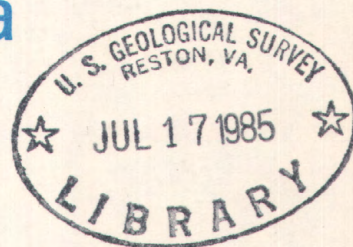


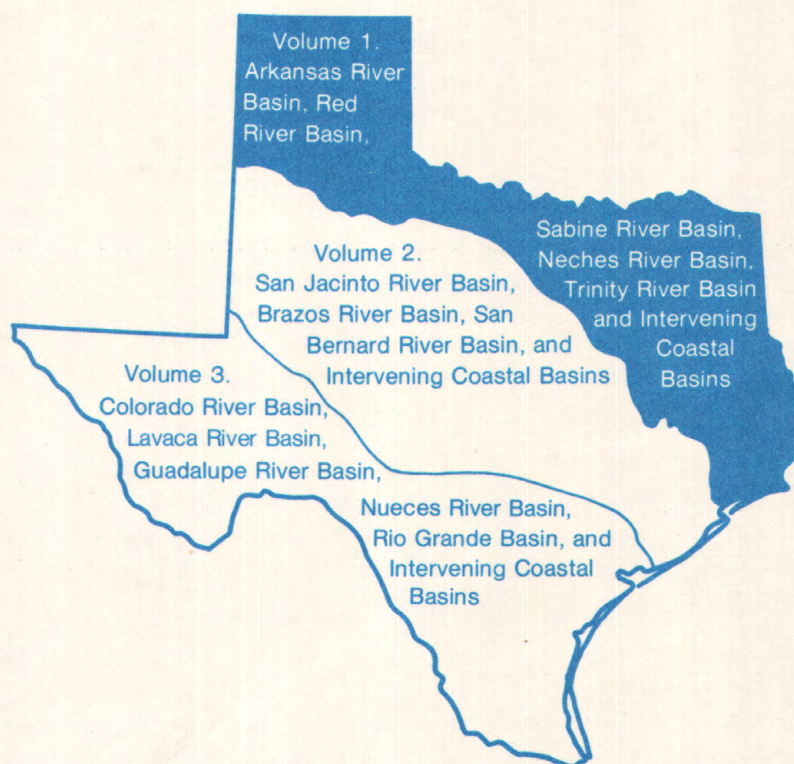
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# Water Resources Data Texas Water Year 1983



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-83-1

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



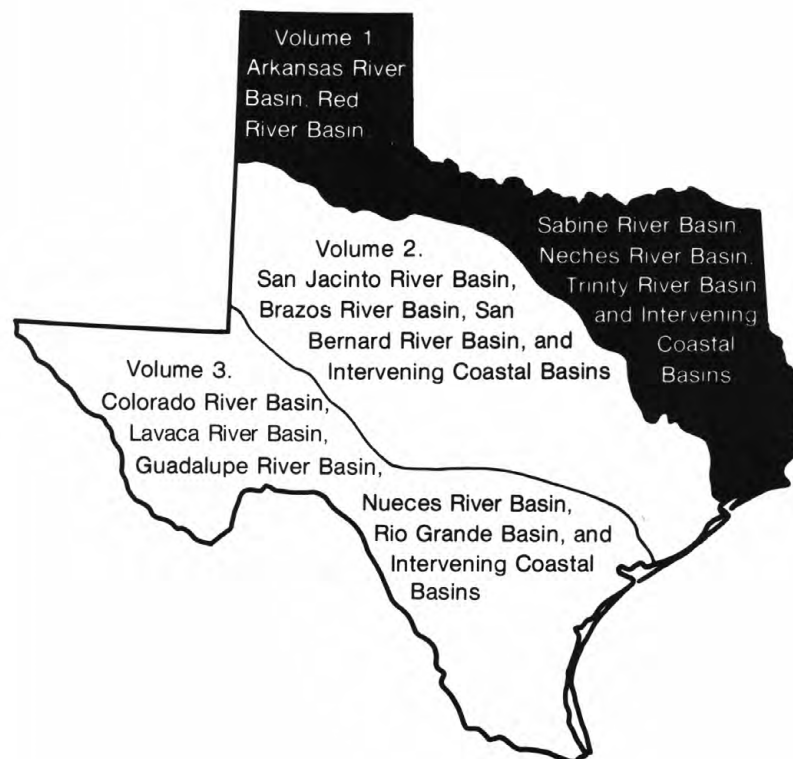
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# Water Resources Data Texas Water Year 1983

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-83-1  
Prepared in cooperation with the State of Texas  
and with other agencies



UNITED STATES DEPARTMENT OF THE INTERIOR

William P. Clark, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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Austin, Texas 78701

1984



## Preface

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

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

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

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







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# WATER RESOURCES DATA, TEXAS, WATER YEAR 1983

## 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 1983 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-83-1." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.



## COOPERATION

Federal agencies that assisted the Geological Survey in the collection of data in this report in the form of funds or services in 1982 are:

Corps of Engineers, U.S. Army.

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

National Park Service.

U.S. Bureau of Reclamation.

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

Texas Department of Water Resources, H. D. Davis, Executive Director; the cities of Abilene, Alice, Arlington, Austin, Brady, Cleburne, Clyde, Corpus Christi, El Paso, Gainesville, Garland, Graham, Houston, Lubbock, 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; Brown County Water Improvement District No. 1; Coastal Bend Council of Governments; Coastal Industrial Water Authority; Colorado River Municipal Water District; Dallas County; Dallas Public Works Department; Dallas/Fort Worth Airport; Dallas Utilities Water Department; Edwards Underground Water District; Franklin County Water District; Galveston County; Greenbelt Municipal and Industrial Water Authority; Guadalupe-Blanco River Authority; Harris County Flood Control District; Harris-Galveston Coastal Subsidence District; Lavaca-Navidad River Authority; Lower Colorado River Authority; Lower Neches Valley Authority; MacKenzie Municipal Water Authority; North Central Texas Municipal Water Authority; Northeast Texas Municipal Water District; Orange County; Pecos River Commission; Red Bluff Water Power Control District; Reeves County Water Improvement District No. 1; Sabine River Authority of Texas; Sabine River Compact Administration; San Antonio City Public Service Board; San Antonio City Water Board; San Antonio River Authority; San Jacinto River Authority; Tarrant County Water Control and Improvement District No. 1; Titus County Fresh Water Supply District No. 1; Trinity River Authority; Upper Guadalupe River Authority; Upper Neches River Municipal Water Authority; Upper Trinity Basin Water Quality Compact; West Central Texas Municipal Water District; Wichita County Water Improvement District No. 2; and Wood County.

## HYDROLOGIC CONDITIONS

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

Major weather developments in Texas during the 1983 water year include Hurricane Alicia, which affected the upper Texas Gulf coast during August 16-19, and a disastrous drought which occurred in West Texas during the spring and summer. Precipitation for the year was greater than normal in East Texas, near normal in the central part of the State, and less than normal in West Texas and in the Panhandle.

Conservation storage in a selected group of 70 reservoirs throughout the State, with a combined conservation capacity of 31,288,120 acre-feet, decreased from 84 percent at the end of September 1982 to 80 percent at the end of September 1983. Records from the 70 reservoirs show that contents increased in 22, decreased in 44 and remained the same in 4.

Dissolved-solids concentrations in most streams in the State are inversely related to water discharge. During years when rainfall and runoff are deficient, streamflow commonly is much more mineralized than years when rainfall and runoff are normal or excessive. However, for streams where discharge is controlled by reservoirs, the mineralization of the water may remain relatively constant, despite large fluctuations in rainfall and runoff.

The area for which water-resources data are presented in volume 1 includes the Texas Panhandle and extends across north-central and East Texas to the upper Gulf Coast. Normal annual precipitation in this area ranges from about 17 inches in the western part of the Texas Panhandle to more than 56 inches in the extreme southeastern part of the State. Annual runoff ranges from less than 1.0 inch in parts of the Panhandle to as much as 15 inches in southeast Texas. A map of Texas indicating the area covered by volume 1 and the location of selected streamflow and water-quality stations in the area are shown in figure 1.

## Streamflow

At the beginning of the 1983 water year, deficient streamflow conditions extended from the Panhandle to the north-central part of the State north of Fort Worth, but streamflow rates were near normal in the remainder of the area. Fall rain showers brought near normal streamflow conditions to the entire area by mid-November. Normal conditions persisted through January with the exception of a small area in Southeast Texas where the index gaging station on the Neches River near Rockland showed excessive runoff during December and January. February



