5	5.5	6.0	5.3	3.4	4.6	5.9	5.7	5.8
31	---	---	---	5.4	2.7	4.1	---	---	---	5.9	5.8	5.8
MONTH	11.2	7.2	9.1	12.9	2.0	8.3	8.5	3.1	6.6	7.0	.8	5.2

## TRINITY RIVER BASIN

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08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	6.2	5.8	6.0	10.1	7.3	8.6	5.6	4.0	4.7	7.1	5.1	5.9
2	6.4	6.2	6.3	9.1	7.1	7.9	5.7	4.1	4.7	7.1	5.0	5.9
3	6.5	6.2	6.4	9.0	6.7	7.6	6.3	4.2	5.0	7.1	5.0	5.9
4	6.5	6.3	6.4	9.8	---	---	6.0	4.5	5.1	7.8	5.0	5.5
5	6.6	6.1	6.4	10.1	6.6	8.1	5.1	4.8	4.9	8.4	3.1	5.2
6	6.9	6.3	6.6	10.3	7.0	8.3	7.2	5.0	5.9	7.8	6.0	6.8
7	7.0	6.3	6.7	9.7	7.0	8.0	7.6	4.9	5.9	7.2	5.8	6.4
8	7.0	6.5	6.7	13.6	6.7	9.9	7.9	4.8	6.1	6.4	---	---
9	6.7	6.2	6.4	11.3	7.4	9.1	7.9	---	---	7.5	5.2	6.0
10	6.8	5.9	6.3	10.7	6.9	8.5	7.6	5.0	6.1	7.2	5.7	6.3
11	7.7	6.0	6.7	10.2	6.3	7.9	7.5	5.1	6.1	---	---	6.6
12	8.5	6.5	7.5	10.5	6.0	7.9	8.0	5.1	6.2	---	6.5	7.9
13	10.7	7.8	9.1	9.4	5.9	7.3	8.0	5.1	6.3	8.5	6.0	7.0
14	11.5	8.6	10.0	9.2	5.3	6.9	8.1	5.1	6.3	7.9	6.0	6.8
15	11.6	8.8	10.2	8.2	5.3	6.5	7.0	---	5.9	7.7	6.2	6.8
16	12.2	8.7	10.4	7.8	5.1	5.8	7.9	5.5	6.4	8.0	6.1	6.9
17	14.3	9.8	11.8	---	---	---	8.4	5.8	6.9	8.4	6.1	7.1
18	13.2	9.8	11.4	---	---	---	8.5	5.9	7.0	8.6	6.1	7.1
19	12.6	8.9	10.5	---	---	---	9.1	6.1	7.3	8.7	6.3	7.3
20	10.3	8.3	9.3	---	---	---	8.9	6.1	7.2	8.2	6.2	7.0
21	8.1	6.5	7.4	---	---	---	8.8	5.9	7.1	9.6	6.2	7.5
22	6.5	3.9	5.5	---	---	---	8.4	5.8	6.9	8.9	6.1	7.3
23	5.7	4.0	4.9	---	---	---	8.5	5.7	6.9	8.4	5.9	7.0
24	6.3	4.9	5.5	---	---	---	8.1	5.6	6.6	8.5	6.0	7.0
25	5.7	4.8	5.2	---	---	---	8.0	5.5	6.6	7.9	6.0	6.7
26	5.1	3.4	4.5	---	---	---	7.8	5.5	6.5	7.6	6.0	6.6
27	6.0	4.7	5.3	---	---	---	7.8	5.3	6.3	7.7	6.1	6.9
28	6.8	5.0	5.8	---	---	---	7.6	5.3	6.3	7.6	6.2	6.8
29	7.9	5.7	6.7	---	---	---	7.4	5.4	6.1	7.8	6.2	6.9
30	9.5	6.1	7.6	4.5	4.0	4.2	8.1	5.6	6.6	7.6	6.5	6.9
31	---	---	---	5.9	3.9	4.7	7.4	5.2	6.2	---	---	---
MONTH	14.3	3.4	7.3	13.6	3.9	7.5	9.1	4.0	6.2	9.6	3.1	6.7

## TRINITY RIVER BASIN

08065800 BEDIAS CREEK NEAR MADISONVILLE, TX

LOCATION.--Lat 30°53'03", long 95°46'39", Madison-Walker County line, Hydrologic Unit 12030202, on right bank at downstream side of bridge on U.S. Highways 75 and 190, 0.5 mi (0.8 km) upstream from Interstate Highway 45, 1.5 mi (2.4 km) downstream from Caney Creek, and 9.5 mi (15.3 km) southeast of Madisonville.

DRAINAGE AREA.--321 mi<sup>2</sup> (831 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 150.00 ft (45.720 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No diversion above station. Flow is affected at times by discharge from the flood-detention pools of two floodwater-retarding structures with combined detention capacity of 834 acre-ft (1.03 hm<sup>3</sup>). These structures control runoff from 1.32 mi<sup>2</sup> (3.42 km<sup>2</sup>) in the Town Branch drainage basin. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--13 years, 226 ft<sup>3</sup>/s (6.400 m<sup>3</sup>/s), 9.56 in/yr (243 mm/yr), 163,700 acre-ft/yr (202 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,800 ft<sup>3</sup>/s (957 m<sup>3</sup>/s) Sept. 14, 1974, gage height, 25.07 ft (7.641 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 34 ft (10.4 m) in May 1922 (discharge unknown), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,400 ft<sup>3</sup>/s (96.3 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Jan. 23	1600	6,280 178	18.91 5.764
Mar. 28	2100	*6,700 190	19.28 5.877
May 17	0300	6,070 172	19.03 5.800

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	47	11	352	44	174	255	30	27	.57	.03	.00
2	8.3	27	9.6	75	40	251	285	24	20	.53	.02	.00
3	6.9	15	8.6	103	38	98	415	20	16	.49	.00	.00
4	5.5	8.9	7.8	198	36	55	258	18	12	.46	.00	.00
5	4.4	5.6	7.5	143	35	42	100	15	11	.38	.00	.00
6	3.7	3.8	7.4	60	34	35	63	13	9.6	.32	.00	.00
7	3.2	3.0	7.1	36	32	32	49	12	7.8	.26	.00	.00
8	2.8	2.4	6.7	27	37	29	41	16	6.3	.19	.00	.02
9	2.6	1.9	6.3	22	582	27	35	201	5.7	.15	.00	.02
10	2.1	1.4	5.9	19	1110	26	31	216	5.8	.12	.00	.00
11	2.0	1.2	5.6	17	1470	25	27	67	5.5	.09	.00	.00
12	1.7	1.0	749	15	1050	24	24	38	5.2	.06	.00	.00
13	1.6	.90	1350	14	213	23	24	360	4.6	.03	.00	.00
14	1.3	.81	990	12	106	26	253	1540	4.1	.03	.00	.00
15	1.1	.70	883	11	79	23	545	4440	3.8	.03	.00	.00
16	1.1	.70	262	14	91	21	231	5080	3.4	.03	.00	.00
17	1.1	.70	62	93	246	20	74	5350	3.1	.03	.00	.00
18	1.0	.70	36	214	329	19	47	3380	2.8	.00	.00	.00
19	1.0	.77	26	109	143	23	35	2050	2.5	.00	.00	.46
20	1.0	1.1	21	45	80	28	28	1140	2.1	.00	.00	1.1
21	.85	93	18	45	62	42	23	1730	2.2	.00	.00	.29
22	1.0	1180	16	1440	52	40	20	804	2.0	.01	.00	.14
23	.93	1370	22	4920	44	32	18	130	1.6	.03	.00	.12
24	.93	965	148	4020	38	67	16	68	1.4	.03	.00	.08
25	.93	249	278	1980	33	129	37	50	1.2	.03	.00	.11
26	.92	48	200	455	29	136	486	40	1.0	.00	.00	.13
27	.81	30	65	124	26	566	649	34	.89	.00	.00	.13
28	.77	21	35	81	25	4270	243	142	.79	.07	.00	.13
29	.76	16	299	62	24	4680	64	199	.72	.03	.00	.14
30	9.7	14	650	52	---	2370	40	82	.62	.03	.00	.38
31	46	---	761	48	---	973	---	38	---	.03	.00	---
TOTAL	126.00	4110.58	6954.5	14806	6128	14306	4416	27327	170.72	4.03	.05	3.25
MEAN	4.06	137	224	478	211	461	147	882	5.69	.13	.002	.11
MAX	46	1370	1350	4920	1470	4680	649	5350	27	.57	.03	1.1
MIN	.76	.70	5.6	11	24	19	16	12	.62	.000	.00	.00
CFSM	.01	.43	.70	1.49	.66	1.44	.46	2.75	.02	.000	.000	.000
IN.	.01	.48	.81	1.72	.71	1.66	.51	3.17	.02	.00	.00	.00
AC-FT	250	8150	13790	29370	12150	28380	8760	54200	339	8.0	.10	6.4
CAL YR 1979	TOTAL	142462.78	MEAN 390	MAX 6660	MIN .36	CFSM 1.22	IN 16.51	AC-FT 282600				
WTR YR 1980	TOTAL	78352.13	MEAN 214	MAX 5350	MIN .00	CFSM .67	IN 9.08	AC-FT 155400				

## TRINITY RIVER BASIN

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08066100 WHITE ROCK CREEK NEAR TRINITY, TX

LOCATION.--Lat 31°03'06", long 95°22'40", Trinity County, Hydrologic Unit 12030202, on right bank 3.9 mi (6.3 km) upstream from Little White Rock Creek, 4.1 mi (6.6 km) upstream from Tantaboque Creek, 7.3 mi (11.7 km) north of Trinity, and 16.1 mi (25.9 km) upstream from mouth.

DRAINAGE AREA.--222 mi<sup>2</sup> (575 km<sup>2</sup>). Prior to June 1974, 228 mi<sup>2</sup> (591 km<sup>2</sup>).

PERIOD OF RECORD.--December 1965 to current year. Peak discharge, supplemental peak discharges, and discharge measurements only October 1971 to May 1974 (low stages affected by storage in Livingston Reservoir).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 124.30 ft (37.887 m) National Geodetic Vertical Datum of 1929. Prior to June 19, 1974, at site 1.9 mi (3.1 km) downstream at same datum.

REMARKS.--Records fair. No known diversions. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--11 years (water years 1967-71, 1975-80), 113 ft<sup>3</sup>/s (3.200 m<sup>3</sup>/s), 6.92 in/yr (176 mm/yr), 81,870 acre-ft/yr (101 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft<sup>3</sup>/s (589 m<sup>3</sup>/s) Apr. 21, 1979, gage height, 33.87 ft (10.324 m), from rating curve extended above 6,000 ft<sup>3</sup>/s (170 m<sup>3</sup>/s) on basis of slope-area measurement of peak flow on that date; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,900 ft<sup>3</sup>/s (53.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Jan. 23	1200	5,990	170	21.99	6.703
Mar. 28	unknown	4,500	127	unknown	--
May 16	2100	*10,500	297	26.35	8.031

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	68	29	87	124	87	120	21	19	.60	8.1	.00
2	21	30	28	64	76	348	160	18	17	.43	4.7	.00
3	19	17	27	63	63	129	300	17	15	.40	2.8	.00
4	18	11	26	95	63	65	140	17	14	.37	1.7	.00
5	16	8.0	25	89	59	55	78	16	13	.31	1.3	.00
6	14	6.4	24	63	54	52	55	15	11	.25	.95	.00
7	12	5.1	24	54	51	47	49	13	10	.20	.70	.00
8	11	4.4	23	47	72	45	43	15	9.3	.15	.60	.00
9	8.6	4.0	22	42	1010	44	38	56	8.5	.11	.50	.00
10	7.4	3.3	22	40	1670	42	32	34	7.8	.10	.40	.00
11	6.1	3.3	21	39	1080	40	31	19	7.0	.09	.30	.00
12	5.2	3.2	199	38	234	38	29	17	6.3	.07	.25	.00
13	4.7	3.1	970	36	124	37	200	199	6.1	.07	.20	.00
14	4.2	3.1	1400	35	94	37	500	1580	5.5	.05	.15	.00
15	4.2	3.1	323	35	81	34	250	5120	4.8	.02	.10	.00
16	5.8	3.1	112	37	71	33	150	9490	4.6	.00	.08	.00
17	4.5	2.9	74	62	65	34	80	5890	4.4	.00	.06	.00
18	3.9	3.1	57	55	58	38	50	1840	3.8	.00	.04	.00
19	3.6	3.2	49	47	54	38	40	466	3.5	.00	.03	.00
20	3.3	3.2	46	50	51	70	29	214	5.2	.00	.02	.00
21	2.9	20	44	332	50	261	26	134	7.3	.00	.02	.00
22	2.8	900	43	2370	47	136	24	85	15	.00	.02	.00
23	2.3	1000	160	5050	44	74	22	64	12	.00	.02	.00
24	2.1	220	854	2050	40	250	21	51	7.6	.00	.02	.00
25	2.1	80	840	387	38	143	50	43	5.2	.00	.01	.00
26	2.0	60	284	157	36	111	400	37	3.1	.00	.01	.00
27	2.0	48	101	102	35	700	200	33	2.0	.00	.01	.00
28	1.8	40	72	76	33	3500	100	64	1.4	158	.01	.00
29	1.8	36	136	64	34	2000	50	36	1.0	267	.01	.00
30	3.6	32	324	74	---	600	30	27	.77	52	.01	.00
31	15	---	155	108	---	250	---	21	---	16	.01	---
TOTAL	232.9	2624.5	6514	11848	5511	9338	3297	25652	231.17	496.22	23.13	.00
MEAN	7.51	87.5	210	382	190	301	110	827	7.71	16.0	.75	.000
MAX	22	1000	1400	5050	1670	3500	500	9490	19	267	8.1	.00
MIN	1.8	2.9	21	35	33	33	21	13	.77	.00	.01	.00
CFSM	.03	.39	.95	1.72	.86	1.36	.50	3.73	.04	.07	.003	.000
IN.	.04	.44	1.09	1.99	.92	1.56	.55	4.30	.04	.08	.00	.00
AC-FT	462	5210	12920	23500	10930	18520	6540	50880	459	984	46	.00
CAL YR 1979	TOTAL	101761.17	MEAN	279	MAX	13700	MIN	.15	CFSM	1.26	IN	17.05
WTR YR 1980	TOTAL	65767.92	MEAN	180	MAX	9490	MIN	.00	CFSM	.81	IN	11.02
										AC-FT	201800	
										AC-FT	130500	



## TRINITY RIVER BASIN

08066170 KICKAPOO CREEK NEAR ONALASKA, TX

LOCATION.--Lat 30°54'25", long 95°05'18", Polk County, Hydrologic Unit 12030202, on right bank 114 ft (35 m) downstream from old bridge site, 1.2 mi (1.9 km) downstream from Magnolia Creek, 6.2 mi (10.0 km) upstream from Rocky Creek, 7.3 mi (11.7 km) northeast of Onalaska, and 15.9 mi (25.6 km) upstream from mouth.

DRAINAGE AREA.--57.0 mi<sup>2</sup> (147.6 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 139.85 ft (42.626 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. No diversion above station. Low flow is sustained by sewage effluent. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years (water years 1967-80), 43.8 ft<sup>3</sup>/s (1.240 m<sup>3</sup>/s), 10.43 in/yr (265 mm/yr), 31,730 acre-ft/yr (39.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft<sup>3</sup>/s (453 m<sup>3</sup>/s) June 13, 1973, gage height, 26.0 ft (7.92 m); minimum, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) July 19, 20, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Dec. 12	1400	2,790	79.0	Mar. 27	1700	7,060	200
Feb. 9	1000	4,840	137	May 15	2200	*7,400	210
							18.60
							5.669
							18.96
							5.779

Minimum discharge, 0.32 ft<sup>3</sup>/s (0.009 m<sup>3</sup>/s) Aug. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	16	4.5	13	12	50	38	6.6	5.1	.84	.81	.89
2	3.4	7.3	4.3	10	11	31	36	7.4	4.6	.79	.64	1.2
3	3.0	4.9	4.1	49	12	20	35	7.0	4.3	.73	.48	1.1
4	2.7	3.8	3.8	30	12	16	22	6.4	3.7	.64	.44	1.0
5	2.4	3.4	3.7	16	11	15	14	6.1	3.4	.64	.44	.86
6	2.3	3.2	3.6	12	12	13	13	5.7	2.9	.64	.44	1.1
7	2.2	2.9	3.4	11	10	11	12	5.4	2.7	.57	.44	1.5
8	2.2	2.9	3.3	9.1	29	10	11	62	2.6	.53	.44	1.9
9	2.2	2.9	3.2	8.2	1470	9.2	8.8	20	2.5	.69	.44	3.6
10	2.0	3.1	3.0	7.8	179	8.7	8.5	9.5	2.5	.71	.42	1.8
11	1.8	3.1	2.9	8.0	80	8.4	9.0	7.4	2.2	.71	5.7	1.5
12	1.8	2.9	1110	7.0	50	8.0	13	6.6	1.9	.71	3.6	1.5
13	1.8	2.5	258	6.1	34	7.7	368	17	1.7	.71	1.2	1.4
14	1.8	2.2	82	6.0	27	7.3	102	302	1.5	.71	.97	1.3
15	1.8	2.0	41	6.0	24	7.0	32	2380	1.5	.69	1.9	1.2
16	1.8	2.0	27	226	50	8.9	18	1950	1.5	.64	3.2	1.1
17	1.8	2.0	17	231	34	11	13	548	1.5	.64	1.9	1.1
18	1.8	2.0	13	43	22	10	11	104	1.4	.64	1.5	1.1
19	1.8	2.0	11	24	19	8.7	9.9	75	1.4	.64	1.2	1.3
20	1.8	2.1	9.7	30	17	35	9.0	41	2.3	.64	1.1	1.4
21	1.8	83	9.0	64	16	63	8.4	25	2.7	1.1	1.0	1.7
22	5.1	109	8.9	598	13	30	7.8	20	2.5	2.7	.96	1.5
23	6.0	99	266	138	12	20	7.3	16	2.3	1.6	.94	1.0
24	3.3	23	156	52	11	50	7.1	13	1.8	1.4	.85	.96
25	2.4	13	33	34	9.7	83	12	11	1.4	1.0	.78	1.4
26	2.1	11	18	25	9.1	115	12	9.2	1.3	.77	.77	2.0
27	1.9	8.6	13	19	8.2	2130	9.0	13	1.2	.88	1.8	1.5
28	1.8	6.5	11	15	8.2	555	7.4	12	1.1	7.6	1.4	1.4
29	1.8	5.4	68	14	8.2	197	6.9	7.6	.92	4.9	1.1	1.4
30	109	4.8	37	13	---	126	6.5	6.7	.88	2.0	.95	2.2
31	119	---	20	14	---	59	---	5.9	---	1.2	.88	---
TOTAL	298.4	436.5	2248.4	1739.2	2210.4	3723.9	867.6	5706.5	67.30	38.66	38.69	42.91
MEAN	9.63	14.6	72.5	56.1	76.2	120	28.9	184	2.24	1.25	1.25	1.43
MAX	119	109	1110	598	1470	2130	368	2380	5.1	7.6	5.7	3.6
MIN	1.8	2.0	2.9	6.0	8.2	7.0	6.5	5.4	.88	.53	.42	.86
CFSM	.17	.26	1.27	.98	1.34	2.11	.51	3.23	.04	.02	.02	.03
IN.	.19	.28	1.47	1.14	1.44	2.43	.57	3.72	.04	.03	.03	.03
AC-FT	592	866	4460	3450	4380	7390	1720	11320	133	77	77	85

CAL YR 1979	TOTAL	35624.50	MEAN	97.6	MAX	4060	MIN	1.4	CFSM	1.71	IN	23.25	AC-FT	70660
WTR YR 1980	TOTAL	17418.46	MEAN	47.6	MAX	2380	MIN	.42	CFSM	.84	IN	11.37	AC-FT	34550

## 08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX

LOCATION.--Lat 30°38'00", long 95°00'36", Polk-San Jacinto County line, Hydrologic Unit 12030202, on upstream wingwall at left end of gated spillway at Livingston Dam on Trinity River, 4.4 mi (7.1 km) northwest of Goodrich, 7 mi (11 km) southwest of Livingston, 11.7 mi (18.8 km) upstream from Long King Creek, and at mile 129.2 (207.19 km).

DRAINAGE AREA.--16,583 mi<sup>2</sup> (42,950 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Trinity River Authority). Prior to Feb. 26, 1969, temporary nonrecording gages at site about 200 ft (61 m) upstream and at same datum.

REMARKS.--The reservoir is formed by an earthfill dam 14,400 ft (4,390 m) long. The dam was completed Sept. 29, 1968, and deliberate impoundment began June 26, 1969. The reservoir is operated for industrial water supply in the Houston metropolitan area. The spillway has twelve 40- by 35-foot (12 by 11 m) tainter gates located near the left end of dam. Low-flow releases may be made through multi-gated inlet tower. There are five gated openings at various elevations located in the tower, and all discharge into a 10-foot-diameter (3 m) concrete conduit through the dam. Flow is affected at times by discharge from the flood-detention pools of 247 floodwater-retarding structures with a combined detention capacity of 183,400 acre-ft (226 hm<sup>3</sup>). These structures control runoff from 612 mi<sup>2</sup> (1,585 km<sup>2</sup>) in the Richland, Chambers, Tehuacana, and Bedias Creeks drainage basins. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	145.0	-
Design flood.....	135.0	2,136,000
Top of tainter gates.....	134.0	2,046,000
Top of conservation pool.....	131.0	1,788,000
Crest of spillway (sill of tainter gates).....	99.0	157,900
Lowest gated outlet (invert).....	58.0	335

COOPERATION.--The capacity table, furnished by the Trinity River Authority, is based on Geological Survey topographic maps.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,926,000 acre-ft (2.37 km<sup>3</sup>) May 19, 1980, elevation, 132.63 ft (40.426 m); minimum since conservation pool capacity was reached on Nov. 2, 1971, 1,415,000 acre-ft (1.80 km<sup>3</sup>) Nov. 19, 1978, elevation, 126.19 ft (38.463 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,926,000 acre-ft (2.37 km<sup>3</sup>) May 19, elevation, 132.63 ft (40.426 m); minimum, 1,491,000 acre-ft (1.84 km<sup>3</sup>) Sept. 28, 29, elevation, 127.22 ft (38.777 m).

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

127.0	1,474,000	131.5	1,830,000
128.5	1,588,000	132.7	1,932,000
130.0	1,707,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1790000	1794000	1783000	1800000	1822000	1800000	1817000	1813000	1756000	1693000	1578000	1520000
2	1791000	1793000	1781000	1793000	1808000	1793000	1808000	1813000	1758000	1688000	1575000	1516000
3	1790000	1790000	1779000	1797000	1790000	1788000	1805000	1808000	1759000	1685000	1573000	1514000
4	1786000	1786000	1780000	1792000	1858000	1792000	1793000	1803000	1759000	1682000	1570000	1511000
5	1782000	1791000	1780000	1785000	1769000	1793000	1786000	1803000	1759000	1679000	1568000	1508000
6	1784000	1793000	1780000	1786000	1762000	1787000	1787000	1791000	1758000	1675000	1568000	1505000
7	1780000	1788000	1780000	1788000	1753000	1788000	1788000	1793000	1758000	1671000	1565000	1502000
8	1779000	1786000	1780000	1787000	1776000	1786000	1787000	1798000	1759000	1666000	1565000	1504000
9	1793000	1797000	1781000	1783000	1822000	1783000	1787000	1791000	1759000	1661000	1563000	1503000
10	1782000	1788000	1779000	1785000	1830000	1780000	1784000	1786000	1756000	1657000	1562000	1502000
11	1777000	1784000	1783000	1785000	1840000	1775000	1792000	1788000	1753000	1654000	1561000	1500000
12	1776000	1788000	1830000	1779000	1844000	1777000	1791000	1794000	1748000	1649000	1561000	1500000
13	1779000	1783000	1835000	1779000	1849000	1775000	1795000	1807000	1744000	1645000	1560000	1499000
14	1775000	1782000	1831000	1777000	1851000	1772000	1801000	1824000	1739000	1640000	1556000	1497000
15	1775000	1780000	1826000	1780000	1857000	1770000	1810000	1875000	1737000	1638000	1558000	1495000
16	1776000	1779000	1824000	1788000	1847000	1772000	1815000	1913000	1735000	1633000	1557000	1495000
17	1777000	1779000	1805000	1793000	1823000	1776000	1826000	1923000	1731000	1626000	1555000	1493000
18	1775000	1778000	1797000	1793000	1812000	1775000	1835000	1925000	1728000	1621000	1555000	1497000
19	1774000	1776000	1797000	1797000	1808000	1779000	1844000	1918000	1725000	1616000	1554000	1502000
20	1774000	1775000	1794000	1717000	1801000	1791000	1847000	1887000	1722000	1613000	1553000	1500000
21	1772000	1807000	1793000	1803000	1793000	1786000	1843000	1861000	1719000	1612000	1552000	1500000
22	1785000	1818000	1793000	1839000	1786000	1786000	1829000	1836000	1717000	1608000	1551000	1500000
23	1780000	1818000	1802000	1859000	1787000	1795000	1818000	1813000	1713000	1604000	1548000	1500000
24	1780000	1818000	1813000	1870000	1792000	1794000	1808000	1803000	1711000	1599000	1546000	1499000
25	1779000	1808000	1818000	1871000	1783000	1793000	1811000	1805000	1709000	1594000	1542000	1496000
26	1775000	1797000	1821000	1867000	1778000	1797000	1811000	1805000	1707000	1590000	1539000	1495000
27	1777000	1803000	1822000	1856000	1783000	1844000	1805000	1794000	1704000	1587000	1534000	1493000
28	1779000	1798000	1825000	1847000	1783000	1871000	1803000	1779000	1701000	1586000	1530000	1491000
29	1776000	1791000	1825000	1839000	1788000	1874000	1803000	1769000	1697000	1585000	1525000	1500000
30	1801000	1787000	1822000	1843000	---	1859000	1806000	1761000	1695000	1583000	1523000	1502000
31	1801000	---	1811000	1833000	---	1834000	---	1756000	---	1581000	1521000	---
MAX	1801000	1818000	1835000	1871000	1858000	1874000	1847000	1925000	1759000	1693000	1578000	1520000
MIN	1772000	1775000	1779000	1717000	1753000	1770000	1784000	1756000	1695000	1581000	1521000	1491000
(†)	131.15	130.98	131.27	131.53	131.00	131.54	131.21	130.60	129.85	128.40	127.62	127.37
(±)	+9000	-14000	+24000	+22000	-45000	+46000	-28000	-50000	-61000	-114000	-60000	-19000
CAL YR 1979	MAX	1913000	MIN	1647000	±	+191000						
WTR YR 1980	MAX	1925000	MIN	1491000	±	-290000						

† Elevation, in feet, at end of month.

± Change in contents, in acre-feet.

## TRINITY RIVER BASIN

08066190 LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

## WATER-QUALITY RECORDS

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

303807095011101 LIVINGSTON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
JAN										
10...	1120	1.0	318	7.3	11.5	1.20	10.2	94	94	12
10...	1122	10	318	7.3	11.5	--	10.1	93	--	--
10...	1124	20	318	7.2	11.5	--	10.0	92	--	--
10...	1126	30	318	7.1	11.5	--	9.6	88	--	--
10...	1128	40	318	7.1	11.0	--	9.5	86	--	--
10...	1130	50	318	7.1	11.0	--	9.5	86	--	--
10...	1132	60	318	7.1	11.0	--	9.5	86	--	--
10...	1134	70	318	7.1	11.0	--	9.5	86	--	--
10...	1136	78	318	7.1	11.0	--	9.4	85	94	12
SEP										
04...	1340	1.0	337	8.2	29.5	.70	7.6	97	100	14
04...	1342	10	337	8.0	29.0	--	6.3	81	--	--
04...	1344	20	337	7.5	28.5	--	4.0	51	--	--
04...	1346	30	337	7.5	28.5	--	3.6	46	--	--
04...	1348	40	337	7.0	28.5	--	.8	10	--	--
04...	1350	50	337	7.0	28.0	--	.9	10	--	--
04...	1352	60	361	6.6	23.0	--	.2	2	--	--
04...	1354	70	379	6.5	22.0	--	.2	2	--	--
04...	1356	74	393	6.5	22.0	--	.2	2	110	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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
10...	32	3.4	23	1.0	4.6	100	0	34	23
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	32	3.3	23	1.0	4.7	100	0	34	24
SEP									
04...	35	4.0	24	1.0	5.1	110	0	33	26
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	37	4.3	27	1.1	5.4	160	0	27	30

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (MG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
10...	.3	6.5	176	.16	1.3	1.5	.140	<10	<1
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	.23	1.2	1.4	.110	30	0
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	6.6	177	.11	1.1	1.2	.140	<10	2
SEP									
04...	.3	8.1	190	.00	.99	.99	.270	<10	4
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	.00	.92	.92	.280	20	20
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	.00	1.1	1.1	.330	30	270
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	13	225	.00	4.2	4.2	1.600	250	1900

## TRINITY RIVER BASIN

561

## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

303821095005001 LIVINGSTON RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
10...	1200	1.0	318	7.3	11.5	10.1	93
10...	1202	10	318	7.3	11.5	10.1	93
10...	1204	20	318	7.3	11.5	10.0	92
10...	1206	30	318	7.2	11.5	9.6	88
10...	1208	40	318	7.2	11.5	9.5	87
SEP							
04...	1420	1.0	337	8.2	29.5	7.9	101
04...	1422	10	337	8.0	29.0	6.2	79
04...	1424	20	337	7.4	28.5	3.5	44
04...	1426	30	337	7.2	28.5	2.1	27
04...	1428	37	337	7.1	28.5	1.7	22