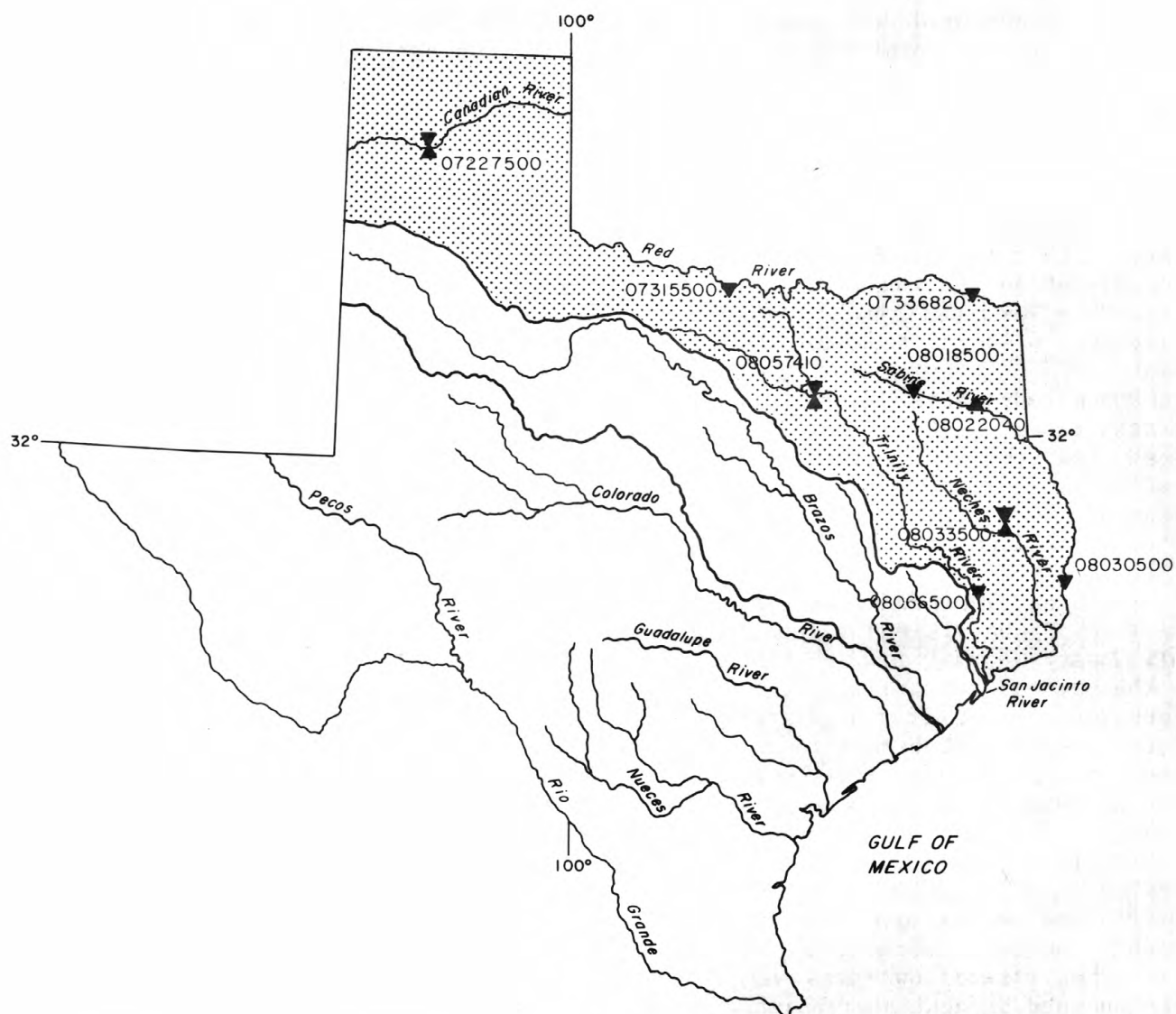


Figure 1.--Area of Texas covered by volume 1 and location of selected streamflow and water-quality stations in volume 1.

produced rainfall throughout the entire area, resulting in excessive runoff for most of the area. By the end of April, drought conditions had returned to the Panhandle and much of North-Central Texas. Streamflow in this area generally remained deficient for the remainder of the water year. In East Texas, runoff during April to September was in the normal range with the exception of the extreme southern part, where runoff was excessive at times. Hurricane Alicia, which entered the State on August 12, caused some flooding along the Upper Gulf Coast.

Runoff at the index station "Neches River near Rockland, Texas" was excessive (within the highest 25 percent of record) during the periods December through March and June through August, and in the normal range the remainder of the year. The following table shows a comparison of runoff data for the 1983 water year with runoff for the period of record at four selected stations (fig. 1) in volume 1.

Station name and number	Discharge during 1983 water year (cubic feet per second)			Discharge during period of record (cubic feet per second)		
	Max.	Min.	Avg.	Max.	Min.	Avg.
07227500 Canadian River near Amarillo, Tex.	4,590	0	125	135,000	0	331 (1925,1939-83)
08022040 Sabine River at Burkville, Tex.	11,100	51	2,736	123,000	2.4	2,258 (1961-83)
*08033500 Neches River near Rockland, Tex.	16,300	59	3,020	49,800	1.6	1,974 (1962-83)
08057410 Trinity River below Dallas, Tex.	9,010	211	802	184,000	1.2	1,530 (1904-83)

\*Hydrologic index station.

At the other three index stations in the State, runoff during the 1983 water year was deficient at North Bosque River near Clifton and North Concho River near Carlsbad and normal at Guadalupe River near Spring Branch. Monthly mean discharges for the four index stations in the State are plotted against the long-term monthly mean in figure 2.

Conservation storage from a selected group of 31 reservoirs in this area (volume 1) of the State, with a total combined conservation capacity of 19,110,650 acre-feet, was 86 percent of capacity at the end of September 1983. This was the same percentage as that at the end of September 1982. Records from the 31 reservoirs show that contents increased in 11, decreased in 17, and remained the same in 3.

## Water Quality

Records of discharge-weighted-average concentrations of dissolved solids for the 1983 water year are compared in the following table with those for the 1979-83 water years for selected long-term daily or continuous stations in the Arkansas, Red, Sabine, Neches, and Trinity River basins:

Station identification	Mean discharge (cubic feet per second)		Discharge-weighted-average concentration of dissolved solids (milligrams per liter)	
	1983	1979-83	1983	1979-83
<u>Arkansas River basin</u>				
07227500 Canadian River near Amarillo, Tex	125	190	965	632
<u>Red River basin</u>				
07315500 Red River near Terral, Okla.	762	1,615	2,160	1,420
07336820 Red River near DeKalb, Tex.	9,832	11,020	319	394
<u>Sabine River basin</u>				
08018500 Sabine River near Mineola, Tex.	793	657	126	139
08030500 Sabine River near Ruliff, Tex.	11,800	8,010	67	75
<u>Neches River basin</u>				
*08033500 Neches River near Rockland, Tex	8,637	6,415	77	81
<u>Trinity River basin</u>				
08057410 Trinity River below Dallas, Tex.	1,115	2,417	342	252
08066500 Trinity River at Romayor, Tex.	6,818	7,684	171	184



## 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 past 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 ( $\text{ft}^3/\text{s}$ ,  $\text{ft}^3/\text{s}$ ) 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  $0.45\ \mu\text{m}$  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.H.T.) 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 trillionth ( $1 \times 10^{-12}$ ) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields  $3.7 \times 10^{10}$  radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

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

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



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

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

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

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon 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  $25^{\circ}\text{C}$ . 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.....Hexageria  
Species.....Hexagenia limbata

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

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

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

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

#### DOWNSTREAM ORDER AND STATION NUMBER

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

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

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

#### SPECIAL NETWORKS AND PROGRAMS

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

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

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

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

#### EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

##### Collection and computation of data

The basic data collected at gaging stations consist of (1) records of stage; (2) measurements of discharge of streams and canals; and (3) stage, surface area, and contents of lakes and reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement basic data in determining the daily flow or volume of water in storage. Records of stage are obtained



from direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at 5-, 15-, 30-, or 60-minute intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6. Surface areas of lakes or reservoirs are determined from instrument surveys using standard methods. The configuration of the reservoir bottom is often determined by sounding at many points.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening 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 11.

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 paragraphs following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are generally omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the significant statistics for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the



maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

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

#### Accuracy of field data and computed results

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

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

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft<sup>3</sup>/s; to tenths between 1.0 and 10 ft<sup>3</sup>/s; to whole numbers between 10 and 1,000 ft<sup>3</sup>/s; and to 3 significant figures above 1,000 ft<sup>3</sup>/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for 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

Thirty-seven manuals by the U.S. Geological Survey have been published to date 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, 604 South Pickett Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

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

- 1-D1. *Water temperature-influential factors, field measurements, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 p.
- 3-A1. *General field and office procedures for indirect measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 p.
- 3-A2. *Measurement of peak discharge by the slope-area methods*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 p.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 p.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 p.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 p.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 p.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 p.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 p.
- 3-A9. *Measurement of time of travel and dispersion in streams by dye tracing*, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 p.
- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 p.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 p.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 p.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 p.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 p.

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



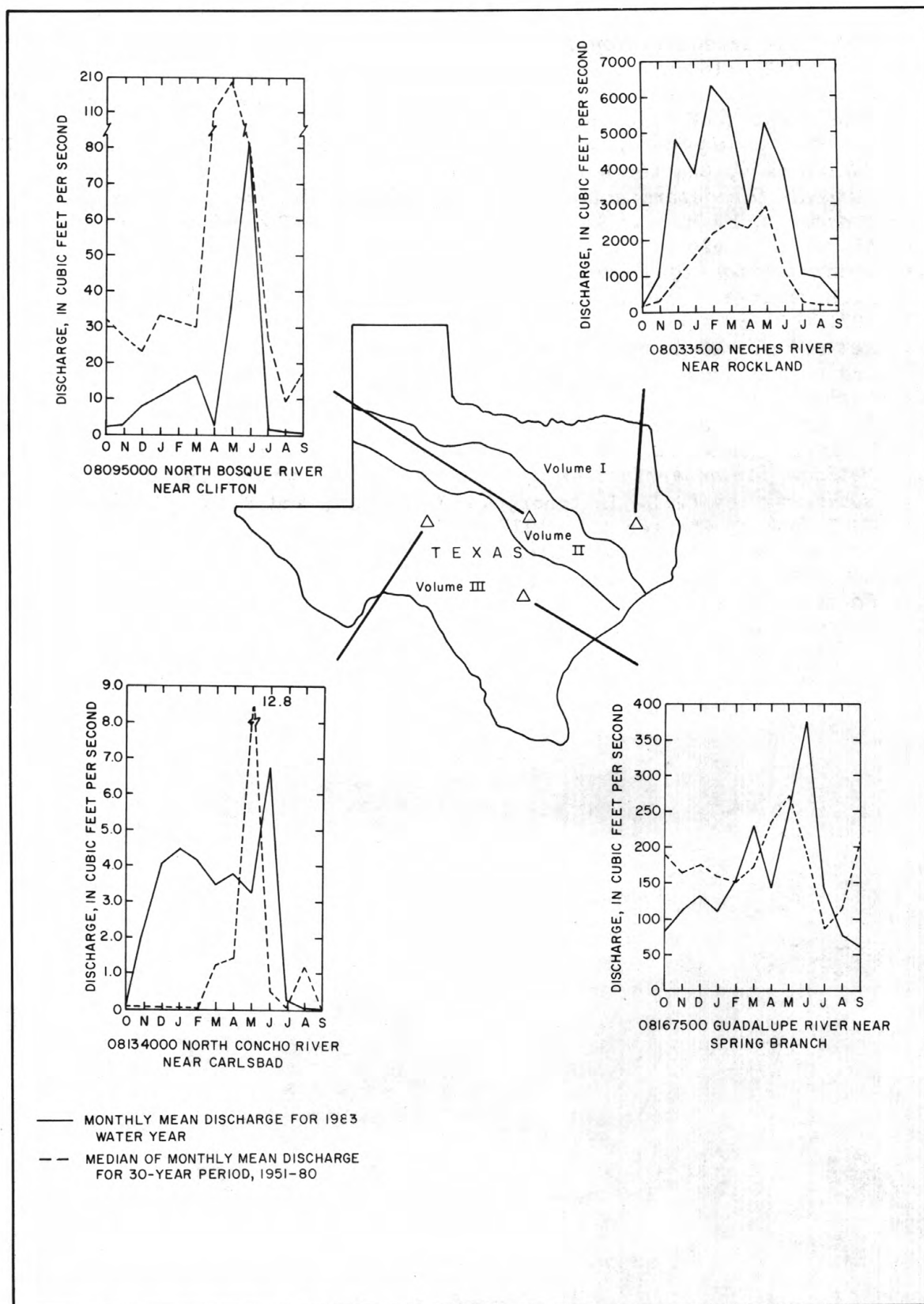


FIGURE 2.--COMPARISON OF MONTHLY MEAN DISCHARGE AT FOUR LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1983 WATER YEAR WITH MEDIAN OF THE MONTHLY MEAN DISCHARGE FOR THE PERIOD 1951-80.