303935095055401 LIVINGSTON RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
10...	1245	1.0	318	7.2	11.5	9.7	89
10...	1247	10	318	7.2	11.5	9.7	89
10...	1249	20	318	7.2	11.5	9.7	89
10...	1251	30	318	7.1	11.5	9.7	89
10...	1253	40	318	7.1	11.5	9.6	88
10...	1255	47	318	7.1	11.5	9.5	87
SEP							
04...	1255	1.0	360	8.5	30.0	10.5	136
04...	1257	10	360	8.2	29.5	7.9	101
04...	1259	20	360	7.9	29.0	5.7	73
04...	1301	30	360	7.6	29.0	4.2	54
04...	1303	40	360	7.5	29.0	3.5	45
04...	1305	50	360	7.4	28.5	3.1	39
04...	1307	60	390	6.9	27.0	.3	4
04...	1309	65	400	6.5	23.5	.1	1

304144095073001 LIVINGSTON RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
SEP							
04...	1225	1.0	360	8.3	29.5	8.4	108
04...	1227	10	360	8.1	29.5	6.8	87
04...	1229	20	360	7.7	29.0	3.8	49
04...	1231	30	360	7.5	29.0	2.9	37
04...	1233	40	360	7.4	29.0	2.5	32
04...	1235	50	360	7.3	29.0	1.7	22
04...	1237	57	420	6.7	26.5	.1	1

## TRINITY RIVER BASIN

## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304521095075501 LIVINGSTON RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
SEP									
04...	1112	1.0	360	8.3	30.0	.70	8.1	105	110
04...	1114	10	360	8.2	29.5	--	6.7	86	--
04...	1116	20	380	7.6	29.0	--	3.6	46	--
04...	1118	30	410	7.5	29.0	--	2.6	33	--
04...	1120	40	420	7.4	29.0	--	2.3	29	--
04...	1122	50	420	7.4	29.0	--	2.6	33	--
04...	1124	59	420	7.3	29.0	--	1.8	23	120

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
SEP									
04...	8	36	4.0	26	1.1	5.0	120	0	35
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	9	42	4.7	35	1.4	5.4	140	0	38

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTIT- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
SEP									
04...	30	7.9	203	.00	1.1	1.1	.320	<10	2
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	.00	1.2	1.2	.320	20	0
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	.00	1.1	1.1	.330	30	10
04...	--	--	--	--	--	--	--	--	--
04...	39	7.8	241	.00	1.2	1.2	.350	<10	20

304520095075101 LIVINGSTON RESERVOIR SITE DL

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
SEP							
04...	1145	1.0	360	8.2	30.0	7.5	97
04...	1147	10	360	8.1	29.5	6.6	85
04...	1149	23	360	7.2	29.0	2.1	27

## TRINITY RIVER BASIN

563

## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304659095052001 LIVINGSTON RESERVOIR SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
10...	1000	1.0	341	7.6	11.0	--	9.0
10...	1002	10	341	7.6	11.0	--	8.9
10...	1004	20	341	7.6	11.0	--	8.9
10...	1006	30	341	7.6	11.0	--	8.9
10...	1008	40	341	7.6	11.0	--	8.9
SEP							
04...	1035	1.0	370	8.2	29.5	.72	7.1
04...	1038	10	370	8.2	29.5	--	6.7
04...	1040	20	370	8.1	29.5	--	6.4
04...	1042	32	380	7.4	29.5	--	2.3

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
10...	81	.40	1.3	1.7	.190	130	10
10...	80	--	--	--	--	--	--
10...	80	--	--	--	--	--	--
10...	80	--	--	--	--	--	--
10...	80	.10	.30	.40	.230	30	0
SEP							
04...	91	.00	1.1	1.1	.320	10	0
04...	86	--	--	--	--	--	--
04...	82	--	--	--	--	--	--
04...	29	.00	1.1	1.1	.360	30	0

304843095104001 LIVINGSTON RESERVOIR SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
04...	1530	1.0	410	8.3	30.5	8.1	107
04...	1532	10	410	8.2	30.0	7.2	94
04...	1534	20	410	7.9	29.5	5.1	65
04...	1536	30	424	7.6	29.0	3.2	41
04...	1538	40	450	7.3	29.0	1.4	18
04...	1540	52	470	7.2	29.0	.3	4



TRINITY RIVER BASIN  
LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued  
305411095144901 LIVINGSTON RESERVOIR SITE GC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
11...	1635	1.0	360	7.4	11.5	.15	7.7	70	95
11...	1637	10	360	7.4	11.0	--	7.3	66	--
11...	1639	20	360	7.4	11.0	--	7.2	65	--
11...	1641	30	360	7.4	11.0	--	7.2	65	--
11...	1643	40	360	7.4	11.0	--	7.2	65	--
11...	1645	55	360	7.4	11.0	--	7.3	66	100
SEP									
04...	1700	1.0	488	8.3	30.5	.34	8.5	110	130
04...	1702	10	488	8.1	30.0	--	7.1	92	--
04...	1704	20	570	7.9	30.0	--	4.0	52	--
04...	1706	30	625	7.5	29.5	--	1.6	21	--
04...	1708	40	726	7.4	29.0	--	.1	1	--
04...	1710	51	726	7.4	29.0	--	.1	1	160

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
11...	27	31	4.3	26	1.2	6.4	83	0	46
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	25	33	4.3	26	1.1	6.2	91	0	47
SEP									
04...	11	45	5.3	44	1.7	6.8	150	0	48
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	13	54	6.2	83	2.9	9.2	180	0	80

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
11...	30	10	195	1.1	1.4	2.5	.390	70	30
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.32	1.7	2.0	--	110	30
11...	--	--	--	--	--	--	--	--	--
11...	32	11	205	.56	1.5	2.1	.440	340	50
SEP									
04...	48	6.8	278	.00	1.3	1.3	.340	50	9
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	.14	1.3	1.4	.450	20	10
04...	--	--	--	.16	1.2	1.4	.490	20	10
04...	--	--	--	--	--	--	--	--	--
04...	82	9.0	412	.22	1.5	1.7	.700	<10	20

## TRINITY RIVER BASIN

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## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305447095161401 LIVINGSTON RESERVOIR SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
11...	1005	1.0	288	7.2	11.5	.15	8.4
11...	1007	10	288	7.2	11.5	--	8.2
11...	1009	20	293	7.2	11.5	--	8.1
11...	1011	30	313	7.3	11.5	--	7.7
11...	1013	40	320	7.3	11.5	--	7.5
11...	1015	45	332	7.3	11.5	--	7.6
SEP							
04...	1730	1.0	470	8.2	30.0	.46	9.1
04...	1732	10	470	8.0	30.0	--	7.9
04...	1734	20	500	7.3	29.0	--	3.1
04...	1736	30	480	7.1	29.0	--	2.2
04...	1738	36	480	7.1	29.0	--	2.1

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
11...	76	.47	1.4	1.9	.190	170	20
11...	75	--	--	--	--	--	--
11...	74	--	--	--	--	--	--
11...	70	--	--	--	--	--	--
11...	69	--	--	--	--	--	--
11...	69	.43	1.7	2.1	.310	280	100
SEP							
04...	118	.00	1.2	1.2	.180	20	10
04...	103	--	--	--	--	--	--
04...	40	--	--	--	--	--	--
04...	28	--	--	--	--	--	--
04...	27	.00	1.2	1.2	.210	20	40

305135095193601 LIVINGSTON RESERVOIR SITE IC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
11...	1430	1.0	360	7.5	12.5	7.9	74
11...	1432	10	360	7.5	12.0	7.5	69
11...	1434	20	360	7.5	11.5	7.2	65
11...	1436	30	360	7.4	11.5	7.1	65
11...	1438	40	360	7.4	11.5	6.9	63
11...	1440	52	360	7.4	11.5	6.7	61
SEP							
04...	1912	1.0	768	8.0	30.0	7.4	96
04...	1914	10	768	8.0	30.0	6.9	90
04...	1916	20	768	7.3	29.5	1.1	14
04...	1918	30	768	7.4	29.0	.3	4
04...	1920	40	768	7.2	29.0	.1	1
04...	1922	48	768	7.3	29.0	.1	1

TRINITY RIVER BASIN  
LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305135095235401 LIVINGSTON RESERVOIR SITE JC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
11...	1345	1.0	372	7.5	12.0	.15	7.7	71	100
11...	1347	10	372	7.5	11.5	--	7.5	68	--
11...	1349	20	372	7.5	11.0	--	7.4	67	--
11...	1351	30	372	7.5	11.0	--	7.4	67	--
11...	1353	40	372	7.5	11.0	--	7.4	67	--
11...	1355	54	372	7.4	11.0	--	7.1	64	100
SEP									
04...	1838	1.0	785	8.4	31.0	.43	11.9	157	140
04...	1840	10	785	8.1	31.0	--	9.1	120	--
04...	1842	20	785	7.2	30.0	--	1.3	17	--
04...	1844	30	785	7.2	29.5	--	.6	8	--
04...	1846	37	785	7.2	29.5	--	.4	5	140

DATE	HARD- NESS, NONCAR- BONATE (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)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
11...	28	33	4.5	26	1.1	6.0	89	0	45
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	32	34	4.8	26	1.1	6.0	88	0	48
SEP									
04...	6	46	6.3	100	3.7	11	140	12	110
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	12	47	6.2	96	3.5	11	160	0	98

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
11...	33	11	203	.40	1.6	2.0	.350	110	40
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.09	1.4	1.5	.300	150	30
11...	--	--	--	--	--	--	--	--	--
11...	33	11	206	.37	1.4	1.8	.410	150	40
SEP									
04...	99	14	467	.43	1.6	2.0	1.800	90	20
04...	--	--	--	2.2	1.4	3.6	1.900	90	20
04...	--	--	--	2.7	1.5	4.2	1.800	80	10
04...	--	--	--	--	--	--	--	--	--
04...	97	14	448	.89	1.2	2.1	1.600	<10	7

## TRINITY RIVER BASIN

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## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

303807095011101 LIVINGSTON RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SAMP- LING DEPTH (FT)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)
JAN							
10...	1120	1.0	2	40	<1	0	0
10...	1128	40	--	--	--	--	--
10...	1136	78	2	40	<1	0	0
SEP							
04...	1340	1.0	9	30	<1	0	0
04...	1346	30	--	--	--	--	--
04...	1350	50	--	--	--	--	--
04...	1356	74	11	100	<1	0	0

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN							
10...	<10	0	<1	.1	0	0	<3
10...	30	--	0	--	--	--	--
10...	<10	1	2	.1	0	0	<3
SEP							
04...	<10	3	4	.0	0	0	<3
04...	20	--	20	--	--	--	--
04...	30	--	270	--	--	--	--
04...	250	0	1900	.2	0	0	<3

## TRINITY RIVER BASIN

## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

303807095011101 LIVINGSTON RESERVOIR SITE AC  
 PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	JAN 10, 80	SEP 4, 80
TIME	1121	1341
TOTAL CELLS/ML	200000	280000
DIVERSITY: DIVISION	1.1	0.3
..CLASS	1.1	0.3
..ORDER	1.2	1.0
...FAMILY	1.3	1.9
....GENUS	2.2	2.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)				
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...COELASTRACEAE				
....COELASTRUM	1800	1	--	-
....MICRACTINIACEAE				
....GOLENKINIA	--	-	*	0
...OOCYSTACEAE				
....ANKISTRODESMUS	3100	2	*	0
....CHLORELLA	3100	2	--	-
....CHODATELLA	*	0	--	-
....DICTYOSPHAERIUM	--	-	*	0
....KIRCHNERIELLA	5300	3	--	-
...OOCYSTIS	--	-	*	0
....SELENASTRUM	--	-	*	0
....TETRAEDRON	*	0	--	-
...SCENEDESMACEAE				
...SCENEDESMUS	5300	3	*	0
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	--	-	*	0
....CHLOROGONIUM	--	-	*	0
..ZYGNEMATALES				
...DESMIDIACEAE				
....EUASTRUM	*	0	--	-
CHRYSTOPHYTA				
..BACILLARIOPHYCEAE				
...CENTRALES				
...COSCINODISCACEAE				
....CYCLOTELLA	25000	13	*	0
....MELOSIRA	1800	1	*	0
....SKELETONEMA	*	0	--	-
...PENNALES				
....NAVICULACEAE				
....NAVICULA	*	0	--	-
...NITZSCHIA				
....NITZSCHIA	2700	1	--	-
CRYPTOPHYTA (CRYPTOMONADS)				
..CRYPTOPHYCEAE				
...CRYPTOMONADALES				
...CRYPTOCHRYSIDACEAE			*	0
...CHROOMONAS	--	-		
...CRYPTOMONADACEAE				
...CRYPTOMONAS	--	-	1600	1
CYANOPHYTA (BLUE-GREEN ALGAE)				
..CYANOPHYCEAE				
...CHROOCOCCALES				
...CHROOCOCCACEAE				
....AGMENELLUM	100000#	53	48000#	17
....ANACYSTIS	42000#	21	15000	5
...HORMOGONALES				
...NOSTOCACEAE				
....ANABAENA	--	-	*	0
....ANABAENOPSIS	--	-	27000	9
...OSCILLATORIACEAE				
....LYNGBYA	--	-	7000	2
...OSCILLATORIA	--	-	140000#	51
...RIVULARIACEAE				
....RAPHIDIOPSIS	--	-	32000	11
EUGLENOPHYTA (EUGLENOIDS)				
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
...EUTREPTIA	*	0	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305135095235401 LIVINGSTON RESERVOIR SITE JC

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	JAN 11, 80	SEP 4, 80
TIME	1346	1839
TOTAL CELLS/ML	1200	150000
DIVERSITY: DIVISION	1.7	0.9
..CLASS	1.7	0.9
...ORDER	2.0	1.7
...FAMILY	2.4	1.8
....GENUS	2.9	2.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)				
..CHLOROPHYCEAE				
...CHLOROCOCCALES				
...CHARACIACEAE				
...SCHROEDERIA	--	-	*	0
...CHLOROCOCCACEAE				
...CHLOROCOCCUM	66	5	--	-
...MICRACTINIAEAE				
...GOLENKINIA	--	-	*	0
...OOCYSTACEAE				
...ANKISTRODESMUS	96	8	*	0
...CHLORELLA	10	1	--	-
...DICTYOSPHAERIUM	--	-	3400	2
...KIRCHNERIELLA	--	-	*	0
...SELENASTRUM	--	-	*	0
...TREUBARIA	--	-	*	0
...SCENEDESMACEAE				
...CRUCIGENIA	20	2	--	-
...SCENEDESMUS	81	7	1400	1
...TETRASTRUM	81	7	--	-
...VOLVOCALES				
...CHLAMYDOMONADACEAE				
...CHLAMYDOMONAS	66	5	5000	3
...CHLOROGONIUM	--	-	960	1
...PHACOTACEAE				
...PTEROMONAS	--	-	*	0
CHRYSOPHYTA				
..BACILLARIOPHYCEAE				
...CENTRALES				
...COSCINODISCACEAE				
...CYCLOTELLA	66	5	3100	2
...MELOSIRA	--	-	1200	1
...SKELETONEMA	220#	18	--	-
...PENNALES				
...FRAGILARIACEAE				
...SYNEDRA	--	-	*	0
...NITZSCHIAEAE				
...NITZSCHIA	30	2	*	0
..CHRYSOPHYCEAE				
...CHRYSOMONADALES				
...OCHROMONADACEAE				
...OCHROMONAS	--	-	*	0
CRYPTOPHYTA (CRYPTOMONADS)				
..CRYPTOPHYCEAE				
...CRYPTOMONADALES				
...CRYPTOCHRYSIDACEAE				
...CHROOMONAS	--	-	1400	1
...CRYPTOMONADACEAE				
...CRYPTOMONAS	--	-	2600	2
CYANOPHYTA (BLUE-GREEN ALGAE)				
..CYANOPHYCEAE				
...CHROOCOCCALES				
...CHROOCOCCACEAE				
...AGMENELLUM	--	-	77000#	50
...ANACYSTIS	--	-	16000	10
...HORMOGONALES				
...OSCILLATORIAEAE				
...OSCILLATORIA	460#	38	37000#	24
EUGLENOPHYTA (EUGLENOIDS)				
..EUGLENOPHYCEAE				
...EUGLENALES				
...EUGLENACEAE				
...EUTREPTIA	30	2	--	-
PYRRHOPHYTA (FIRE ALGAE)				
..DINOPHYCEAE				
...PERIDINIALES				
...GLENODINIACEAE				
...GLENODINIUM	--	-	*	0

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%



## 08066191 LIVINGSTON RESERVOIR AT OUTFLOW WEIR NEAR GOODRICH, TX

LOCATION.--Lat 30°37'55", long 95°01'11", San Jacinto County, Hydrologic Unit 12030202, at end of conduit into stillings basin, 1,700 ft (518 m) to right of right spillway abutment, 4.8 mi (7.7 km) northwest of Goodrich, 11.7 mi (18.8 km) upstream from Long King Creek, and at mile 129.2 (207.9 km).

DRAINAGE AREA.--16,583 mi<sup>2</sup> (42,950 km<sup>2</sup>).

PERIOD OF RECORD.--August 1969 to current year.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Trinity River Authority). Oct. 1, 1974, to Jan. 30, 1976, staff gage and control only.

REMARKS.--Records good. For details concerning outlet works, see Livingston Reservoir (station 08066190). The purpose of this station is to record selective withdrawal releases at outflow weir, crest 61.90 ft (18.867 m). These releases do not constitute the total flow from Livingston Reservoir since flow through tainter gates is not included in these totals.

AVERAGE DISCHARGE.--11 years, 230 ft<sup>3</sup>/s (6.514 m<sup>3</sup>/s), 166,600 acre-ft/yr (205 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 3,400 ft<sup>3</sup>/s (96.3 m<sup>3</sup>/s) May 2, 1974; maximum elevation, about 93.0 ft (29.35 m) June 14, 1973 (backwater from Trinity River); no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,320 ft<sup>3</sup>/s (37.4 m<sup>3</sup>/s) Apr. 21, 22; maximum elevation, 80.15 ft (25.938 m) May 19 at 1700 hours (backwater from Trinity River); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	474	600	.00	.00	477	.00	1180	527	788	155	670
2	.00	909	600	.00	.00	477	.00	1190	923	781	111	670
3	.00	916	600	.00	.00	477	.00	1190	923	781	111	670
4	.00	916	600	.00	.00	477	166	1180	923	788	111	676
5	.00	916	606	223	220	472	499	936	930	781	111	682
6	.00	916	606	467	450	472	499	1180	930	768	108	682
7	.00	916	611	472	450	477	499	1180	923	768	108	688
8	.00	687	611	472	450	483	499	1180	930	768	108	289
9	.00	165	611	472	450	483	499	1180	930	762	108	108
10	.00	566	611	472	450	483	472	1180	930	755	108	108
11	.00	566	611	477	150	483	451	1190	930	749	108	108
12	.00	566	611	477	.00	483	446	1190	937	742	108	105
13	.00	566	623	477	.00	483	436	1180	937	742	108	102
14	.00	572	634	477	.00	483	446	983	937	742	108	102
15	.00	589	634	477	.00	477	456	.00	937	742	105	102
16	.00	589	634	472	.00	477	456	.00	937	742	102	102
17	.00	589	629	477	.00	477	461	.00	937	742	99	102
18	.00	589	623	488	.00	483	472	.00	937	749	99	102
19	.00	594	623	499	.00	483	966	.00	944	755	96	105
20	.00	594	623	499	320	483	1310	.00	952	755	96	105
21	.00	594	623	499	480	483	1320	.00	952	749	96	105
22	.00	600	623	499	483	488	1320	.00	937	749	96	105
23	.00	600	623	291	483	488	744	.00	952	742	96	105
24	.00	606	623	.00	477	488	891	.00	952	736	96	105
25	.00	606	623	.00	472	488	1170	.00	868	694	461	105
26	103	606	623	.00	467	488	1170	.00	788	572	848	102
27	215	606	623	.00	461	325	1180	.00	781	572	841	102
28	225	606	208	.00	461	.00	1180	.00	781	572	841	102
29	218	600	.00	.00	477	.00	1180	.00	781	446	841	102
30	211	600	.00	.00	---	.00	1180	.00	781	190	350	102
31	211	---	.00	.00	---	.00	---	.00	---	190	144	---
TOTAL	1183.00	19219	16870.00	8687.00	7201.00	12838.00	20368.00	16119.00	26827	21412	6878	7313
MEAN	38.2	641	544	280	246	414	679	520	894	691	222	244
MAX	225	916	634	499	483	488	1320	1190	952	788	848	688
MIN	.00	165	.00	.00	.00	.00	.00	.00	527	190	96	102
AC-FT	2350	38120	33460	17230	14280	25460	40400	31970	53210	42470	13640	14510
CAL YR 1979	TOTAL	129022.00		MEAN 353	MAX 1040	MIN .00	AC-FT 255900					
WTR YR 1980	TOTAL	164915.00		MEAN 451	MAX 1320	MIN .00	AC-FT 327100					

## TRINITY RIVER BASIN

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## 08066200 LONG KING CREEK AT LIVINGSTON, TX

LOCATION.--Lat 30°42'58", long 94°57'31", Polk County, Hydrologic Unit 12030202, on right bank 64 ft (20 m) downstream from centerline of bridge on U.S. Highway 190, 2 mi (3 km) west of Livingston, 2 mi (3 km) upstream from Choates Creek, and 14.8 mi (23.8 km) upstream from mouth.

DRAINAGE AREA.--141 mi<sup>2</sup> (365 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 100.12 ft (30.517 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--17 years, 92.8 ft<sup>3</sup>/s (2.628 m<sup>3</sup>/s), 8.94 in/yr (227 mm/yr), 67,230 acre-ft/yr (82.9 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,500 ft<sup>3</sup>/s (750 m<sup>3</sup>/s) Nov. 5, 1973, gage height, 27.06 ft (8.248 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, about 41 ft (12.5 m) in May 1929.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,600 ft<sup>3</sup>/s (102 m<sup>3</sup>/s) Mar. 27 at 2130 hours, gage height, 13.73 ft (4.185 m), no other peak above base of 2,600 ft<sup>3</sup>/s (73.6 m<sup>3</sup>/s); minimum daily, 0.86 ft<sup>3</sup>/s (0.024 m<sup>3</sup>/s) for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	81	18	41	55	91	97	19	14	2.8	2.5	1.7
2	12	28	18	35	45	67	80	20	13	2.5	2.2	1.5
3	11	18	17	59	45	42	69	18	13	2.2	2.0	1.5
4	10	14	17	78	41	37	57	16	13	1.9	1.8	1.9
5	9.3	12	16	49	38	38	46	15	12	1.7	1.5	1.0
6	9.1	12	18	38	38	34	42	14	11	1.5	1.3	6.4
7	8.7	11	16	34	37	31	41	13	11	1.3	1.2	6.4
8	8.6	11	14	31	63	31	38	15	9.4	1.5	1.1	4.6
9	8.7	11	14	28	1260	30	32	14	11	1.5	1.1	5.0
10	8.4	11	14	28	719	28	27	13	13	1.4	1.0	4.3
11	7.9	11	14	28	158	26	25	13	10	1.3	1.0	3.4
12	7.6	9.8	277	27	109	27	33	13	9.4	1.3	1.0	2.8
13	7.6	9.3	779	24	82	25	280	13	9.0	1.3	1.0	2.4
14	7.7	8.7	146	24	68	23	183	18	7.6	1.3	.86	1.9
15	7.8	8.4	75	24	57	20	80	172	7.2	1.2	1.3	1.7
16	7.6	8.4	52	24	75	25	49	899	6.8	1.2	3.4	1.9
17	7.6	8.4	40	24	102	32	37	420	6.8	1.1	3.1	1.7
18	7.5	8.5	32	26	68	30	32	139	6.7	1.5	1.9	1.5
19	7.1	9.4	30	28	54	31	28	202	6.3	1.3	1.5	6.0
20	6.8	9.0	29	30	50	86	24	128	5.9	1.1	1.2	6.0
21	6.6	680	29	65	45	130	23	60	5.7	1.0	1.2	3.4
22	15	964	30	343	40	57	21	42	5.3	1.0	.98	2.1
23	14	258	170	365	36	41	20	33	5.3	1.2	1.0	1.7
24	13	106	537	111	35	58	20	27	5.0	1.0	1.2	1.3
25	9.7	56	141	74	30	55	49	24	4.7	1.0	1.0	.86
26	8.2	40	72	61	28	87	53	21	4.3	1.0	.86	1.8
27	7.6	31	49	52	25	1180	31	19	4.0	1.0	.86	2.1
28	7.2	25	41	44	26	1930	22	18	3.7	2.5	3.1	1.9
29	7.2	21	65	40	27	520	19	17	3.4	5.0	2.6	2.4
30	65	19	77	41	---	320	18	16	3.1	4.0	1.9	7.7
31	268	---	52	83	---	132	---	15	---	3.0	1.7	---
TOTAL	595.5	2499.9	2899	1959	3456	5264	1576	2466	240.6	52.6	48.36	88.86
MEAN	19.2	83.3	93.5	63.2	119	170	52.5	79.5	8.02	1.70	1.56	2.96
MAX	268	964	779	365	1260	1930	280	899	14	5.0	3.4	7.7
MIN	6.6	8.4	14	24	25	20	18	13	3.1	1.0	.86	.86
CFSM	.14	.59	.66	.45	.84	1.21	.37	.56	.06	.01	.01	.02
IN.	.16	.66	.76	.52	.91	1.39	.42	.65	.06	.01	.01	.02
AC-FT	1180	4960	5750	3890	6850	10440	3130	4890	477	104	96	176
CAL YR 1979	TOTAL	66476.80	MEAN	182	MAX	8220	MIN	3.8	CFSM	1.29	IN	17.54
WTR YR 1980	TOTAL	21145.82	MEAN	57.8	MAX	1930	MIN	.86	CFSM	.41	IN	5.58
									AC-FT			131900
									AC-FT			41940

## TRINITY RIVER BASIN

08066250 TRINITY RIVER NEAR GOODRICH, TX

LOCATION.--Lat 30°34'19", long 94°56'55", Polk-San Jacinto County line, Hydrologic Unit 12030202, on left bank 40 ft (12 m) downstream from downstream bridge on U.S. Highway 59, 0.2 mi (0.3 km) downstream from Long King Creek, 3.0 mi (4.8 km) southeast of Goodrich, and at mile 117.3 (188.7 km).

DRAINAGE AREA.--16,844 mi<sup>2</sup> (43,626 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 40.00 ft (12.192 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Regulated since Sept. 29, 1968, by Livingston Reservoir (station 08066190), capacity 2,046,000 acre-ft (2.52 km<sup>3</sup>), 11.9 mi (19.1 km) upstream. No diversions between Livingston Reservoir and gaging station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--14 years (water years 1967-80), 7,068 ft<sup>3</sup>/s (200.2 m<sup>3</sup>/s), 5,121,000 acre-ft/yr (6.31 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96,200 ft<sup>3</sup>/s (2,720 m<sup>3</sup>/s) June 14, 1973, gage height, 46.36 ft (14.131 m); minimum daily, 191 ft<sup>3</sup>/s (5.41 m<sup>3</sup>/s) Aug. 6, 1971 (regulation by Livingston Reservoir).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1929, 52.0 ft (15.85 m) in May 1942, from information by State Department of Highways and Public Transportation and by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41,400 ft<sup>3</sup>/s (1,170 m<sup>3</sup>/s) May 19 at 1400 hours, gage height, 34.10 ft (10.394 m); minimum daily, 343 ft<sup>3</sup>/s (9.71 m<sup>3</sup>/s) Oct. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	999	3990	2080	9360	21400	1470	18600	6810	3100	2030	1010	1590
2	960	2760	2070	7700	21400	3090	14200	6830	2290	2030	875	1910
3	941	2170	1630	5680	20000	3220	10900	6800	2230	2030	857	1920
4	922	2120	885	5520	13600	3190	8800	6780	2210	2030	852	1920
5	915	1820	830	5080	9100	3150	5830	6130	2200	2030	855	1930
6	894	1650	815	3410	5760	3140	3440	5460	2180	2030	841	2000
7	710	1640	806	2630	3410	3130	2650	5080	2190	2030	836	1980
8	672	1610	795	2570	2920	3120	2580	5060	2170	2030	782	1590
9	668	1220	783	2550	6000	3100	2230	4940	2160	2010	648	677
10	662	1220	780	2540	11600	3100	1640	3900	2150	2000	635	599
11	663	1230	783	2510	12500	3020	1610	3250	2130	2000	632	582
12	658	1230	1810	2500	14200	2220	1640	3220	2110	1990	658	560
13	652	1220	9210	2500	15800	2080	2780	3320	2100	1980	659	548
14	647	1220	10100	2100	16800	1840	5470	6370	2100	1970	659	614
15	647	1230	9680	1360	17400	1460	5970	15200	2100	1950	671	616
16	644	1160	9540	1300	17400	1460	7820	30900	2100	1950	673	616
17	635	1010	9040	1270	17100	1450	9380	39000	2100	1950	658	616
18	634	993	6850	1270	13200	1440	9500	40000	2100	1950	649	614
19	628	988	4760	1270	9660	1440	10100	41000	2100	1950	647	676
20	630	986	4160	1600	8270	1480	11100	40400	2100	1950	643	656
21	630	2870	3300	3190	7330	1620	11100	39700	2100	1950	634	641
22	661	9250	2720	5550	5830	1510	11100	35800	2100	1970	635	633
23	633	8850	2830	11900	4740	1460	10100	31000	2100	1940	635	629
24	392	8380	4170	16200	3910	2080	8550	26900	2100	1930	633	625
25	350	7870	5260	20200	2900	2530	7200	22500	2060	1910	848	624
26	343	5670	7000	21400	1910	3070	6960	18900	2030	1780	1570	623
27	388	3880	9420	21400	1230	5820	6850	15900	2030	1760	1670	619
28	394	3580	11500	21300	1180	20400	6800	15300	2030	1770	1710	622
29	396	2580	12600	21300	1170	24300	6800	12100	2030	1710	1690	625
30	710	2110	12600	21300	---	23900	6810	8560	2030	1150	1510	642
31	3890	---	11700	21400	---	22200	---	5440	---	1060	800	---
TOTAL	23568	86507	160507	249860	287720	156490	218510	512550	64530	58820	27075	28497
MEAN	760	2884	5178	8060	9921	5048	7284	16530	2151	1897	873	950
MAX	3890	9250	12600	21400	21400	24300	18600	41000	3100	2030	1710	2000
MIN	343	986	780	1270	1170	1440	1610	3220	2030	1060	632	548
AC-FT	46750	171600	318400	495600	570700	310400	433400	1017000	128000	116700	53700	56520
CAL YR 1979	TOTAL	3472698	MEAN	9514	MAX	56200	MIN	343	AC-FT	6888000		
WTR YR 1980	TOTAL	1874634	MEAN	5122	MAX	41000	MIN	343	AC-FT	3718000		

## TRINITY RIVER BASIN

573

08066300 MENARD CREEK NEAR RYE, TX

LOCATION.--Lat 30°28'52", long 94°46'46", Liberty County, Hydrologic Unit 12030202, on left bank 20 ft (6 m) downstream from bridge on State Highway 146, 2.3 mi (3.7 km) northwest of Rye, and about 6 mi (10 km) upstream from mouth.