LOWER MISSISSIPPI RIVER BASINS

29

ARKANSAS RIVER BASIN

07227000 CANADIAN RIVER AT LOGAN, NM

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

DRAINAGE AREA.--11,141 mi<sup>2</sup>, of which 1,110 mi<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 National Geodetic Vertical Datum of 1929. See WSP 1311 or 1731 for history of changes prior to Oct. 1, 1934.

REMARKS.--Records fair. Flow regulated by Conchas Lake (45 mi upstream) and Ute Reservoir (2 mi upstream). Diversions for irrigation of about 90,000 acres upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years (water years 1909, 1912-13, 1927-38) prior to completion of Conchas Dam, 392 ft<sup>3</sup>/s (284,000 acre-ft/yr); 24 years (water years 1939-62) prior to completion of Ute Dam, 257 ft<sup>3</sup>/s (186,200 acre-ft/yr); 21 years (water years 1963-83) regulated, 39.7 ft<sup>3</sup>/s (28,760 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD (SINCE 1925).--Maximum discharge, 219,000 ft<sup>3</sup>/s Sept. 22, 1941 (gage height, 29.3 ft, from floodmarks), from rating curve extended above 75,000 ft<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 Sept. 30, 1904 (gage height, about 36.5 ft, site and datum used in 1909), from rating curve extended above 14,000 ft<sup>3</sup>/s, from Ninth Biennial Report of State Engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 341 ft<sup>3</sup>/s Oct. 1 (gage height, 2.70 ft); minimum, 0.91 ft<sup>3</sup>/s Sept. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	284	299	267	6.5	7.7	117	22	2.7	2.4	5.5	1.8	1.5
2	281	300	267	6.5	7.2	10	23	2.8	2.4	5.3	2.3	1.6
3	281	297	267	6.5	7.1	8.1	22	2.7	2.4	5.3	1.9	1.7
4	281	298	265	6.5	7.5	7.3	23	2.7	2.4	5.7	1.9	1.6
5	280	298	262	6.5	6.8	7.0	23	2.7	2.4	5.6	1.8	1.4
6	282	297	261	6.4	6.7	6.9	23	2.7	2.4	5.4	1.8	1.4
7	281	296	232	6.1	6.5	6.3	23	2.7	2.3	5.4	1.7	1.6
8	281	294	259	6.1	6.2	6.2	23	2.7	2.7	5.5	1.7	1.7
9	283	296	258	5.9	5.9	5.9	23	4.0	55	5.4	1.6	1.4
10	285	293	130	5.9	5.8	5.7	22	2.4	270	5.5	1.6	1.3
11	283	290	8.0	5.9	5.7	5.6	22	2.1	267	5.5	1.7	1.5
12	286	290	7.0	5.9	5.6	5.5	75	2.1	264	5.6	1.9	1.3
13	286	289	6.5	5.9	5.6	5.5	124	2.1	262	5.5	2.0	1.3
14	286	289	6.5	5.8	5.6	5.2	126	2.2	259	5.1	1.9	1.4
15	288	287	6.5	5.8	5.5	5.5	127	2.1	115	5.1	1.9	1.2
16	287	286	6.5	5.8	5.6	5.5	127	2.1	11	5.1	1.8	1.3
17	290	286	6.5	5.8	5.4	5.6	127	1.8	8.3	4.9	1.7	1.2
18	289	285	6.5	143	5.3	5.3	126	1.9	7.0	4.6	1.7	1.2
19	290	283	6.5	254	5.1	5.7	126	1.9	6.4	4.0	1.7	1.2
20	291	282	6.5	255	5.2	5.3	59	2.9	6.2	3.5	1.7	1.1
21	290	284	6.5	253	5.2	5.2	4.7	2.6	5.8	3.2	1.6	1.3
22	291	283	6.5	252	5.1	5.1	3.8	2.3	5.7	3.0	1.5	1.2
23	294	278	6.5	252	134	5.1	3.3	2.2	5.8	2.8	1.5	1.4
24	294	275	6.5	250	253	5.2	3.0	2.2	5.6	2.6	1.6	1.4
25	293	277	6.5	116	252	5.2	2.9	2.2	5.4	2.4	1.5	1.3
26	296	275	6.5	12	252	5.2	2.8	2.8	5.6	2.2	1.4	1.4
27	297	275	6.5	9.4	252	5.2	2.8	3.0	5.7	2.0	1.4	1.3
28	295	271	6.5	8.3	250	14	2.8	2.7	5.6	1.9	1.4	1.2
29	296	274	6.5	7.8	---	23	2.8	2.5	5.6	1.8	1.4	1.2
30	299	271	6.5	7.5	---	22	2.8	2.4	5.7	1.8	1.4	1.3
31	301	---	6.5	8.1	---	22	---	2.4	---	1.8	1.4	---
TOTAL	8941	8598	2606.5	1931.9	1525.3	352.3	1297.7	76.6	1606.8	129.0	52.2	40.9
MEAN	288	287	84.1	62.3	54.5	11.4	43.3	2.47	53.6	4.16	1.68	1.36
MAX	301	300	267	255	253	117	127	4.0	270	5.7	2.3	1.7
MIN	280	271	6.5	5.8	5.1	5.1	2.8	1.8	2.3	1.8	1.4	1.1
AC-FT	17730	17050	5170	3830	3030	699	2570	152	3190	256	104	81

CAL YR 1982 TOTAL 72476.2 MEAN 199 MAX 3100 MIN 1.5 AC-FT 143800  
WTR YR 1983 TOTAL 27158.2 MEAN 74.4 MAX 301 MIN 1.1 AC-FT 53870

## ARKANSAS RIVER BASIN

07227100 REVUELTO CREEK NEAR LOGAN, NM

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

DRAINAGE AREA.--786 mi<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, from topographic map. Prior to Jan. 16, 1981, at site 320 ft upstream at datum 0.56 ft higher.

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

AVERAGE DISCHARGE.--24 years, 44.6 ft<sup>3</sup>/s (32,310 acre-ft/yr).

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

EXTREMES OUTSIDE PERIOD OF RECORD (1941-47).--Maximum discharge determined, about 13,400 ft<sup>3</sup>/s Sept. 18, 1946 (gage height, 9.04 ft), at site 180 ft downstream at different datum, from unpublished records collected by Bureau of Reclamation.

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

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 1	0330	4,490	6.66
June 8	2145	*4,900	6.94

Minimum discharge, no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1440	3.4	11	.80	35	3.0	2.7	.83	20	.25	58	4.6
2	310	4.8	5.7	1.3	65	3.3	5.7	6.5	13	.10	94	4.6
3	190	5.1	4.1	2.2	71	3.0	2.4	12	9.3	.05	46	5.8
4	80	4.9	3.2	3.1	44	3.2	3.0	8.8	9.4	.08	29	7.4
5	40	5.7	3.3	5.8	33	4.0	59	9.3	7.6	.07	23	6.8
6	17	6.3	3.2	4.2	45	4.4	87	7.4	12	.05	21	6.3
7	10	3.1	2.8	10	50	3.3	19	11	13	.02	19	5.4
8	8.0	2.5	1.7	8.4	70	3.6	13	11	688	.00	95	17
9	5.1	2.6	2.4	1.6	128	3.4	8.4	12	880	.00	23	16
10	5.2	2.3	6.5	.32	100	3.3	5.1	16	74	.00	6.8	10
11	6.1	1.6	18	.20	99	2.8	2.6	10	287	.00	2.4	8.6
12	6.1	1.1	27	.13	107	2.5	1.4	5.7	87	.04	5.7	8.6
13	6.3	.99	18	.06	102	2.5	2.4	7.0	30	.17	3.9	8.6
14	5.6	.91	9.6	.03	99	2.2	2.7	8.2	14	.06	2.1	7.2
15	6.9	.84	3.6	.00	53	1.7	3.0	9.6	8.6	.81	2.1	5.6
16	7.5	.84	2.3	.01	25	28	2.6	9.1	9.5	2.4	2.1	4.5
17	10	1.0	2.1	.00	13	33	1.1	9.2	4.6	3.3	1.4	4.9
18	10	1.1	1.2	.03	8.7	15	1.3	9.1	2.6	1.3	.90	4.2
19	7.6	.83	.51	.02	6.7	87	.78	9.2	1.8	.61	.55	4.0
20	7.3	.60	.46	.02	4.8	93	.56	21	1.1	.70	.37	3.2
21	17	.63	.53	.20	4.6	21	.89	39	.62	1.0	14	3.6
22	16	.63	.35	.41	4.6	14	.87	34	.33	1.0	9.8	7.7
23	14	.78	.23	2.5	4.7	9.1	.91	35	.23	.43	4.6	7.2
24	14	.80	.15	8.7	4.2	4.9	.79	23	.20	.25	3.6	7.9
25	13	.88	.04	22	3.9	3.4	.25	49	.14	.26	2.8	42
26	11	1.0	.03	35	3.5	2.9	.22	23	.10	.09	2.1	20
27	8.1	2.4	.07	3.8	3.3	2.3	.25	18	.32	.07	1.9	13
28	5.9	7.5	.30	1.7	3.2	1.9	.23	9.3	.51	.04	32	9.1
29	4.0	55	.46	.89	---	1.5	.89	5.8	1.2	.01	32	8.6
30	3.6	23	.55	.53	---	1.5	.22	12	.79	.01	11	9.4
31	3.7	---	.65	20	---	1.3	---	21	---	.00	6.3	---
TOTAL	2289.0	143.13	130.03	133.95	1191.2	366.0	229.26	462.03	2176.94	13.17	556.42	271.8
MEAN	73.8	4.77	4.19	4.32	42.5	11.8	7.64	14.9	72.6	.42	17.9	9.06
MAX	1440	55	27	35	128	93	87	49	880	3.3	95	42
MIN	3.6	.60	.03	.00	3.2	1.3	.22	.83	.10	.00	.37	3.2
AC-FT	4540	284	258	266	2360	726	455	916	4320	26	1100	539
CAL YR 1982	TOTAL	15098.85	MEAN	41.4	MAX	2220	MIN	.00	AC-FT	29950		
WTR YR 1983	TOTAL	7962.93	MEAN	21.8	MAX	1440	MIN	.00	AC-FT	15790		