DRAINAGE AREA.--152 mi<sup>2</sup> (394 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 62.32 ft (18.995 m) National Geodetic Vertical Datum of 1929. September 1974 to August 1976, wire-weight gage read twice daily.

REMARKS.--Water-discharge records good. No known diversions above station. Regulation by Bear Foot Lake on Mill Creek located 0.5 mi (0.8 km) upstream.

AVERAGE DISCHARGE.--14 years (water years 1967-80), 114 ft<sup>3</sup>/s (3.228 m<sup>3</sup>/s), 82,590 acre-ft/yr (102 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,660 ft<sup>3</sup>/s (274 m<sup>3</sup>/s) May 8, 1969, gage height, 30.33 ft (9.245 m), from rating curve extended above 5,600 ft<sup>3</sup>/s (159 m<sup>3</sup>/s); minimum daily, 2.6 ft<sup>3</sup>/s (0.074 m<sup>3</sup>/s) Nov. 1, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1929 reached a stage of about 39.4 ft (12.01 m), from information by the State Department of Highways and Public Transportation. Flood in September 1961 reached a stage of about 34.0 ft (10.36 m), from information by local resident. Flood of May 1929 may have been equaled or exceeded by other floods during the period 1929-65.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,750 ft<sup>3</sup>/s (49.6 m<sup>3</sup>/s) Mar. 30 at 1100 hours, gage height, 19.87 ft (6.056 m); minimum daily, 12 ft<sup>3</sup>/s (0.34 m<sup>3</sup>/s) July 28, Aug. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	333	94	167	129	98	1160	131	54	31	17	15
2	51	372	88	142	148	141	610	125	52	30	18	14
3	48	297	83	135	137	177	331	123	49	29	17	14
4	46	125	78	143	127	139	260	114	49	22	15	13
5	44	96	69	155	123	114	220	104	47	19	14	13
6	42	84	68	152	117	109	183	96	46	19	13	18
7	41	76	65	132	111	104	158	91	45	18	17	21
8	40	71	64	121	155	99	151	86	45	18	18	24
9	39	69	63	115	690	94	144	81	44	17	20	23
10	38	68	61	111	667	92	131	77	45	18	16	23
11	38	67	60	108	763	87	120	75	49	21	14	21
12	37	63	172	107	862	84	115	73	48	27	13	20
13	37	57	495	105	463	83	145	75	45	27	13	18
14	37	53	408	101	258	84	204	96	42	46	13	17
15	36	41	401	96	213	77	234	150	40	49	14	16
16	35	34	341	94	210	72	247	421	39	38	14	15
17	35	34	177	93	227	74	159	823	38	32	25	15
18	31	34	140	92	220	79	129	663	37	28	57	15
19	26	33	123	90	202	78	116	678	36	26	54	18
20	26	44	114	87	171	90	107	536	37	25	37	27
21	26	74	110	106	157	141	100	375	84	20	32	49
22	50	187	107	268	146	175	93	286	61	14	28	34
23	67	292	126	439	133	182	88	183	46	15	25	24
24	79	409	191	375	121	133	84	143	41	14	23	38
25	64	521	231	340	111	122	239	121	38	13	22	37
26	38	299	318	216	102	135	731	108	37	13	21	26
27	32	165	258	175	95	245	505	99	36	13	16	25
28	29	134	165	156	89	1060	400	92	34	12	12	24
29	28	116	153	142	85	870	204	88	33	15	12	25
30	71	103	164	133	---	1610	152	74	32	15	12	51
31	424	---	176	130	---	1420	---	58	---	15	13	---
TOTAL	1696	4351	5163	4826	7032	8068	7520	6245	1329	699	635	693
MEAN	54.7	145	167	156	242	260	251	201	44.3	22.5	20.5	23.1
MAX	424	521	495	439	862	1610	1160	823	84	49	57	51
MIN	26	33	60	87	85	72	84	58	32	12	12	13
AC-FT	3360	8630	10240	9570	13950	16000	14920	12390	2640	1390	1260	1370
CAL YR 1979	TOTAL	102793	MEAN 282	MAX 5500	MIN 20	AC-FT 203900						
WTR YR 1980	TOTAL	48257	MEAN 132	MAX 1610	MIN 12	AC-FT 95720						

## TRINITY RIVER BASIN

08066300 MENARD CREEK NEAR RYE, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 24...	1040	79	189	6.1	19.0	25	16	7.2	1.6	28
DEC 04...	1700	73	116	--	9.0	18	10	5.1	1.3	12
JAN 16...	1425	93	121	--	14.0	20	12	6.0	1.3	14
FEB 28...	1630	86	108	--	14.5	19	7	5.4	1.3	13
APR 09...	1330	145	87	--	19.0	17	9	4.8	1.2	9.2
MAY 23...	1200	182	72	--	21.5	18	10	4.8	1.4	7.2
JUL 01...	1435	30	174	--	28.5	26	14	7.4	1.8	22
AUG 12...	1100	13	106	--	27.5	19	5	5.4	1.4	12
SEP 25...	1315	27	163	--	26.0	29	16	7.2	2.7	21

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	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...	2.5	1.4	11	0	3.3	52	.0	12	111
DEC 04...	1.2	1.2	10	0	1.7	25	.1	13	64
JAN 16...	1.4	.9	10	0	2.2	25	.1	18	72
FEB 28...	1.3	.8	14	0	2.8	22	.0	11	63
APR 09...	1.0	1.0	10	0	3.2	17	.1	12	53
MAY 23...	.7	1.0	10	0	5.8	13	.0	10	48
JUL 01...	1.9	1.1	15	0	.6	45	.1	14	99
AUG 12...	1.2	.9	17	0	.2	25	.0	15	68
SEP 25...	1.7	1.3	12	0	11	43	.1	12	102

## TRINITY RIVER BASIN

575

08066400 BIG CREEK NEAR SHEPHERD, TX

LOCATION.--Lat 30°30'59", long 94°59'06", San Jacinto County, Hydrologic Unit 12030202, on left bank at downstream side of downstream bridge on U.S. Highway 59, 1.5 mi (2.4 km) northeast of Shepherd, and 11.6 mi (18.7 km) upstream from mouth.

DRAINAGE AREA.--38.8 mi<sup>2</sup> (100.5 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 94.90 ft (28.926 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--14 years, 27.1 ft<sup>3</sup>/s (0.767 m<sup>3</sup>/s), 9.48 in/yr (241 mm/yr), 19.630 acre-ft/yr (24.2 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft<sup>3</sup>/s (623 m<sup>3</sup>/s) June 13, 1973, gage height, 25.69 ft (7.830 m); minimum daily, 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s) Aug. 7, 1967.  
Maximum stage since at least 1949, that of June 13, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1957 reached a stage of 20.3 ft (6.19 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 350 ft<sup>3</sup>/s (9.91 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 31	0800	369 10.5	11.12 3.389	Mar. 29	2300	571 16.2	12.53 3.819
Nov. 22	0500	428 12.1	12.61 3.539	May. 19	1500	562 15.9	12.48 3.804
Feb. 9	0500	*612 17.3	12.75 3.886				

Minimum discharge, 5.4 ft<sup>3</sup>/s (0.15 m<sup>3</sup>/s) July 18, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	44	23	29	25	55	58	20	17	7.1	7.9	7.6
2	20	28	23	27	26	37	49	22	16	7.0	7.5	6.9
3	19	23	22	34	28	30	46	20	16	6.9	7.3	6.8
4	18	20	22	34	25	30	39	18	15	6.8	7.1	6.6
5	16	19	22	28	25	31	34	18	14	6.7	7.9	6.7
6	16	19	23	26	28	27	33	17	14	6.6	9.0	20
7	16	18	21	26	25	27	35	17	13	6.5	8.9	19
8	16	17	20	25	136	28	32	17	13	6.4	8.0	12
9	15	19	19	24	439	26	27	17	14	6.3	7.8	13
10	15	18	19	24	112	25	25	16	19	6.2	9.5	11
11	14	17	20	25	69	24	25	16	13	6.2	8.8	9.1
12	14	16	65	23	56	26	26	15	12	6.1	8.0	8.0
13	14	15	97	21	48	23	81	17	11	6.0	7.4	7.3
14	14	15	44	22	44	21	52	37	10	5.9	7.0	7.0
15	13	15	34	22	43	21	33	55	10	5.8	7.8	6.8
16	13	15	31	22	60	25	28	151	9.9	5.8	15	6.6
17	14	14	27	22	54	27	25	162	9.5	5.7	9.4	6.4
18	13	15	26	22	43	23	24	54	9.3	5.6	7.9	6.4
19	13	15	26	21	41	22	23	354	9.1	5.7	7.3	14
20	13	15	26	27	39	34	22	103	10	7.1	7.0	12
21	13	100	26	61	36	34	21	51	16	7.8	6.7	12
22	32	253	27	147	33	24	20	42	12	15	6.5	9.7
23	23	82	44	96	31	23	19	34	11	11	6.3	7.9
24	15	47	82	48	30	25	19	29	11	8.7	6.1	7.5
25	14	36	40	40	27	22	55	27	10	7.8	5.9	8.1
26	13	32	32	36	26	26	53	25	9.3	7.5	6.0	20
27	13	28	29	31	25	107	27	23	8.9	7.4	6.5	15
28	13	26	27	29	26	207	23	21	8.4	9.4	6.9	12
29	13	24	48	29	26	287	21	21	8.2	13	6.9	14
30	71	23	42	28	---	248	20	19	7.7	9.7	7.1	19
31	232	---	32	27	---	75	---	18	---	8.5	7.4	---
TOTAL	760	1028	1039	1076	1626	1640	995	1456	357.3	232.2	238.8	318.4
MEAN	24.5	34.3	33.5	34.7	56.1	52.9	33.2	47.0	11.9	7.49	7.70	10.6
MAX	232	253	97	147	439	287	81	354	19	15	15	20
MIN	13	14	19	21	25	21	19	15	7.7	5.6	5.9	6.4
CFSM	.63	.88	.86	.89	1.45	1.36	.86	1.21	.31	.19	.20	.27
IN.	.73	.99	1.00	1.03	1.56	1.57	.95	1.40	.34	.22	.23	.31
AC-FT	1510	2040	2060	2130	3230	3250	1970	2890	709	461	474	632
CAL YR 1979	TOTAL	19420.5	MEAN	53.2	MAX	1020	MIN	8.0	CFSM	1.37	IN	18.62
WTR YR 1980	TOTAL	10766.7	MEAN	29.4	MAX	439	MIN	5.6	CFSM	.76	IN	10.32
									AC-FT	38520	AC-FT	21360



## TRINITY RIVER BASIN

08066400 BIG CREEK NEAR SHEPHERD, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1963 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE, WATER (DEG C)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 22...	1100	41	--	--	--	--	--	--	--	--
22...	1700	39	72	5.8	22.0	15	7	3.7	1.3	7.0
DEC 05...	0930	22	74	--	9.5	14	5	3.4	1.3	6.9
JAN 18...	1555	21	76	--	15.0	15	6	3.9	1.3	7.4
FEB 21...	1015	37	70	--	15.5	14	4	3.5	1.3	6.6
APR 08...	1015	33	69	--	18.0	15	5	3.5	1.4	6.7
MAY 20...	1040	99	45	--	21.0	13	6	3.2	1.1	3.9
JUL 01...	1700	7.1	74	--	28.0	17	4	4.1	1.6	7.5
SEP 23...	1530	8.0	67	--	25.0	18	3	3.7	2.2	6.9

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 22...	--	--	--	--	--	--	--	--	--
22...	.8	2.1	9	0	6.2	12	.1	14	51
DEC 05...	.8	.9	11	0	2.3	12	.1	16	48
JAN 18...	.8	1.1	11	0	7.3	12	.1	16	55
FEB 21...	.8	2.1	12	0	4.1	12	.0	14	50
APR 08...	.8	.9	12	0	3.5	11	.1	15	48
MAY 20...	.5	1.2	8	0	4.7	6.4	.0	9.5	34
JUL 01...	.8	1.1	16	0	2.4	14	.1	17	56
SEP 23...	.7	1.2	14	0	3.9	15	.1	16	55

## TRINITY RIVER BASIN

577

08066500 TRINITY RIVER AT ROMAYOR, TX  
(National stream-quality accounting network)

LOCATION.--Lat 30°25'30", long 94°51'02", Liberty County, Hydrologic Unit 12030202, near right bank on downstream side of pier of bridge on State Highway 105, 1.9 mi (3.1 km) south of Romayor, 1.9 mi (3.1 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.7 mi (6.0 km) downstream from Big Creek, and at mile 94.3 (151.7 km).

DRAINAGE AREA.--17,186 mi<sup>2</sup> (44,512 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 1392: 1932, 1935. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 35.92 ft (10.948 m) National Geodetic Vertical Datum of 1929. Prior to September 1943, nonrecording gage at datum 53.57 ft (16.328 m) higher at railroad bridge 1.9 mi (3.1 km) upstream. Sept. 15, 1975, to June 16, 1977, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records poor. Since Sept. 28, 1968, flow regulated by Livingston Reservoir (station 08066190), capacity 1,788,000 acre-ft (2.20 km<sup>3</sup>), 35 mi (56 km) upstream. No large diversions between Livingston Reservoir and this station.

AVERAGE DISCHARGE.--44 years (water years 1925-68) unregulated, 7,155 ft<sup>3</sup>/s (202.6 m<sup>3</sup>/s), 5,184,000 acre-ft/yr (6.39 km<sup>3</sup>/yr); 11 years (water years 1969-79) flow regulated by Livingston Reservoir, 7,528 ft<sup>3</sup>/s (213.2 m<sup>3</sup>/s), 5,454,000 acre-ft/yr (6.72 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 111,000 ft<sup>3</sup>/s (3,140 m<sup>3</sup>/s) May 9, 1942, gage height, 35.8 ft (10.91 m), from floodmarks, present site and datum; minimum, 102 ft<sup>3</sup>/s (2.89 m<sup>3</sup>/s) Aug. 24, 25, 1956. Maximum stage since at least 1908, that of May 9, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 61,500 ft<sup>3</sup>/s (1,740 m<sup>3</sup>/s) Apr. 22, gage height, 27.43 ft (8.361 m); minimum daily, 520 ft<sup>3</sup>/s (14.7 m<sup>3</sup>/s) Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1560	5230	2110	9980	21700	1780	22900	7000	4750	2270	1200	1540
2	1540	4150	2070	8260	21600	2980	18300	7000	3370	2250	1100	2120
3	1500	3180	1970	5970	20200	3730	14400	6950	3160	2210	1040	2260
4	1480	2750	1290	5330	15400	3780	10600	6900	3070	2200	1050	2170
5	1450	2480	1120	5170	10500	3710	7270	6650	2990	2180	1060	2180
6	1450	2120	1110	3860	6710	3690	4580	5690	2920	2160	1080	2280
7	1350	2050	1090	2800	4110	3670	3180	5150	2880	2150	1080	2250
8	1220	2020	1080	2630	2980	3600	2940	5010	2840	2140	1130	2240
9	1210	1800	1080	2580	6100	3520	2770	4990	2780	2120	1010	1500
10	1190	1550	1070	2570	11900	3520	2090	4320	2750	2110	972	1050
11	1170	1550	1070	2570	13800	3530	1890	3370	2720	2100	975	1000
12	1170	1520	1320	2550	15300	3130	1850	3160	2710	2090	991	1010
13	1170	1490	7190	2530	16600	2550	2070	3150	2680	2080	985	1010
14	1140	1450	10800	2450	17400	2200	5050	4260	2660	2070	979	1010
15	1130	1440	10200	1770	18200	2140	5760	12000	2700	2070	977	1010
16	1120	1410	9900	1640	18400	1830	7610	27300	2700	2070	996	1010
17	1120	1280	9410	1610	18300	1740	9340	40500	2670	2050	979	1010
18	1120	1230	7580	1610	15500	1660	9830	43300	2660	2040	984	1010
19	1110	1220	5190	1610	11100	1610	10000	44200	2620	2030	1000	1010
20	1110	1220	4340	1640	8960	1680	11400	44800	2610	2030	995	1010
21	1100	1380	3630	2740	7770	1870	11600	44000	2630	2030	979	1030
22	1180	8140	2980	4250	6710	1880	11600	41100	2620	2040	969	1040
23	1220	9330	2910	10400	5260	1800	10900	36200	2620	2020	961	1050
24	1040	8990	3820	15400	4340	2010	9350	31100	2560	1990	950	1040
25	886	8590	4940	19800	3570	2500	8250	24300	2510	1990	952	1060
26	821	6920	6230	22000	2700	3140	8160	20600	2400	1900	1730	1040
27	816	4510	8500	22100	1940	4220	7750	19900	2340	1820	2070	1040
28	854	3730	11000	21800	1740	18400	7460	18100	2310	1830	2130	1030
29	859	3050	12400	21700	1700	26000	7190	14400	2300	1830	2110	1050
30	975	2280	12700	21700	---	27800	7030	10700	2290	1500	2050	1100
31	3910	---	12300	21700	---	26200	---	7240	---	1240	1500	---
TOTAL	38971	98060	162400	252720	310490	171870	243120	553340	82820	62610	36984	40160
MEAN	1257	3269	5239	8152	10710	5544	8104	17850	2761	2020	1193	1339
MAX	3910	9330	12700	22100	21700	27800	22900	44800	4750	2270	2130	2280
MIN	816	1220	1070	1610	1700	1610	1850	3150	2290	1240	950	1000
AC-FT	77300	194500	322100	501300	615900	340900	482200	1098000	164300	124200	73360	79660
CAL YR 1979	TOTAL	3866121	MEAN	10590	MAX	60500	MIN	816	AC-FT	7668000		
WTR YR 1980	TOTAL	2053545	MEAN	5611	MAX	44800	MIN	816	AC-FT	4073000		

## 08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to November 1949, February 1950 to September 1951, April 1953 to current year. Chemical, biochemical, and pesticide analyses: February 1968 to current year. Sediment records: October 1974 to September 1975.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1945 to November 1949, February 1950 to current year.

WATER TEMPERATURES: February 1950 to September 1951, October 1953 to current year.

SUSPENDED SEDIMENT DISCHARGE: April 1968 to September 1971.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1945-50, 1953-80): Maximum daily, 3,800 micromhos Oct. 30, 1956; minimum daily, 103 micromhos Nov. 9, 1946.

WATER TEMPERATURES (1953-58, 1961-74, 1976-80): Maximum daily, 37.0°C July 18, 27, 1953; minimum daily, 3.0°C Jan. 18, 1956, Jan. 15, 16, 1968, Jan. 2, 3, 1979.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 357 micromhos Sept. 12; minimum daily, 188 micromhos Nov. 22.

WATER TEMPERATURES: Minimum daily, 29.0°C on several days during July; minimum daily, 7.0°C Feb. 17, 18.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH FIELD (UNITS)	TEMPER- ATURE, WATER (DEG C)	COLOR (PLAT- INUM COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIOCHEM 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
16...	0900	1120	340	7.9	23.0	10	5.5	12.2	140	2.8	K2	K1
NOV												
26...	1300	6820	260	6.5	15.0	30	10	10.1	99	1.9	120	110
DEC												
11...	1030	1070	310	8.0	15.0	10	8.7	10.3	101	2.5	24	K12
JAN												
22...	1445	4250	290	7.8	13.0	40	29	11.0	104	2.1	1300	1200
FEB												
06...	1620	6300	316	8.2	11.0	10	11	11.4	102	.5	K6	K2
MAR												
05...	1200	3700	255	8.2	11.0	25	12	11.4	103	2.7	80	K14
APR												
09...	0900	2830	310	8.0	16.5	10	7.1	9.9	99	1.4	32	92
MAY												
20...	1735	44900	365	8.5	24.0	30	20	6.9	81	5.0	4800	150
JUN												
17...	1520	2670	325	7.5	28.0	30	13	8.5	106	2.7	40	K6
JUL												
09...	1045	2130	320	8.2	29.5	30	5.4	8.5	110	3.2	64	1500
AUG												
20...	1035	993	345	8.5	28.0	0	8.0	7.8	99	4.5	40	32
SEP												
23...	1030	1040	340	8.5	30.0	20	8.9	8.0	105	3.0	32	20

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	BICAR- BONATE (MG/L AS HCO3)	CAR- BONATE (MG/L AS CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT											
16...	110	27	38	3.4	20	.8	3.8	100	0	24	27
NOV											
26...	90	8	31	3.1	20	.9	4.5	100	0	28	22
DEC											
11...	100	2	35	3.2	22	1.0	3.8	120	0	24	24
JAN											
22...	84	13	29	2.9	20	.9	4.0	87	0	28	21
FEB											
06...	92	13	31	3.6	25	1.1	4.8	96	0	35	24
MAR											
05...	92	27	31	3.5	24	1.1	4.3	79	0	36	28
APR											
09...	97	24	33	3.6	24	1.1	4.4	89	0	36	25
MAY											
20...	94	12	31	4.0	26	1.2	4.6	96	2	40	38
JUN											
17...	98	18	33	3.7	23	1.0	4.6	130	0	35	27
JUL											
09...	100	23	34	3.8	24	1.0	4.8	94	0	33	30
AUG											
20...	100	16	34	3.7	25	1.1	4.9	100	3	31	34
SEP											
23...	110	15	36	3.7	25	1.1	5.1	110	2	28	34

## TRINITY RIVER BASIN

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08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDEd (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDEd (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)
OCT 16...	.2	8.6	197	174	14	13	.02	.03	.220	.010	.47
NOV 26...	.2	6.8	167	165	46	24	.06	.08	.020	.050	.98
DEC 11...	.2	9.4	191	181	36	4	.02	.01	.000	.000	.68
JAN 22...	.2	8.0	174	156	30	14	.08	.09	.060	.000	.88
FEB 06...	.3	6.8	184	179	23	8	.15	.24	.040	.040	.51
MAR 05...	.2	7.5	191	175	19	9	.42	.41	.040	.030	1.3
APR 09...	.3	.2	188	172	21	2	.26	.26	.060	.060	1.9
MAY 20...	.2	4.4	198	198	14	10	.16	.15	.070	.030	.73
JUN 17...	.3	6.9	202	183	19	6	.32	.18	.030	.040	.97
JUL 09...	.4	6.9	194	183	15	2	.01	.00	.010	.000	.99
AUG 20...	.3	9.0	202	194	42	12	.00	.00	.000	.000	1.3
SEP 23...	.3	9.2	204	196	16	14	.00	.00	.000	.000	1.0

DATE	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDEd (MG/L AS C)	SEDI- MENT, SUS- PENDEd (MG/L)	SEDI- MENT DIS- CHARGE, SUS- PENDEd (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 16...	.79	.69	.80	.090	.060	8.7	--	--	7	21	97
NOV 26...	.38	1.0	.43	.120	.070	10	--	--	40	737	88
DEC 11...	.61	.68	.61	.150	.050	--	5.0	.8	47	136	54
JAN 22...	.53	.94	.53	.100	.100	8.0	--	--	86	987	96
FEB 06...	.46	.55	.50	.140	.070	7.2	--	--	23	391	92
MAR 05...	.74	1.3	.77	.090	.090	--	9.7	.8	19	190	94
APR 09...	.58	2.0	.64	.200	.190	7.0	--	--	18	138	94
MAY 20...	.97	.80	1.0	.210	.140	13	--	--	225	27300	36
JUN 17...	.83	1.0	.87	.210	.150	--	7.1	.5	33	238	88
JUL 09...	1.0	1.0	1.0	.240	.180	8.9	--	--	21	121	88
AUG 20...	1.1	1.3	1.1	.240	.160	11	--	--	21	56	99
SEP 23...	.76	1.0	.76	.210	.170	--	7.1	1.9	16	45	97

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDEd TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDEd RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDEd RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
NOV 26...	1300	--	--	--	--	--	--	--	--	--	--
DEC 11...	1030	3	1	2	300	200	70	8	7	<1	8
FEB 06...	1620	--	--	--	--	--	--	--	--	--	--
MAR 05...	1200	2	1	1	100	50	50	4	3	<1	0
MAY 20...	1735	--	--	--	--	--	--	--	--	--	--
JUN 17...	1520	6	0	6	100	40	60	2	1	1	0
AUG 20...	1035	--	--	--	--	--	--	--	--	--	--
SEP 23...	1030	8	1	7	100	40	60	0	--	<1	10

## TRINITY RIVER BASIN

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, SUSPENDED RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
NOV 26...	--	--	--	--	--	--	--	--	--	--	--
DEC 11...	8	0	0	0	<3	2	2	0	720	690	30
FEB 06...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	0	0	0	0	<3	6	5	1	540	480	60
MAY 20...	--	--	--	--	--	--	--	--	--	--	--
JUN 17...	0	0	0	--	<3	5	2	3	640	600	40
AUG 20...	--	--	--	--	--	--	--	--	--	--	--
SEP 23...	10	0	1	--	<3	80	80	0	410	--	<10

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY, TOTAL RECOVERABLE (UG/L AS HG)	MERCURY, SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY, DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
NOV 26...	--	--	--	--	--	--	--	--	--	--	--
DEC 11...	34	0	38	110	90	20	.1	.1	.0	2	0
FEB 06...	--	--	--	--	--	--	--	--	--	--	--
MAR 05...	55	33	22	50	50	<1	.1	.0	.1	2	0
MAY 20...	--	--	--	--	--	--	--	--	--	--	--
JUN 17...	19	19	0	100	90	10	--	--	.0	0	0
AUG 20...	--	--	--	--	--	--	--	--	--	--	--
SEP 23...	13	13	0	130	130	2	.2	.2	.0	10	8

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)
NOV 26...	--	--	--	--	1	--	--	--	--	--
DEC 11...	5	0	0	0	0	0	0	40	40	5
FEB 06...	--	--	--	--	0	--	--	--	--	--
MAR 05...	2	0	0	0	0	0	0	30	30	<3
MAY 20...	--	--	--	--	0	--	--	--	--	--
JUN 17...	4	0	0	0	0	0	0	10	--	<3
AUG 20...	--	--	--	--	0	--	--	--	--	--
SEP 23...	2	0	0	0	0	0	0	70	--	<3

## TRINITY RIVER BASIN

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08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JAN 22...	1445	.0	0	.00	.00	.0	.0	0	.00	.0
JUL 09...	1045	.0	0	.00	.00	.0	.0	0	.00	.1

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
JAN 22...	.00	.1	.00	.0	.01	.00	.0	.00	.00	.0
JUL 09...	.00	.2	.00	.0	.01	.00	.0	.00	.00	.0

DATE	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)
JAN 22...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0
JUL 09...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0

DATE	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 22...	.00	.00	.00	.00	0	0	.00	.03	.00	.00
JUL 09...	.00	.00	.00	.00	0	0	.00	.04	.00	.00