## ARKANSAS RIVER BASIN

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07227100 REVUELTO CREEK NEAR LOGAN, NM--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	
OCT 06...	1545	15	950	8.8	21.0	--	--	--	--	--	
DEC 09...	1400	1.9	--	8.5	1.0	260	29	55	30	310	
FEB 08...	1730	67	830	8.3	6.0	--	--	--	--	--	
APR 13...	1400	2.8	2220	8.3	7.0	350	130	63	48	360	
JUN 15...	1445	7.5	1310	8.5	28.5	240	49	54	25	220	
AUG 10...	1430	6.6	1210	8.7	32.5	200	4	46	21	190	
DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	IRON, DIS- SOLVED (UG/L AS FE)
OCT 06...	--	--	--	--	--	--	--	176	7.1	97	--
DEC 09...	8.6	3.7	380	260	.50	7.9	1190	--	--	--	50
FEB 08...	--	--	--	--	--	--	--	2180	388	--	--
APR 13...	8.5	3.4	660	180	.60	6.3	1460	49	.38	86	10
JUN 15...	6.4	5.7	370	92	.60	7.8	889	81	1.6	94	8
AUG 10...	6.0	5.0	320	70	.70	9.5	781	790	14	95	6

## ARKANSAS RIVER BASIN

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 upstream from New Mexico-Texas State line, 5.5 mi downstream from Rana Canyon and 14.7 mi north of Glenrio.

DRAINAGE AREA.--12,616 mi<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 1982 TO SEPTEMBER 1983

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	
DATE	TIME											
OCT 05...	1045	326	800	8.6	21.0	600	8.1	--	400	180	120	
DEC 08...	1100	214	1000	8.1	.0	3.5	13.4	8260	K15	100	150	
APR 12...	1200	40	3700	8.4	15.0	120	--	--	K0	E40	360	
JUN 14...	1145	275	1030	8.4	21.0	450	8.4	105	380	190	200	
AUG 09...	1200	38	6800	8.2	27.0	41	7.2	103	360	K2400	500	
		HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
DATE	TIME											
OCT 05...	0	31	10	120	5.0	4.1	--	100	100	.60	7.2	
DEC 08...	0	36	14	150	5.5	4.2	--	110	150	.50	6.8	
APR 12...	120	78	40	620	15	5.5	--	330	840	.60	7.4	
JUN 14...	0	47	19	160	5.1	4.7	220	190	110	.60	6.7	
AUG 09...	300	100	60	1100	22	--	--	470	1700	.60	7.7	
		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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
DATE	TIME											
OCT 05...		441	462	.17	<.060	.90	.680	.030	1560	1370	76	
DEC 08...		638	571	.21	.060	2.10	.100	.090	200	111	77	
APR 12...	2130	2060	2060	.28	.060	.90	.080	.020	148	16	94	
JUN 14...	647	672	672	.14	.080	.70	.780	.020	951	706	91	
AUG 09...	3400	--	--	<.10	.120	2.10	4.50	.050	964	99	96	
				ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)		
DATE	TIME											
OCT 05...	1045			3	220	<1	<1	<3	5	74		
APR 12...	1200			2	100	<1	<1	1	3	30		
JUN 14...	1145			3	170	<1	2	<3	2	11		
AUG 09...	1200			1	100	1	<1	<1	3	30		

## ARKANSAS RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 05...	3	<1	.2	1	1	<1	<3
APR 12...	<1	10	<.1	2	1	<1	20
JUN 14...	<1	2	<.1	1	1	<1	8
AUG 09...	<1	10	<.1	1	1	<1	20



## 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 downstream from Pitcher Creek, 1.4 mi downstream from East Amarillo Creek, 1.7 mi downstream from Panhandle and Santa Fe Railway Co. bridge, 19 mi north of Amarillo, and 537.7 mi upstream from mouth.

DRAINAGE AREA.--19,445 mi<sup>2</sup>, of which 4,069 mi<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 National Geodetic Vertical Datum of 1929. Jan. 16, 1924, to Dec. 31, 1925, and Apr. 3 to June 1, 1938, nonrecording gage at site of old bridge 20 ft upstream at same datum. June 2 to Dec. 5, 1938, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair. 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. Conchas Canal and Bell Ranch Canal divert from Conchas Reservoir for irrigation.

AVERAGE DISCHARGE.--46 years (water years 1925, 1939-83), 331 ft<sup>3</sup>/s (239,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 135,000 ft<sup>3</sup>/s July 25, 1941 (gage height, 15.7 ft), from rating curve extended above 100,000 ft<sup>3</sup>/s; no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,590 ft<sup>3</sup>/s Oct. 2 at 0400 hours (gage height, 4.67 ft), no peak above base of 14,000 ft<sup>3</sup>/s; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	489	254	323	53	170	204	46	18	52	.68	.38	.13
2	2140	247	338	55	170	239	42	14	50	.36	.17	.06
3	876	250	379	55	157	260	42	15	38	.23	.13	.00
4	610	257	375	53	161	277	41	14	25	.18	.10	.00
5	411	254	367	55	170	230	52	13	27	.29	.09	.00
6	286	280	334	73	175	144	57	8.0	30	.59	.08	.00
7	281	278	262	96	185	107	61	4.4	30	.18	.09	.00
8	277	273	254	97	195	85	76	3.5	29	.20	.10	.00
9	273	287	254	91	206	63	82	4.4	26	.17	.06	.00
10	249	305	254	83	212	56	85	27	675	.18	.11	.00
11	260	310	254	71	234	50	102	43	407	.22	.13	.00
12	285	314	254	72	255	43	90	19	364	.17	.10	.00
13	299	308	247	84	341	39	76	17	404	.10	.13	.00
14	307	308	199	78	351	35	70	249	324	.02	.21	.00
15	316	280	133	73	273	33	71	96	297	.02	.21	.00
16	296	304	117	68	223	39	69	55	246	.01	.17	.00
17	301	316	109	76	201	38	64	37	229	.02	.13	.00
18	287	313	109	81	170	44	98	23	218	.07	.17	.00
19	296	301	99	81	144	61	105	13	183	.02	.06	.00
20	291	297	87	81	124	113	105	10	90	.00	.13	.00
21	305	286	78	84	96	106	113	78	48	.00	.10	.02
22	283	298	78	87	78	111	115	34	30	.01	.06	.05
23	289	299	73	166	78	108	115	31	21	.01	.00	.10
24	285	338	65	310	64	109	114	21	16	.02	.00	.10
25	291	363	61	387	59	118	84	22	11	.02	.00	.10
26	287	332	57	260	55	111	54	29	7.8	.04	.02	.10
27	292	379	55	235	52	93	40	51	5.3	.02	.10	.08
28	284	411	50	229	124	79	30	26	3.2	.04	.13	.09
29	288	425	52	212	---	66	27	44	2.5	.21	.13	.10
30	289	393	53	195	---	57	23	49	1.6	2.3	.13	.10
31	290	---	53	190	---	50	---	53	---	3.3	.13	---
TOTAL	12013	9260	5423	3831	4723	3168	2149	1121.3	3890.4	9.68	3.55	1.03
MEAN	388	309	175	124	169	102	71.6	36.2	130	.31	.11	.034
MAX	2140	425	379	387	351	277	115	249	675	3.3	.38	.13
MIN	249	247	50	53	52	33	23	3.5	1.6	.00	.00	.00
AC-FT	23830	18370	10760	7600	9370	6280	4260	2220	7720	19	7.0	2.0
CAL YR 1982	TOTAL	126448.50	MEAN	346	MAX	11400	MIN	2.1	AC-FT	250800		
WTR YR 1983	TOTAL	45592.96	MEAN	125	MAX	2140	MIN	.00	AC-FT	90430		

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: July 1948 to October 1949, February 1950 to current year. Chemical and biochemical analyses: January 1969 to current year. Pesticide analyses: October 1968 to September 1981.