## 08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	NOV 26, 79 1300	MAR 5, 80 1200	MAY 20, 80 1735	JUN 17, 80 1520
TOTAL CELLS/ML	110000	37000	36000	31000
DIVERSITY: DIVISION	1.1	1.5	1.1	1.2
..CLASS	1.1	1.5	1.1	1.2
...ORDER	1.7	1.6	1.2	1.5
...FAMILY	1.9	1.8	1.4	1.7
....GENUS	2.7	2.5	1.6	2.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
..CHLOROPHYCEAE								
...CHLOROCOCCALES								
...CHARACIACEAE								
...SCHROEDERIA	--	-	--	-	--	-	--	-
...CHLOROCOCCACEAE								
...CHLOROCOCCUM	*	0	--	-	--	-	--	-
...COELASTRACEAE								
...COELASTRUM	1900	2	--	-	670	2	--	-
...OOCYSTACEAE								
...ANKISTRODESMUS	3400	3	430	1	670	2	*	0
...CHLORELLA	2900	3	--	-	--	-	*	0
...CHODATELLA	--	-	430	1	--	-	*	0
...DICTYOSPHAERIUM	--	-	860	2	--	-	2600	8
...KIRCHNERIELLA	7800	7	--	-	--	-	280	1
...OOCYSTIS	--	-	860	2	--	-	*	0
...POLYEDRIOPSIS	--	-	--	-	--	-	--	-
...SELENASTRUM	--	-	--	-	340	1	210	1
...TETRAEDRON	--	-	--	-	*	0	--	-
...TREUBARIA	--	-	--	-	--	-	--	-
...WESTELLA	--	-	--	-	--	-	--	-
...SCENEDESMACEAE								
...ACTINASTRUM	--	-	--	-	--	-	--	-
...CRUCIGENIA	--	-	--	-	--	-	--	-
...SCENEDESMUS	3900	3	5200	14	2500	7	1300	4
...TETRASTRUM	1500	1	2600	7	540	1	570	2
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
...CHLAMYDOMONAS	--	-	--	-	870	2	*	0
...PLATYMONAS	*	0	--	-	--	-	--	-
CHRYSTOPHYTA								
..BACILLARIOPHYCEAE								
...CENTRALES								
...COSCINODISCEAE								
...CYCLOTELLA	6600	6	16000#	45	2700	7	4000	13
...MELOSIRA	--	-	1300	4	--	-	--	-
...SKELETONEMA	2900	3	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
...COCCONEIS	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
...FRAGILARIA	--	-	--	-	--	-	--	-
...SYNEDRA	--	-	--	-	--	-	--	-
...NITZSCHIA	--	-	--	-	540	1	280	1
...NITZSCHIA	--	-	--	-	540	1	280	1
...SURIPELLACEAE								
...SURIPELLA	--	-	210	1	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
..CRYPTOPHYCEAE								
...CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
...CHROOMONAS	--	-	--	-	*	0	--	-
...CRYPTOMONADACEAE								
...CRYPTOMONAS	--	-	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)								
..CYANOPHYCEAE								
...CHROOCOCCALES								
...CHROOCOCCACEAE								
...AGMENELLUM	48000#	42	1700	5	27000#	74	12000#	38
...ANACYSTIS	15000	13	6700#	18	200	1	7200#	23
...COCCOCHLORIS	--	-	--	-	--	-	--	-
...GOMPHOSPHAERIA	--	-	--	-	--	-	1100	4
...HORMOGONALES								
...NOSTOCACEAE								
...ANABAENA	--	-	--	-	--	-	--	-
...ANABAENOPSIS	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
...LYNGBYA	--	-	--	-	--	-	--	-
...OSCILLATORIA	--	-	--	-	--	-	1300	4
...SCHIZOTHRIX	19000#	17	--	-	--	-	--	-
...RIVULARIACEAE								
...RAPHIIDIOPSIS	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
..EUGLENOPHYCEAE								
...EUGLENALES								
...EUGLENACEAE								
...EUGLENA	--	-	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## 08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 9,80 1045	AUG 20,80 1035	SEP 23,80 1030
TOTAL CELLS/ML	77000	660000	280000
DIVERSITY: DIVISION	1.0	0.2	0.8
..CLASS	1.0	0.2	0.8
...ORDER	1.9	1.1	1.3
...FAMILY	2.4	1.7	2.2
....GENUS	3.0	2.1	2.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHARACIACEAE					*	0
...SCHROEDERIA	--	-	--	-		
...CHLOROCOCCACEAE					--	-
...CHLOROCOCCUM	--	-	--	-		
...COELASTRACEAE						
...COELASTRUM	--	-	--	-	6400	2
...OOCYSTACEAE						
...ANKISTRODESMUS	520	1	7100	1	4800	2
...CHLORELLA	--	-	--	-	--	-
...CHODATELLA	--	-	--	-	--	-
...DICTYOSPHAERIUM	690	1	--	-	5200	2
...KIRCHNERIELLA	690	1	*	0	--	-
...OOCYSTIS	1000	1	*	0	*	0
...POLYEDRIOPSIS	*	0	--	-	--	-
...SELENASTRUM	*	0	*	0	*	0
...TETRAEDRON	--	-	*	0	*	0
...TREUBARIA	*	0	*	0	--	-
...WESTELLA	--	-	--	-	1600	1
...SCENEDESMACEAE						
...ACTINASTRUM	--	-	*	0	--	-
...CRUCIGENIA	--	-	--	-	1600	1
...SCENEDESMUS	11000	14	*	0	13000	5
...TETRASTRUM	--	-	--	-	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
...CHLAMYDOMONAS	1400	2	--	-	*	0
...PLATYMONAS	--	-	--	-	--	-
CHRYSTOPHYTA						
..BACILLARIOPHYCEAE						
...CENTRALES						
...COSCINODISCACEAE						
...CYCLOTELLA	1500	2	*	0	5600	2
...MELOSIRA	*	0	*	0	2400	1
...SKELETONEMA	--	-	--	-	--	-
...PENNALES						
...ACHNANTHACEAE					*	0
...COCCONEIS	--	-	--	-		
...FRAGILARIACEAE			*	0	--	-
...FRAGILARIA	--	-	*	0	--	-
...SYNEDRA	--	-				
...NITZSCHACEAE						
...NITZSCHIA	2100	3	*	0	2000	1
...SURIPELLACEAE						
...SURIPELLA	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
...CHROOMONAS	--	-	--	-	--	-
...CRYPTOMONADACEAE						
...CRYPTOMONAS	--	-	*	0	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	6200	8	160000#	24	--	-
...ANACYSTIS	16000#	21	36000	5	32000	11
...COCCOCHLORIS	--	-	*	0	--	-
...GOMPHOSPHAERIA	2100	3	--	-	--	-
...HORMOGONALES						
...NOSTOCACEAE						
...ANABAENA	8400	11	5500	1	--	-
...ANABAENOPSIS	2100	3	64000	10	85000#	30
...OSCILLATORIACEAE						
...LYNGBYA	--	-	12000	2	19000	7
...OSCILLATORIA	22000#	29	340000#	51	100000#	36
...SCHIZOTHRIX	--	-	--	-	--	-
...RIVULARIACEAE						
...RAPHIDIOPSIS	--	-	19000	3	--	-
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...EUGLENA	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

\* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

## TRINITY RIVER BASIN

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	YEAR	DISCHARGE (CFS-DAYS)	SPECIFIC CONDUCT- ANCE (MICRO- MHOS)	DIS- SOLVED SOLIDS (MG/L)	DIS- SOLVED SOLIDS (TONS)	DIS- SOLVED CHLORIDE (MG/L)	DIS- SOLVED CHLORIDE (TONS)	DIS- SOLVED SULFATE (MG/L)	DIS- SOLVED SULFATE (TONS)	HARDNESS (CA, MG) (MG/L)
OCT.	1979	38971	302	166	17500	22	2340	28	2940	99
NOV.	1979	98060	271	149	39500	19	5080	25	6640	91
DEC.	1979	162400	286	157	69000	21	9010	26	11600	95
JAN.	1980	252720	307	168	115000	23	15500	28	19300	100
FEB.	1980	310490	316	173	145000	24	19800	29	24500	100
MAR.	1980	171870	305	168	77800	23	10500	28	13100	99
APR.	1980	243120	314	172	113000	23	15400	29	19100	100
MAY	1980	553340	336	184	275000	26	38500	31	46400	110
JUNE	1980	82820	327	180	40100	25	5550	30	6770	100
JULY	1980	62610	326	179	30200	25	4170	30	5090	100
AUG.	1980	36984	337	185	18400	26	2590	31	3110	110
SEPT	1980	40160	343	187	20300	26	2870	32	3430	110
TOTAL		2053545	**	**	961000	**	131000	**	162000	**
WTD. AVG.		5611	316	173	**	24	**	29	**	100

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	294	225	296	302	325	324	294	336	330	331	337	344
2	301	266	298	305	327	320	298	334	331	325	336	338
3	303	257	297	303	328	316	311	333	322	326	335	337
4	302	275	299	302	326	321	316	332	337	327	337	339
5	304	289	298	301	328	327	309	332	336	326	338	338
6	305	293	302	300	325	328	313	335	331	325	339	328
7	306	295	304	303	324	329	311	337	333	324	336	332
8	304	296	305	304	322	331	312	336	334	325	335	336
9	313	297	306	305	233	332	313	338	333	326	339	335
10	311	295	305	310	237	334	315	339	328	325	337	345
11	309	299	304	309	287	333	317	341	327	326	340	352
12	310	302	295	308	305	332	319	340	328	325	339	357
13	312	298	253	307	326	334	315	342	329	324	338	356
14	313	300	266	308	317	337	272	338	328	325	340	355
15	314	301	283	306	324	339	307	340	326	324	336	354
16	315	304	288	308	326	340	315	334	327	323	340	353
17	316	305	296	309	328	334	322	326	328	324	335	352
18	314	304	298	310	321	336	325	335	326	326	338	351
19	315	306	299	312	316	335	326	338	327	325	341	339
20	316	304	298	311	315	336	328	334	326	326	343	338
21	315	306	297	305	317	319	329	336	325	330	342	343
22	310	188	296	297	318	314	330	335	321	327	341	337
23	297	253	299	278	320	311	331	339	326	320	343	345
24	308	271	291	260	319	317	330	338	323	322	345	350
25	301	276	285	290	318	326	299	337	324	325	344	348
26	306	281	282	319	320	328	301	339	322	326	340	355
27	317	285	275	315	318	324	302	343	323	329	337	350
28	319	289	265	318	320	242	315	341	325	328	333	347
29	322	290	280	320	321	298	329	343	321	324	331	348
30	319	292	285	318	---	292	334	336	316	326	332	337
31	238	---	300	320	---	306	---	334	---	333	330	---
MEAN	307	285	292	305	314	322	315	337	327	326	338	345

## TRINITY RIVER BASIN

585

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
ONCE-DAILY

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

## TRINITY RIVER BASIN

08067000 TRINITY RIVER AT LIBERTY, TX

LOCATION.--Lat 30°03'27", long 94°49'05", Liberty County, Hydrologic Unit 12030203, near center of channel at upstream side of upstream bridge on U.S. Highway 90 in Liberty, 345 ft (105 m) downstream from Texas and New Orleans Railroad Co. bridge, and at mile 40.3 (64.8 km).

DRAINAGE AREA.--17,468 mi<sup>2</sup> (45,242 km<sup>2</sup>).

PERIOD OF RECORD.--October 1938 to September 1940 (gage heights, discharge measurements, and some records of daily discharge), October 1940 to current year (high-water records only). Gage-height records collected in this vicinity since 1903 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2.22 ft (0.677 m) below National Geodetic Vertical Datum of 1929; unadjusted for land-surface subsidence. Prior to Mar. 13, 1973, nonrecording gage at site 105 ft (32 m) downstream at same datum.

REMARKS.--Records poor. Discharge below 10,000 ft<sup>3</sup>/s (283 m<sup>3</sup>/s) not published. Published discharges are estimated using records for Trinity River near Romayor (station 08066500), intervening area computation, and discharge measurements. Flow is regulated by Livingston Reservoir (station 08066190) 88.9 mi (143.0 km) upstream. Many diversions above station for municipal supplies, industrial uses, and irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 114,000 ft<sup>3</sup>/s (3,230 m<sup>3</sup>/s) May 12, 1942, gage height, 29.38 ft (8.955 m); minimum not determined (affected by tides); minimum gage height observed, 2.32 ft (0.707 m) Nov. 24, 1970.

Maximum stage since at least 1903, that of May 12, 1942.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 8-11, 1922, reached a stage of 28.6 ft (8.72 m), present datum, from observation by the National Weather Service at nonrecording gage on railroad bridge upstream.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 60,000 ft<sup>3</sup>/s (1,700 m<sup>3</sup>/s) Apr. 24; maximum gage height, 28.50 ft (8.687 m) Apr. 24; minimum discharge not determined (affected by tides); minimum gage height, 2.64 ft (0.805 m) Dec. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	12500	22000	---	27000	---				
2			---	10500	22000	---	24000	---				
3			---	---	22000	---	19500	---				
4			---	---	20500	---	15500	---				
5			---	---	15500	---	12000	---				
6			---	---	10500	---	10000	---				
7			---	---	---	---	---	---				
8			---	---	---	---	---	---				
9			---	---	---	---	---	---				
10			---	---	---	---	---	---				
11			---	---	13500	---	---	---				
12			---	---	15000	---	---	---				
13			---	---	16000	---	---	---				
14			---	---	17000	---	---	---				
15			10700	---	17700	---	---	---				
16			10700	---	18500	---	---	12500				
17			10400	---	18500	---	---	27000				
18			---	---	18500	---	---	41000				
19			---	---	16000	---	---	42500				
20			---	---	12000	---	10000	44500				
21			---	---	10000	---	11000	45000				
22			---	---	---	---	12000	44500				
23			---	---	---	---	12000	42000				
24			---	13500	---	---	11000	38000				
25			---	17000	---	---	10000	33000				
26			---	20500	---	---	11000	28000				
27			---	22200	---	---	10000	24000				
28			---	22500	---	---	---	22000				
29			11200	22000	---	20500	---	19500				
30			12500	22000	---	27000	---	15500				
31			12500	22000	---	27000	---	12000				
TOTAL			---	---	---	---	---	---				
MEAN			---	---	---	---	---	---				
MAX			---	---	---	---	---	---				
MIN			---	---	---	---	---	---				
AC-FT			---	---	---	---	---	---				
CAL YR 1979	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		
WTR YR 1980	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		

## TRINITY RIVER BASIN

587

08067080 DEVERS CANAL NEAR LIBERTY, TX

LOCATION.--Lat 29°57'58", long 94°43'17", Liberty County, Hydrologic Unit 12030203, in flume over Farm Road 563, 250 ft (76 m) downstream from pump plant No. 2, and 8 mi (13 km) southeast of Liberty.

PERIOD OF RECORD.--March to December 1971 (elevation and discharge measurements only), January 1972 to current year (monthly discharge only).

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

REMARKS.--Discharge furnished by Trinity River Authority. Occasional discharge measurements were made by the Geological Survey to check pump ratings. Flow is diverted from Trinity River at pump plant No. 1 through a canal 4.7 mi (7.6 km) to pump plant No. 2, located 250 ft (76 m) upstream from station. Water is furnished by the Trinity River Authority for irrigation.

## MONTHLY DISCHARGE, IN ACRE-FEET, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

MONTH	PUMPAGE IN ACRE-FEET
OCTOBER.....	174
NOVEMBER.....	1,280
DECEMBER.....	0
CAL YR 1979.....	84,134
JANUARY.....	0
FEBRUARY.....	0
MARCH.....	4,360
APRIL.....	17,820
MAY.....	17,900
JUNE.....	24,920
JULY.....	21,370
AUGUST.....	9,510
SEPTEMBER.....	2,060
WTR YR 1980.....	99,394

NOTE.--Above values of discharge about 5 percent low because of pump ratings used in computations.



## CEDAR BAYOU BASIN

08067500 CEDAR BAYOU NEAR CROSBY, TX

LOCATION.--Lat 29°58'21", long 94°59'08", Liberty County, Hydrologic Unit 12040203, on left bank at downstream side of bridge on U.S. Highway 90 and 6.6 mi (10.6 km) northeast of Crosby.