## 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, 6,870 micromhos July 11, 1983; 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, 6,870 micromhos July 11; minimum daily, 466 micromhos Sept. 23.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
OCT 28...	1320	280	1150	8.0	13.5	30	640	10.0	107	4.0	190
JAN 06...	1620	76	2550	8.3	5.0	90	54	15.7	136	6.6	400
MAR 21...	1630	109	2300	8.4	11.0	10	170	13.5	138	12	350
MAY 05...	1115	15	3930	8.2	15.5	<1	5.4	13.2	151	.3	560
JUL 27...	1630	.03	2350	8.1	30.0	15	32	9.3	140	1.4	360
SEP 02...	1300	.09	680	8.2	29.5	20	88	12.2	180	.8	--
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- LILITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 28...	28	47	17	170	5.6	4.2	160	150	200	.70	7.1
JAN 06...	200	100	36	390	8.8	5.8	200	300	590	.70	11
MAR 21...	140	81	36	370	8.9	5.8	210	270	480	<.10	10
MAY 05...	380	130	57	630	12	6.4	180	530	850	.60	14
JUL 27...	200	91	32	330	7.8	4.4	160	220	480	.60	22
SEP 02...	--	--	--	--	--	--	180	34	71	.60	25
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 28...	692	150	126	.00	.120	.10	.110	.99	1.10	.240	--
JAN 06...	1550	146	22	.24	.060	.30	1.50	1.4	2.90	.600	6.2
MAR 21...	1380	160	41	.41	.090	.50	1.30	1.9	3.20	.410	8.4
MAY 05...	2330	14	<1	--	<.020	<.10	.090	.31	.40	.040	3.7
JUL 27...	1280	55	3	--	<.020	<.10	.080	.62	.70	.050	5.0
SEP 02...	--	93	16	.02	.080	.10	.120	.18	.30	.050	1.7

## ARKANSAS RIVER BASIN

07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAR 21...	1630	2	100	1	<10	4	10
JUL 27...	1630	3	400	<1	<10	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)
MAR 21...	<1	20	<.1	1	<1	10
JUL 27...	<1	10	<.1	1	<1	10

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	12013	1040	609	19800	180	5720	130	4350	170
NOV.	1982	9260	1240	723	18100	210	5300	160	4000	200
DEC.	1982	5423	1750	1040	15200	320	4730	230	3420	290
JAN.	1983	3831	2190	1300	13500	420	4330	300	3070	360
FEB.	1983	4723	2080	1240	15800	390	4940	280	3560	340
MAR.	1983	3168	2290	1360	11700	440	3750	310	2650	370
APR.	1983	2149	3040	1830	10600	610	3540	420	2440	500
MAY	1983	1121.3	1950	1160	3520	370	1130	260	800	320
JUNE	1983	3890.4	1720	1020	10700	310	3270	230	2390	280
JULY	1983	9.68	3270	1990	52	700	18	470	12	540
AUG.	1983	3.55	2000	1190	11	390	3.7	270	2.6	330
SEPT	1983	1.03	535	309	0.9	86	0.2	67	0.2	88
TOTAL		45592.96	**	**	119000	**	36700	**	26700	**
WTD. AVG.		125	1630	965	**	300	**	220	**	270



## ARKANSAS RIVER BASIN

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07227500 CANADIAN RIVER NEAR AMARILLO, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
EQUIVALENT MEAN												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	1200	1250	3500	1880	2150	3430	3810	2700	3730	1980	750
2	1040	1190	1310	3150	2090	1870	3370	3970	2880	4160	2550	685
3	650	1210	1270	2920	2180	1540	3200	3950	3230	4620	3120	---
4	797	1200	1280	2800	2150	1410	3440	3940	3140	4980	3770	---
5	822	1220	1320	2790	2140	1500	3510	3960	2170	4470	4440	---
6	906	1210	1370	2550	2160	1630	3580	4140	2230	4400	3530	---
7	980	1200	1390	2660	2180	1800	3630	4490	2170	4320	3240	---
8	995	1220	1380	2780	2130	1970	3190	4340	2250	4200	2890	---
9	1010	1200	1390	2840	2040	2110	3000	4400	2340	4320	2650	---
10	1030	1190	1370	2960	1980	2490	3050	3860	1800	6860	1760	---
11	1050	1200	1090	3110	1840	2830	3060	3000	1520	6870	1190	---
12	1060	1210	1450	3320	1850	3150	3120	3220	1550	6430	2370	---
13	1080	1230	1790	3500	1610	3460	3070	3260	1610	5870	2330	---
14	1070	1250	1900	3640	1590	3400	2950	941	1710	3570	2010	---
15	1080	1260	2150	3440	1700	3470	2880	1500	1500	3990	1850	---
16	1100	1250	2340	3250	1920	3380	3090	1490	1360	4360	1720	---
17	1110	1260	2550	3100	2140	3400	3190	1490	1430	4980	680	---
18	1360	1270	2560	2960	2350	3170	3510	1480	1570	5220	691	---
19	1300	1260	2660	3000	2520	2750	3270	1550	1710	5370	640	---
20	1240	1280	2810	3040	2510	2020	2540	1720	1820	---	1360	---
21	1160	1270	3000	2990	2600	2300	2480	1310	1930	---	3020	485
22	1150	1270	3120	2960	2690	2260	2550	1400	2230	3080	6300	472
23	1140	1280	3270	2050	2780	2750	2620	1490	2590	2730	---	466
24	1130	1250	3360	1550	2850	3040	2740	1560	2980	2780	---	474
25	1140	1240	3300	1460	2880	3000	2870	1580	3360	3130	---	476
26	1130	1270	3230	1470	2920	3040	3000	2220	3700	2770	1120	482
27	1160	1240	3320	1350	2950	3070	3090	2250	3930	2350	1050	507
28	1150	1230	3440	1400	2700	3080	3440	2350	4000	2840	975	509
29	1170	1240	3550	1520	---	3100	3460	2830	4050	3290	930	512
30	1180	1250	3620	1600	---	3360	3510	2300	4080	2850	897	514
31	1200	---	3640	1740	---	3520	---	2550	---	1990	840	---
MEAN	1080	1240	2310	2630	2260	2650	3130	2660	2450	4160	2140	528

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
ONCE-DAILY												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	11.0	9.0	---	---	---	16.0	27.0	---	19.0	20.0	---
2	19.0	11.0	6.0	---	---	---	18.0	20.0	15.0	19.0	---	22.0
3	---	6.0	---	---	1.0	---	19.0	---	17.0	20.0	---	---
4	17.0	3.0	---	3.0	---	---	11.0	---	16.0	15.0	21.0	---
5	18.0	---	---	5.0	---	---	---	11.0	15.0	17.0	21.0	---
6	15.0	---	---	6.0	1.0	14.0	---	12.0	21.0	---	20.0	---
7	14.0	---	5.0	6.0	3.0	17.0	10.0	10.0	22.0	---	---	---
8	---	---	---	7.0	---	---	11.0	11.0	---	16.0	---	---
9	---	16.0	2.0	8.0	---	---	17.0	13.0	---	19.0	20.0	---
10	---	15.0	3.0	9.0	10.0	17.0	21.0	15.0	16.0	18.0	20.0	---
11	---	12.0	2.0	---	10.0	18.0	10.0	---	20.0	19.0	21.0	---
12	13.0	11.0	5.0	---	10.0	20.0	9.0	---	19.0	20.0	32.0	---
13	15.0	12.0	6.0	10.0	10.0	23.0	---	17.0	18.0	18.0	33.0	---
14	17.0	6.0	---	9.0	10.0	11.0	---	9.0	16.0	18.0	---	---
15	18.0	8.0	---	9.0	12.0	12.0	7.0	11.0	18.0	---	---	---
16	17.0	---	8.0	9.0	---	---	9.0	13.0	18.0	---	34.0	---
17	20.0	---	10.0	7.0	---	---	9.0	12.0	---	---	35.0	---
18	21.0	13.0	12.0	5.0	---	4.0	9.0	10.0	---	---	34.0	---
19	---	15.0	11.0	---	9.0	---	11.0	---	---	32.0	34.0	---
20	---	13.0	12.0	---	6.0	4.0	11.0	---	---	---	36.0	---
21	15.0	18.0	10.0	---	4.0	---	13.0	---	31.0	---	31.0	---
22	16.0	12.0	---	---	4.0	3.0	---	---	33.0	32.0	34.0	28.0
23	18.0	5.0	---	.0	---	---	---	---	31.0	32.0	---	29.0
24	15.0	---	3.0	1.0	6.0	6.0	---	29.0	31.0	35.0	---	30.0
25	18.0	---	1.0	3.0	---	---	---	31.0	31.0	35.0	---	30.0
26	---	---	2.0	3.0	---	---	---	31.0	21.0	---	21.0	30.0
27	---	---	---	3.0	---	---	25.0	32.0	34.0	---	---	27.0
28	---	8.0	---	---	---	---	25.0	34.0	---	23.0	---	---
29	7.0	6.0	1.0	---	---	13.0	26.0	29.0	---	23.0	24.0	---
30	9.0	5.0	.0	---	---	20.0	23.0	15.0	17.0	23.0	23.0	18.0
31	12.0	---	---	---	---	20.0	---	---	---	18.0	---	---
MEAN	16.0	10.5	5.5	5.5	7.0	13.5	15.0	18.5	22.0	22.5	27.0	27.0

## 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 northwest of Sanford, and 508.5 mi upstream from mouth.

DRAINAGE AREA.--20,220 mi<sup>2</sup>, of which 4,172 mi<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 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 conduit that is designed to discharge 19,300 ft<sup>3</sup>/s at an elevation of 3,004.9 ft. The flood-control outlet works consist of three 12- by 15-foot gates that open into three 15.5-foot concrete conduits. The flood-control works are located just to the left of the service spillway near the left end of dam. The dam was built by the U.S. Bureau of Reclamation for the Canadian River Municipal Water Authority for flood control, municipal, and industrial supply for the cities of Amarillo, Borger, Brownfield, Lamesa, Levelland, Lubbock, O'Donnell, Pampa, Plainview, Slaton, and Tahoka. The area-capacity curves are based on sediment resurvey in May 1980 by U.S. Bureau of Reclamation. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 464,000 acre-ft Mar. 24, 26 at 2400 hours (elevation, 2,910.08 ft); minimum, 404,700 acre-ft Sept. 30 (elevation, 2,904.77 ft).