DRAINAGE AREA.--64.9 mi<sup>2</sup> (168.1 km<sup>2</sup>).

PERIOD OF RECORD.--March to August 1946, March 1963 to February 1964, May to August 1971 (discharge measurements only), October 1971 to current year.

Water-quality records: Chemical, biochemical, and pesticide analyses: May 1971 to September 1979.

GAGE.--Water-stage recorder. Datum of gage is 31.31 ft (9.543 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Low flow is sustained by industrial effluent and drainage from irrigated lands. Diversion for irrigation upstream from station. A recording rain gage is operated at this station.

AVERAGE DISCHARGE.--9 years (water years 1972-80), 80.8 ft<sup>3</sup>/s (2.288 m<sup>3</sup>/s), 58,540 acre-ft/yr (72.2 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,500 ft<sup>3</sup>/s (99.1 m<sup>3</sup>/s) July 26, 1979, gage height, 24.82 ft (7.565 m); maximum gage height, 24.91 ft (7.593 m) June 13, 1973; no flow Mar. 8, 15-18, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,580 ft<sup>3</sup>/s (44.7 m<sup>3</sup>/s) Jan. 22 at 1300 hours, gage height, 19.10 ft (5.822 m), no other peak above base of 1,200 ft<sup>3</sup>/s (34.0 m<sup>3</sup>/s); minimum daily, 0.06 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s) Aug. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	219	5.4	15	22	50	113	17	4.0	6.7	6.8	.86
2	5.7	62	5.2	12	19	40	50	31	3.8	7.1	12	.72
3	4.5	28	5.2	13	16	30	36	24	3.6	5.6	13	.86
4	4.2	17	4.7	17	14	20	36	18	3.4	9.3	9.6	1.3
5	3.7	11	4.3	12	12	15	29	15	3.2	12	7.4	2.8
6	3.7	8.0	3.9	11	11	12	20	14	3.0	11	9.3	58
7	3.5	6.0	3.7	11	10	13	25	14	2.8	10	9.6	40
8	3.0	4.7	3.5	9.1	119	11	26	16	4.5	10	6.3	24
9	2.6	4.1	3.0	9.7	660	10	20	15	13	8.7	8.4	17
10	2.0	3.5	2.7	9.1	311	9.4	29	14	17	7.5	7.1	9.3
11	1.9	2.4	2.4	9.2	128	8.4	28	13	11	6.1	4.5	9.9
12	1.9	.91	13	8.0	81	7.8	25	12	7.8	6.6	11	6.6
13	2.1	1.4	119	7.5	63	7.2	54	12	5.8	5.3	4.8	3.5
14	3.0	2.0	78	7.0	55	6.5	50	14	2.3	2.2	1.5	1.5
15	1.6	1.1	37	6.5	59	6.0	22	21	1.5	1.2	1.0	1.6
16	1.3	1.5	24	6.2	85	5.6	16	71	4.9	2.4	.60	1.2
17	1.3	1.6	18	15	84	5.4	14	306	8.8	2.0	.33	1.3
18	1.3	2.5	13	31	60	5.2	12	206	5.4	.93	.12	1.3
19	1.3	3.1	11	19	51	5.0	11	275	3.4	.71	.06	7.4
20	1.1	3.4	11	65	40	7.0	10	248	4.9	.61	1.0	8.7
21	1.1	5.1	10	700	30	50	20	64	9.0	1.8	1.3	8.7
22	3.8	36	9.3	1260	25	35	15	167	9.3	1.2	1.5	7.4
23	5.8	67	11	1010	20	25	13	65	8.5	1.2	1.3	6.8
24	2.8	41	15	725	17	20	12	23	8.7	1.5	1.2	3.0
25	2.1	23	15	293	15	15	261	8.0	5.9	.85	.86	1.3
26	1.9	15	13	111	14	13	647	9.6	5.1	6.8	1.0	1.7
27	1.7	12	9.7	57	13	384	335	8.2	4.9	8.4	.86	7.1
28	1.5	9.2	8.9	37	12	867	74	6.8	5.0	14	1.0	18
29	1.5	7.6	22	31	11	798	32	5.5	5.4	21	1.2	18
30	83	6.1	31	33	---	758	18	4.8	5.9	18	.72	683
31	615	---	21	27	---	318	---	4.3	---	9.0	.27	---
TOTAL	777.3	605.21	533.9	4577.3	2057	3557.5	2053	1722.2	181.8	199.70	125.62	952.84
MEAN	25.1	20.2	17.2	148	70.9	115	68.4	55.6	6.06	6.44	4.05	31.8
MAX	615	219	119	1260	660	867	647	306	17	21	13	683
MIN	1.1	.91	2.4	6.2	10	5.0	10	4.3	1.5	.61	.06	.72
AC-FT	1540	1200	1060	9080	4080	7060	4070	3420	361	396	249	1890
(††)	4.11	1.50	2.10	7.09	2.19	6.37	2.35	3.90	.65	.50	1.60	8.00
CAL YR 1979 TOTAL	57118.59			156								
WTR YR 1980 TOTAL	17343.37			47.4								
MEAN												
MAX												
MIN												
AC-FT												
(††)												

†† Rainfall, in inches.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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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 stations during water year 1980						
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
Arkansas River basin						
07227700	Chicken Creek near Amarillo, Tex.	Lat 35°28'29", long 101°45'35", Potter County, about 1.5 mi northeast of LX Ranch headquarters and about 18 mi northeast of Amarillo.	(a)	1953-80	10-11-79 2-28-80 7-25-80	2.14 1.53 .19
Red River basin						
07299750	Wanderers Creek at Odell, Tex.	Lat 34°20'50", long 99°25'15", Wilbarger County, at county road bridge and 0.25 mi northwest of Odell Post Office.	199	1949-50, 1952-80	1-16-80 9- 2-80	3.65 .61
07299890	Lelia Lake Creek below Bell Creek near Hedley, Tex.	Lat 34°56'08", long 100°41'46", Donley County, 150 ft downstream from county road crossing, 1.0 mi downstream from mouth of Bell Creek, and about 5 mi north of Hedley.	74	1964-80	9- 8-80	1.32
07303300	Elm Creek near Shamrock, Tex.	Lat 35°07'21", long 100°17'07", Collingsworth County, at county road bridge, 1,500 ft downstream from Fort Worth and Denver (Burlington) Railway Company bridge, and about 6 mi southwest of Shamrock.	(a)	1947-80	2-27-80 7-22-80	2.31 1.40
07307700	Roaring Springs near Roaring Springs, Tex.	Lat 33°51'12", long 100°51'53", Motley County, 3.5 mi south of Roaring Springs.	(a)	1937 1943-80	12- 3-79	1.05
Neches River basin						
08041550	Village Creek at State Highway 327 near Silsbee, Tex.	Lat 30°20'48", long 94°14'20", Hardin County, at bridge on State Highway 327, about 1.6 mi upstream from mouth of Mill Creek, and 2.7 mi west of Silsbee.	-	1979-80	11-16-79 6- 9-80 7-24-80 9- 3-80	405 303 103 92
08041720	Pine Island Bayou at State Highway 105 near Sour Lake, Tex.	Lat 30°08'08", long 94°16'44", Hardin-Jefferson County line, at bridge on State Highway 105, about 2.0 mi upstream from mouth of Little Pine Island Bayou, and 7.9 mi east of Sour Lake.	-	1979-80	10- 4-79 11-19-79 6-11-80 9- 4-80	98 22 53 8.0
Trinity River basin						
08065975	Harmon Creek near Huntsville, Tex.	Lat 30°49'12", long 95°29'09", Walker County, at end of county road, 2.2 mi east of Farm Road 980, 7.5 mi northeast of Huntsville, and about 9 mi southwest of Riverside.	89.2	1973-80	10-16-79 11-26-79 1- 7-80 5- 5-80 6-16-80 8- 4-80	8.0 7.7 11 10 6.3 3.9
08066210	Long King Creek near Goodrich, Tex.	Lat 30°36'16", long 94°57'26", Polk County, at bridge on Farm Road 1988, 0.7 mi west of Goodrich, and 4.5 mi upstream from mouth.	220	1973-80	10-22-79 12- 6-79 2-27-80 7- 8-80 9-23-80	70 42 55 10 9.7

a Not applicable.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

## Crest-stage partial-record stations

The following table contains annual maximum stage and (or) discharge at partial-record stations operated primarily for the purpose of defining the flooding characteristics of the streams. At stations where discharge is given, or is footnoted "to be determined", a stage-discharge relation has been, or will be, defined by discharge measurements obtained by current meter or by indirect procedures. Water-stage recorders are located at these flood-hydrograph stations to facilitate complete hydrograph definition. At stations where only the maximum stage is given (discharge column is dashed), data are generally collected for use in stage-frequency studies of flood-profile definition. Gages at these stations usually consist of a device that will register the peak stage occurring between inspections of the gage. The years used in the column "Period of record" identify the years in which the annual maximum has been determined.

Annual maximum stage and (or) discharge during water year 1980							
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Elevation (feet)	Discharge (ft <sup>3</sup> /s)
Sabine River basin							
08019200	Sabine River near Hawkins, Tex.	Lat 32°33'35", long 95°12'23", Wood County, on left bank at upstream side of bridge on State Highway 14, 1.9 mi south of Hawkins, 2.1 mi upstream from East Mill Creek, 3.4 mi downstream from Lynn Creek, and at mile 427.4	-	1976-80	1-30-80	291.92	-
08019430	Big Sandy Creek near Hawkins, Tex.	Lat 32°39'04", long 94°09'59", Wood County, near left end at downstream side of bridge on Farm Road 1795, 0.3 mi downstream from Mill Creek, 0.6 mi downstream from Peron Branch, 2.3 mi upstream from Gin Creek, and 4.9 mi northeast of Hawkins.	196	1980	1-24-80	14.21	1,930
08020500	Sabine River near Longview, Tex.	Lat 32°28'05", long 94°46'50", Gregg County, on left bank at downstream side of upstream bridge on U.S. Highway 259, 0.5 mi upstream from Missouri Pacific Railroad bridge, 2.6 mi upstream from Rabbit Creek, 3.2 mi southwest of Longview, 5.2 mi downstream from Hawkins Creek, and at mile 372.8.	-	1904-6*, 1923-32*, 1976-80	2- 7-80	253.23	-
08022000	Sabine River near Tatum, Tex.	Lat 32°22'11", long 94°27'28", Panola County, near right bank at downstream side of bridge on State Highway 43, 5.1 mi northeast of Tatum, 5.2 mi upstream from Potters Creek, 5.6 mi downstream from Cherokee Bayou, and at mile 339.4.	3,493	1938-78*, 1979-80	2-10-80	223.41	-
Trinity River basin							
08057090	White Rock Creek at Farm Road 544 near Plano, Tex.	Lat 33°01'40", long 96°48'45", Collin County, at bridge on Farm Road 544, 6.6 mi west of Plano.	-	1978-80	1-22-80	603.85	-
08057205	Storm Sewer at Arborside Drive and Moss Farm Lane, Dallas, Tex.	Lat 32°53'43", long 96°44'52", Dallas County, at culvert on Arborside Drive in northeast Dallas and 0.7 mi upstream from White Rock Creek.	.22	1978-80	6-20-80	510.47	-
08057442	Prairie Creek at Jennie Lee Street, Dallas, Tex.	Lat 32°45'16", long 96°39'58", Dallas County, at bridge on Jennie Lee Street in east Dallas and 8.2 mi upstream from mouth.	3.16	1976-80	5-15-80	474.52	-
08057447	Hattfields Branch at Seagoville Road, Dallas, Tex.	Lat 32°42'34", long 96°39'36", Dallas County, at bridge on Seagoville Road in east Dallas and 2.5 mi upstream from mouth.	2.10	1976-80	9-29-80	432.30	-
08061920	South Mesquite Creek at State Highway 352, Mesquite, Tex.	Lat 32°46'09", long 96°37'18", Dallas County, at bridge on State Highway 352 in west Mesquite and 9.6 mi upstream from mouth (discontinued).	13.4	1969-79	5- 6-69 5-30-70 10-19-71 6- 4-73 9-20-74	448.12 442.63 447.57 446.93 444.60	a12,500 a1,900 a10,800 a8,890 a3,660

\* Operated as a continuous-record station.

a Revised.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

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Measurements of streamflow at points other than gaging stations of partial-record stations are given in the following table:

Discharge measurements made at miscellaneous sites during water year 1980						
Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
Sabine River basin						
Sabine River	Gulf of Mexico	Lat 32°25'00", long 94°42'34", Gregg County, at State Highway 149 bridge, 6.6 mi southeast of Longview, and 13.6 mi northwest of Tatum, Tex.	-	4-21-72	7-29-80	122



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

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	$2.54 \times 10^1$	millimeters (mm)
	$2.54 \times 10^{-2}$	meters (m)
feet (ft)	$3.048 \times 10^{-1}$	meters (m)
miles (mi)	$1.609 \times 10^0$	kilometers (km)
<i>Area</i>		
acres	$4.047 \times 10^3$	square meters (m <sup>2</sup> )
	$4.047 \times 10^{-1}$	square hectometers (hm <sup>2</sup> )
	$4.047 \times 10^{-3}$	square kilometers (km <sup>2</sup> )
square miles (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometers (km <sup>2</sup> )
<i>Volume</i>		
gallons (gal)	$3.785 \times 10^0$	liters (L)
	$3.785 \times 10^0$	cubic decimeters (dm <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic meters (m <sup>3</sup> )
million gallons	$3.785 \times 10^3$	cubic meters (m <sup>3</sup> )
	$3.785 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
cubic feet (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeters (dm <sup>3</sup> )
	$2.832 \times 10^{-2}$	cubic meters (m <sup>3</sup> )
cfs-days	$2.447 \times 10^3$	cubic meters (m <sup>3</sup> )
	$2.447 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
acre-feet (acre-ft)	$1.233 \times 10^3$	cubic meters (m <sup>3</sup> )
	$1.233 \times 10^{-3}$	cubic hectometers (hm <sup>3</sup> )
	$1.233 \times 10^{-6}$	cubic kilometers (km <sup>3</sup> )
<i>Flow</i>		
cubic feet per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liters per second (L/s)
	$2.832 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$2.832 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
gallons per minute (gal/min)	$6.309 \times 10^{-2}$	liters per second (L/s)
	$6.309 \times 10^{-2}$	cubic decimeters per second (dm <sup>3</sup> /s)
	$6.309 \times 10^{-5}$	cubic meters per second (m <sup>3</sup> /s)
million gallons per day	$4.381 \times 10^1$	cubic decimeters per second (dm <sup>3</sup> /s)
	$4.381 \times 10^{-2}$	cubic meters per second (m <sup>3</sup> /s)
<i>Mass</i>		
tons (short)	$9.072 \times 10^{-1}$	megagrams (Mg) or metric tons





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