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

2,904.0	396,600	2,908.0	440,100
2,905.0	407,200	2,909.0	451,500
2,906.0	418,000	2,910.0	463,100
2,907.0	429,000	2,911.0	474,800

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	428800	437900	445400	448900	454000	461700	462700	459000	455500	453000	436900	420400
2	431400	437900	445400	448900	454000	462000	462600	459200	454800	452100	436300	420300
3	433400	438300	445700	448800	454200	462300	462400	458900	454400	451300	435700	419500
4	434200	438300	445900	448500	454800	463000	462100	458500	454200	450500	435100	418800
5	434900	438600	446300	448500	455200	463400	461900	458400	453700	450300	434600	418200
6	434400	438800	446700	448500	455400	463400	462000	457500	453800	449600	434600	417400
7	434900	438800	446700	448300	455400	463500	462000	457300	453600	449100	433400	416400
8	434800	439000	447100	448300	455800	463400	462400	457200	453200	448700	433000	416000
9	434800	439500	447600	448300	456700	463400	462300	457000	454200	447900	432500	415500
10	434600	440600	447700	448300	456700	463300	462400	457800	455200	447300	432100	415000
11	434800	440100	448300	448300	456900	463300	462100	457700	456800	446800	431500	415000
12	435100	440300	448900	448500	457400	463100	461800	457300	456900	446300	431000	413800
13	435300	439900	449300	448500	458300	463100	461900	457500	456500	445600	430500	413300
14	435400	440500	449300	448300	458300	463100	461700	457600	456700	445400	430000	413300
15	435400	440600	449700	448300	459100	463100	461400	457600	456300	445200	429500	412600
16	435900	440600	449700	448300	459600	463400	461100	458100	456900	444700	429000	412500
17	435900	440900	449800	448500	459900	463200	461100	457500	457400	444200	428400	411800
18	436300	441400	449500	448500	460300	462800	461200	456900	457600	443900	427500	411200
19	436200	441500	449500	448500	460400	463200	461000	456700	457800	443400	429900	409500
20	436400	441400	449700	448800	460900	463200	461300	456900	457500	442900	426500	409200
21	436400	441700	449600	449300	461100	463200	461100	456700	456800	442300	425900	408800
22	436600	441700	449500	449500	461100	463300	461000	456300	456200	441700	425500	408100
23	436600	441800	449700	449700	461200	463500	461000	456300	455800	442000	425000	407700
24	436800	442200	449000	450000	461600	464000	461100	455800	455400	440800	424600	407200
25	436800	442200	448400	450400	461700	463900	461400	455900	455100	439900	424000	407000
26	437600	442200	448400	450700	461800	464000	460500	455800	454400	439500	423300	406700
27	437600	443500	448400	451900	461700	463500	460300	455800	455300	439000	422700	406100
28	437400	443900	448400	452300	461600	463300	460200	455500	454200	438600	421900	405500
29	437600	444900	448400	452500	---	463200	459900	455300	453900	438100	421700	405100
30	437600	444900	448900	452800	---	463200	459900	455100	453800	437900	421400	404700
31	437800	---	448900	453500	---	463200	---	455000	---	437200	420400	---
MAX	437800	444900	449800	453500	461800	464000	462700	459200	457800	453000	436900	420400
MIN	428800	437900	445400	448300	454000	461700	459900	455000	453200	437200	420400	404700
(†)	2907.79	2908.42	2908.77	2909.17	2909.87	2910.02	2909.73	2909.30	2909.20	2907.74	2906.22	2904.77
(‡)	+10000	+7100	+4000	+4600	+8100	+1600	-3300	-4900	-1200	-16600	-16800	-15700
(††)	5030	5340	5110	4180	4520	5440	5480	6580	6790	9140	9630	7560
CAL YR 1982	MAX	449800	MIN	297700	†	+124800	††	69608				
WTR YR 1983	MAX	464000	MIN	404700	†	-23100	††	74800				

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

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

ARKANSAS RIVER BASIN

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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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JAN 07...	1440	1410	5.5	200	32	48	20	220

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
JAN 07...	6.9	5.4	170	190	230	.70	4.6	821





## ARKANSAS RIVER BASIN

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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 downstream from Panhandle and Santa Fe Railway Co. bridge, 1.2 mi downstream from Red Deer Creek, 1.6 mi northeast of Canadian, and 433.9 mi upstream from mouth.

DRAINAGE AREA.--22,866 mi<sup>2</sup>, of which 4,688 mi<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 National Geodetic Vertical Datum of 1929. July 1, 1924, to Aug. 31, 1925, and Apr. 21 to Dec. 15, 1938, nonrecording gage; Dec. 16, 1938, to Sept. 30, 1953, water-stage recorder and nonrecording gages; all at site 300 ft upstream at same datum.

REMARKS.--Water-discharge records fair. Extreme low flow is maintained by springs which enter the river about 600 ft above gage. Some regulation and diversions from Lake Meredith (station 07227900) 75 mi upstream. 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 (397,800 acre-ft/yr); 19 years (water years 1965-83) regulated, 90.3 ft<sup>3</sup>/s (65,420 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,600 ft<sup>3</sup>/s June 11 at 0400 hours (gage height, 9.56 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	23	59	45	95	124	96	64	298	79	4.0	.00
2	20	22	55	45	100	127	74	56	277	62	3.4	.00
3	17	20	52	50	95	138	78	40	174	53	2.5	.00
4	17	21	51	60	90	181	74	40	121	36	2.2	.00
5	16	22	51	64	100	198	100	40	97	34	1.6	.00
6	13	25	49	52	110	197	151	46	95	34	1.8	.00
7	12	28	47	53	127	173	158	40	88	31	1.5	.00
8	14	26	44	55	139	151	240	34	89	28	1.2	.00
9	11	29	48	55	150	137	263	33	84	26	.97	.00
10	10	30	58	52	177	125	262	39	694	22	1.1	.00
11	11	32	52	53	186	130	223	40	8030	21	.66	.00
12	13	28	51	53	182	136	170	38	1230	19	.87	.00
13	14	26	54	55	169	141	111	43	693	15	.56	.00
14	14	28	52	51	152	142	93	358	257	12	.10	.00
15	15	28	47	45	138	136	89	182	170	10	.13	.00
16	15	35	47	45	123	157	94	216	171	9.4	.10	.00
17	16	36	49	42	112	207	99	130	342	10	.10	.00
18	17	40	53	42	123	248	88	84	354	11	.08	.00
19	14	45	50	50	119	268	79	54	296	11	.03	.00
20	14	42	50	55	120	295	74	47	172	7.9	.00	.00
21	14	39	51	58	186	324	80	37	113	7.0	.02	.00
22	16	40	50	65	208	286	95	28	92	5.5	.02	.00
23	17	34	54	76	147	279	99	125	82	4.6	.03	.00
24	18	32	54	81	139	223	98	132	63	4.1	.03	.00
25	18	36	45	84	126	239	99	118	58	4.1	.04	.00
26	19	41	45	78	122	198	106	111	56	4.1	.04	.00
27	20	46	63	76	115	150	99	94	58	3.6	.06	.00
28	19	47	68	87	122	111	87	162	441	2.9	.05	.00
29	18	52	60	91	---	100	81	95	291	2.9	.02	.00
30	21	58	50	97	---	98	72	59	147	4.5	.00	.00
31	23	---	45	99	---	113	---	197	---	5.2	.00	---
TOTAL	492	1011	1604	1914	3772	5532	3532	2782	15133	579.8	23.21	.00
MEAN	15.9	33.7	51.7	61.7	135	178	118	89.7	504	18.7	.75	.000
MAX	23	58	68	99	208	324	263	358	8030	79	4.0	.00
MIN	10	20	44	42	90	98	72	28	56	2.9	.00	.00
AC-FT	976	2010	3180	3800	7480	10970	7010	5520	30020	1150	46	.00
CAL YR 1982	TOTAL	31753.00	MEAN	87.0	MAX	2280	MIN	10	AC-FT	62980		
WTR YR 1983	TOTAL	36375.01	MEAN	99.7	MAX	8030	MIN	.00	AC-FT	72150		

## ARKANSAS RIVER BASIN

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 September 1982.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1981.

WATER TEMPERATURES: October 1974 to September 1981.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 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.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT 25...	1230	20	3300	8.1	14.0	10	11.7	124	2.7	320
JAN 03...	1340	50	3300	8.0	.5	18	18.5	143	2.8	100
MAR 23...	1315	282	2680	8.1	4.5	130	15.2	129	>26	220
MAY 02...	1410	61	3740	8.2	20.5	2.5	10.9	134	2.9	K12
JUL 25...	1300	4.1	2100	8.1	33.0	3.4	9.7	151	.9	3600
AUG 29...	1400	E.04	700	8.5	30.5	1.9	14.2	208	2.0	290

DATE	STREP- TOCOC- CI 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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT 25...	330	540	340	120	59	480	9.2	12	200	240
JAN 03...	140	590	330	140	58	440	8.1	11	260	280
MAR 23...	6500	550	290	130	55	380	7.3	8.6	260	220
MAY 02...	920	620	400	140	66	540	9.7	12	220	310
JUL 25...	4100	310	110	67	34	300	7.7	6.8	200	110
AUG 29...	2400	190	26	51	14	68	2.3	3.0	160	21

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, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
OCT 25...	850	3.6	16	1910	1900	--	<.020	<.10	<.10	<.060
JAN 03...	760	2.9	22	1910	1870	.77	.030	.80	.85	.420
MAR 23...	630	2.1	21	1720	1610	.66	.040	.70	.75	.250
MAY 02...	920	2.8	16	2190	2140	--	<.020	--	<.10	.110
JUL 25...	470	1.6	25	1150	1130	--	<.020	<.10	<.10	.050
AUG 29...	110	.60	28	385	393	--	<.020	<.10	<.10	.030

## ARKANSAS RIVER BASIN

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07228000 CANADIAN RIVER NEAR CANADIAN, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 25...	.060	--	.80	.020	.010	<.010	22	1.2	64
JAN 03...	.450	.18	.60	.200	.100	.090	110	15	88
MAR 23...	.200	1.5	1.70	.330	.160	.150	1	.76	60
MAY 02...	.060	.79	.90	.120	.040	.040	80	13	16
JUL 25...	.060	.55	.60	.060	.030	.010	5	.06	55
AUG 29...	.030	.47	.50	.030	<.010	.010	6	--	32

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 25...	1230	4	100	<10	5	<1	<5	<5	10	20
MAR 23...	1315	2	200	<10	<1	<1	1	3	20	1
MAY 02...	1410	3	100	<10	<1	<1	<1	1	30	<1
AUG 29...	1400	4	340	<1	2	<1	<3	3	21	2

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 25...	100	20	.1	4	5	1	5	2100	9.6	10
MAR 23...	100	40	.1	4	4	1	<1	2100	8.6	10
MAY 02...	110	20	<.1	4	2	2	<1	2700	14	10
AUG 29...	36	28	<.1	<10	11	1	<1	570	<6.0	9

## ARKANSAS RIVER BASIN

07235000 WOLF CREEK AT LIPSCOMB, TX

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

DRAINAGE AREA.--697 mi<sup>2</sup>, of which 222 mi<sup>2</sup> probably is noncontributing.

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

Water-quality records: Chemical and biochemical analyses: May 1980.

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

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

REMARKS.--Records fair. Small diversions upstream from station for irrigation and recreation.

AVERAGE DISCHARGE.--27 years (water years 1938-42, 1962-83), 16.0 ft<sup>3</sup>/s (0.46 in/yr), 11,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft<sup>3</sup>/s Oct. 21, 1941 (gage height, 11.57 ft, present datum), from rating curve extended above 14,000 ft<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 June 23, 1957, present site and datum, from floodmarks. A flood in May 1955 reached a stage of 12.1 ft, present site and datum, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 52 ft<sup>3</sup>/s June 11 (gage height, 4.27 ft), no peak above base of 500 ft<sup>3</sup>/s; minimum, 0.33 ft<sup>3</sup>/s Aug. 25-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.69	.63	.88	1.3	2.8	1.8	4.0	2.5	3.6	5.3	.66	.55
2	.69	.69	.95	1.4	1.5	2.0	4.1	2.3	3.5	4.6	.60	.51
3	.63	.69	1.0	1.4	1.4	2.1	3.6	2.3	2.9	4.0	.57	.48
4	.69	.63	.95	1.4	1.4	2.6	3.6	2.3	2.6	3.6	.55	.56
5	.69	.69	.95	1.4	1.5	2.4	3.6	2.4	2.5	3.4	.52	.71
6	.69	.75	1.0	1.5	1.8	2.4	3.5	2.4	2.5	3.3	.51	.51
7	.63	.75	1.1	1.5	2.0	2.2	3.5	2.1	2.5	3.1	.55	.50
8	.69	.69	1.1	1.5	2.0	2.0	3.5	2.0	2.3	2.9	.62	.45
9	.69	.69	1.0	1.5	2.3	1.9	3.5	2.0	2.2	2.9	.57	.42
10	.75	.75	1.1	1.5	2.4	2.0	3.3	2.2	3.9	2.7	.53	.45
11	.69	.81	1.1	1.5	2.7	2.0	3.3	2.1	30	2.6	.52	.57
12	.75	.75	1.3	1.5	2.7	2.0	3.3	2.0	35	2.4	.48	.54
13	.81	.75	1.2	1.5	2.7	2.1	3.3	2.3	16	2.1	.53	.92
14	.88	.81	1.2	1.5	2.6	2.0	3.3	3.5	12	2.0	.53	.78
15	.88	.88	1.2	1.5	2.6	1.9	3.0	3.2	10	1.9	.50	.62
16	.88	.88	1.2	1.5	2.4	2.7	3.0	3.0	8.9	1.7	.51	.58
17	.95	.88	1.3	1.5	2.4	2.9	3.0	3.0	10	1.6	.49	.52
18	.95	.88	1.3	1.3	2.4	2.9	3.0	2.9	9.6	1.4	.50	.48
19	.88	.81	1.4	1.2	2.4	3.9	3.0	2.9	7.6	1.4	.48	.48
20	.88	.75	1.4	1.2	2.3	3.9	2.9	2.9	6.6	1.3	.50	.48
21	.75	.75	1.3	1.1	2.4	3.8	2.8	2.9	5.9	1.2	.49	.53
22	.75	.75	1.4	1.2	2.8	3.8	2.8	2.8	5.5	1.1	.51	.57
23	.69	.81	1.4	1.2	2.8	4.0	2.8	2.8	5.0	1.0	.45	.55
24	.69	.81	1.6	1.4	2.6	4.1	2.7	2.8	4.6	1.0	.42	.56
25	.69	.88	1.7	1.5	2.5	4.3	2.6	3.0	4.4	.81	.43	.62
26	.69	.88	1.6	1.5	2.2	4.4	2.2	3.3	4.4	.76	.41	.60
27	.63	.88	1.5	1.3	2.1	4.2	2.2	3.0	4.2	.67	.42	.53
28	.63	.88	1.3	1.5	1.7	3.8	2.3	2.6	18	.63	.45	.50
29	.63	.95	1.3	1.4	---	3.8	2.4	2.3	9.2	.71	.49	.53
30	.63	.88	1.3	1.4	---	3.8	2.6	2.8	6.7	.71	.50	.54
31	.63	---	1.3	1.4	---	3.7	---	3.8	---	.72	.53	---
TOTAL	22.80	23.63	38.33	43.5	63.4	91.4	92.7	82.4	242.1	63.51	15.82	16.64
MEAN	.74	.79	1.24	1.40	2.26	2.95	3.09	2.66	8.07	2.05	.51	.55
MAX	.95	.95	1.7	1.5	2.8	4.4	4.1	3.8	35	5.3	.66	.92
MIN	.63	.63	.88	1.1	1.4	1.8	2.2	2.0	2.2	.63	.41	.42
CFSM	.002	.002	.003	.003	.005	.006	.007	.006	.02	.004	.001	.001
IN.	.00	.00	.00	.00	.00	.01	.01	.01	.02	.00	.00	.00
AC-FT	45	47	76	86	126	181	184	163	480	126	31	33
CAL YR 1982	TOTAL 997.22	MEAN 2.73	MAX 195	MIN .30	CFSM .006	IN .08	AC-FT 1980					
WTR YR 1983	TOTAL 796.23	MEAN 2.18	MAX 35	MIN .41	CFSM .005	IN .06	AC-FT 1580					



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

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

DRAINAGE AREA.--4,211 mi<sup>2</sup>, of which 3,281 mi<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 National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--16 years, 26.5 ft<sup>3</sup>/s (19,200 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,180 ft<sup>3</sup>/s Sept. 11 at 0630 hours (gage height, 8.73 ft), no peak above base of 6,000 ft<sup>3</sup>/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.00	.22	.84	2.5	2.5	.60	.22	.23	.19	.00	.00
2	.01	.00	.20	1.3	2.5	2.5	.60	.20	.17	.10	.00	.00
3	.00	.00	.35	1.1	2.0	2.3	.54	.20	.09	.04	.00	.00
4	.00	.00	1.3	.81	2.0	2.3	.49	.20	.07	.03	.00	.00
5	.00	.00	.44	.81	2.0	2.0	.66	.18	.08	.03	.00	.00
6	.00	.00	.25	.61	3.0	2.0	.90	.12	.14	.02	.00	.02
7	.00	.00	.20	.56	4.0	1.8	.99	.07	.11	.02	.99	104
8	.00	.00	.20	.54	5.0	1.6	1.2	.11	.09	.01	1.1	1.1
9	.00	.00	.39	.39	5.5	1.5	.90	.14	.10	.00	7.8	.09
10	.00	.00	1.4	.31	5.3	1.3	.73	.30	.69	.00	.99	.03
11	.00	.02	.66	.31	4.5	1.3	.54	.20	14	.00	.04	131
12	.00	.00	.49	.31	4.2	1.2	.54	.16	1.7	.00	.02	6.0
13	.00	.00	.49	.31	3.6	1.2	.49	.15	.60	.00	.66	3.8
14	.00	.00	.35	.25	3.6	1.2	.49	.10	.35	7.5	.35	.62
15	.00	.00	.22	.28	3.1	1.1	.49	.17	.31	8.4	.05	.71
16	.00	.00	.25	.31	2.9	1.1	.49	.21	.25	.77	.03	24
17	.00	.00	.25	.35	2.9	.99	.54	.15	45	.30	.02	22
18	.00	.00	.22	.35	3.1	1.1	.49	.08	6.5	.12	.01	.26
19	.00	.00	.18	.40	3.6	.99	.44	.11	4.0	.05	.00	.11
20	.00	.00	.15	.40	3.6	.99	.39	.16	1.8	.02	.00	.04
21	.00	.00	.18	.50	3.9	.90	.39	.19	.97	.00	.00	.02
22	.00	.00	.18	.70	3.4	.81	.35	.12	.91	.00	.00	.01
23	.00	.00	.15	1.0	3.4	.73	.35	.12	.82	.00	.00	.00
24	.00	.00	.13	1.5	2.9	.81	.39	.34	1.1	.00	.00	.00
25	.00	.02	.08	2.0	2.9	.81	.39	2.6	1.3	11	.00	.00
26	.00	.15	.20	2.1	2.7	.81	.39	.84	.79	63	.00	.00
27	.00	2.1	.81	1.6	2.5	.66	.39	.32	.55	.40	.00	.00
28	.00	.90	.31	1.5	2.5	.66	.39	.19	11	.04	.00	.00
29	.00	.49	.28	1.1	---	.60	.35	.11	2.4	.03	.02	.00
30	.00	.31	.39	1.1	---	.60	.28	.20	.68	.02	.00	.00
31	.00	---	.49	2.9	---	.60	---	.37	---	.01	.00	---
TOTAL	.04	3.99	11.41	26.54	93.1	38.96	16.18	8.63	96.80	92.10	12.08	293.81
MEAN	.001	.13	.37	.86	3.33	1.26	.54	.28	3.23	2.97	.39	9.79
MAX	.03	2.1	1.4	2.9	5.5	2.5	1.2	2.6	45	63	7.8	131
MIN	.00	.00	.08	.25	2.0	.60	.28	.07	.07	.00	.00	.00
AC-FT	.08	7.9	.23	53	185	77	32	17	192	183	24	583
CAL YR 1982	TOTAL	2756.71	MEAN 7.55	MAX 878	MIN .00	AC-FT 5470						
WTR YR 1983	TOTAL	693.64	MEAN 1.90	MAX 131	MIN .00	AC-FT 1380						

## RED RIVER BASIN

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

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to September 1981.

WATER TEMPERATURES: October 1968 to September 1981.

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.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
JAN 06...	1200	.61	31900	7.9	7.0	.70	14.4	148	2.0	K9	K9	3400
MAR 22...	1400	.87	22000	8.0	11.0	1.2	14.1	153	.8	K180	K120	2700
MAY 04...	1100	.21	41900	7.9	18.0	37	10.1	137	6.6	640	900	3900
JUL 27...	1300	.20	19800	8.0	33.0	420	8.3	136	1.2	K560	2400	2000

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 06...	3300	980	240	6500	50	94	140	2600	11000	.70	25
MAR 22...	2590	770	190	4600	40	65	130	2000	7400	.80	.3
MAY 04...	3783	1100	280	9100	66	120	140	2100	16000	.60	25
JUL 27...	1898	580	140	3700	37	55	130	1900	5900	.80	20

DATE	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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHOPHOS- PHORUS, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
JAN 06...	22100	21500	<.10	.140	.60	.010	<.010	<.010	45	.07	94
MAR 22...	15000	15100	<.10	.330	.50	.060	.030	.060	18	.04	89
MAY 04...	28300	28800	<.10	.290	2.90	.060	.040	.220	108	.06	100
JUL 27...	13300	12400	.46	.350	1.20	.340	.020	.010	296	.16	98

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
MAR 22...	1400	3	200	<10	<1	<1	1	1	70	1
MAY 04...	1100	5	<100	<10	<1	<1	1	1	130	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAR 22...	140	190	<.1	3	2	2	<1	11000	80	20
MAY 04...	150	660	.1	<1	1	2	<1	18000	160	30

## 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 upstream from Rock Creek, 9.5 mi northwest of Silverton, and 22.7 mi upstream from mouth.

DRAINAGE AREA.--1,053 mi<sup>2</sup>, of which 904 mi<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 long. The dam was completed in August 1974 and storage began in June 1974. The uncontrolled 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 gated outlet concrete pipe discharges into a valve vault at the downstream toe of the dam and then into the creek bed downstream. When facilities are completed, water will be used for municipal, industrial, and recreational purposes by the cities of Floydada, Silverton, and Tulia. Figures given herein represent total content. 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, 15,710 acre-ft June 30, July 1, 1982 (elevation, 3,047.60 ft); minimum, 598 acre-ft Oct. 1, 2, 1974 (elevation, 2,980.61 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 15,100 acre-ft Oct. 8 at 1500 hours (elevation, 3,046.15 ft); minimum, 14,140 acre-ft Sept. 1 at 0100 hours (elevation, 3,043.81 ft).

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

3,043.0	13,820	3,046.0	15,030
3,044.0	14,220	3,047.0	15,450
3,045.0	14,620		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15080	14840	14710	14680	14780	14850	14810	14740	14760	14640	14390	14140
2	15070	14820	14710	14680	14790	14880	14820	14710	14770	14610	14380	14150
3	15070	14810	14710	14670	14800	14870	14810	14730	14770	14620	14370	14150
4	15060	14800	14710	14680	14810	14850	14790	14730	14750	14610	14360	14150
5	15060	14800	14720	14670	14830	14830	14790	14740	14750	14600	14340	14150
6	15040	14800	14720	14680	14840	14840	14790	14730	14750	14590	14340	14230
7	15030	14800	14720	14680	14860	14870	14790	14730	14750	14580	14340	14570
8	15090	14800	14710	14670	14880	14880	14800	14700	14740	14570	14320	14560
9	15050	14810	14710	14670	14890	14870	14810	14700	14750	14560	14310	14560
10	15030	14790	14710	14660	14870	14890	14820	14700	14750	14560	14320	14550
11	15010	14780	14710	14660	14870	14890	14810	14700	14820	14550	14320	14550
12	15000	14780	14710	14650	14880	14890	14800	14690	14820	14540	14310	14550
13	15000	14770	14710	14650	14880	14880	14780	14660	14810	14530	14300	14540
14	14980	14770	14710	14650	14880	14910	14780	14660	14810	14510	14300	14530
15	14990	14750	14710	14640	14870	14880	14780	14660	14780	14500	14290	14540
16	14980	14750	14700	14640	14890	14860	14780	14660	14770	14500	14280	14530
17	14970	14760	14710	14650	14880	14860	14780	14630	14770	14490	14280	14520
18	14960	14760	14710	14640	14900	14860	14780	14620	14750	14490	14260	14520
19	14960	14750	14680	14640	14870	14890	14780	14620	14750	14480	14260	14510
20	14940	14740	14680	14640	14870	14850	14780	14600	14750	14470	14250	14450
21	14930	14740	14680	14650	14870	14840	14780	14620	14730	14450	14240	14440
22	14910	14730	14650	14660	14900	14820	14780	14620	14730	14450	14230	14440
23	14920	14720	14690	14690	14890	14820	14760	14620	14720	14430	14220	14430
24	14910	14710	14680	14690	14880	14840	14770	14720	14710	14430	14200	14420
25	14910	14710	14680	14680	14880	14820	14780	14770	14710	14410	14200	14410
26	14910	14710	14680	14680	14880	14810	14770	14790	14700	14440	14180	14410
27	14910	14710	14680	14700	14870	14810	14750	14800	14680	14430	14180	14410
28	14890	14730	14680	14720	14880	14810	14760	14800	14670	14420	14180	14400
29	14870	14730	14680	14730	---	14810	14750	14780	14670	14410	14170	14400
30	14850	14730	14670	14750	---	14820	14760	14750	14650	14400	14170	14390
31	14860	---	14680	14760	---	14820	---	14750	---	14390	14150	---
MAX	15090	14840	14720	14760	14900	14910	14820	14800	14820	14640	14390	14570
MIN	14850	14710	14650	14640	14780	14810	14750	14600	14650	14390	14150	14140
(†)	3045.58	3045.27	3045.13	3045.34	3045.63	3045.48	3045.34	3045.30	3045.07	3044.43	3043.83	3044.43
(‡)	-230	-130	-50	+80	+120	-60	-60	-10	-100	-260	-240	+240

CAL YR 1982 MAX 15710 MIN 13980 † +380  
WTR YR 1983 MAX 15090 MIN 14140 ‡ -700

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

## RED RIVER BASIN

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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JAN 06...	0945	544	4.0	180	7	41	18	45

DATE	SOLIDS, SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
JAN 06...	1.5	15	170	92	11	1.5	1.3	327



## RED RIVER BASIN

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## 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 downstream from Rock Creek, 1.0 mi downstream from MacKenzie Dam, 8.8 mi northwest of Silverton, 17.7 mi downstream from South Tule Draw, and 21.7 mi upstream from mouth.

DRAINAGE AREA.--1,150 mi<sup>2</sup>, of which 960 mi<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.

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

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

REMARKS.--Records poor. Since June 1974, flow is regulated by MacKenzie Reservoir 1.0 mi 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 (6,690 acre-ft/yr); 10 years (water years 1974-83) regulated, 2.44 ft<sup>3</sup>/s (1,770 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,800 ft<sup>3</sup>/s May 20, 1977 (gage height, 14.5 ft, 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 (discharge unknown), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,350 ft<sup>3</sup>/s May 24 at 1845 hours (gage height, 6.80 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.09	.09	.97	.00	.00	.00	.00	.00
2	.00	.00	.00	.30	.00	.04	.63	.00	.00	.00	.00	.00
3	.00	.00	33	.15	.00	.04	.40	.00	.00	.00	.00	.00
4	.00	.00	25	.00	.00	.05	.17	.00	.00	.00	.00	.00
5	.00	.00	.02	.30	.00	.05	.12	.00	.00	.00	.00	.00
6	.00	.00	.00	.20	.00	.03	.08	.00	34	.00	.00	.00
7	.00	.00	.00	.00	.00	.05	.11	.00	.00	.00	.00	132
8	149	.00	.00	.00	.20	.03	.15	.00	.00	.00	.00	.14
9	.27	.00	13	.00	.40	.04	.02	.00	.00	.00	.00	.02
10	.00	.00	3.2	.00	.55	.04	.01	.00	31	.00	.00	.01
11	.00	.00	5.7	.00	.57	.05	.01	.00	118	.00	.00	.00
12	.00	.00	.00	.00	.52	.05	.00	.00	9.3	.00	.00	30
13	.00	.00	.00	.00	.47	.05	.00	.00	.00	.00	.00	1.5
14	.00	.00	.00	.00	.20	.10	.00	.00	.00	.00	.00	.10
15	.00	.00	.00	.00	.14	.09	.00	.00	.00	.00	.00	45
16	.00	.00	.00	.00	.06	.09	.00	.00	.00	.00	9.5	.45
17	.00	.00	.00	.00	.04	.09	.00	.00	.00	.00	3.3	.05
18	.00	.00	.00	.00	.02	.10	.00	.00	.00	.00	.00	.02
19	.00	.00	.00	.00	.01	.10	.00	.00	.00	.00	.00	.01
20	.00	.00	.00	.00	.14	.12	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.62	.14	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	1.4	.18	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.80	.16	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.21	.15	.00	295	.00	.00	.00	.00
25	.00	.00	.00	.00	.33	.15	.00	231	.00	.00	.00	.00
26	.00	8.2	.00	.00	.15	.15	.00	34	.00	.00	.00	.00
27	.00	54	14	.00	.13	.11	.00	.00	.00	.00	13	.00
28	.00	3.6	.06	.00	.08	.05	.00	.00	.00	.00	5.9	.00
29	.00	.02	.00	.00	---	.03	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.02	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.05	---	.02	---	1.9	---	.00	.00	---
TOTAL	149.27	65.82	93.98	1.00	7.13	2.46	2.67	561.90	192.30	.00	31.70	209.30
MEAN	4.82	2.19	3.03	.032	.25	.079	.089	18.1	6.41	.000	1.02	6.98
MAX	149	54	33	.30	1.4	.18	.97	295	118	.00	13	132
MIN	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00
AC-FT	296	131	186	2.0	14	4.9	5.3	1110	381	.00	63	415
CAL YR 1982	TOTAL	1614.15	MEAN	4.42	MAX	258	MIN	.00	AC-FT	3200		
WTR YR 1983	TOTAL	1317.53	MEAN	3.61	MAX	295	MIN	.00	AC-FT	2610		

## RED RIVER BASIN

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 downstream from Salt Creek, 10.0 mi north of Childress, and at mile 1,061.

DRAINAGE AREA.--7,725 mi<sup>2</sup>, of which 4,769 mi<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 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 the flood-detention pools of 23 floodwater-retarding structures with a combined detention capacity of 20,010 acre-ft. These structures control runoff from 95.2 mi<sup>2</sup>.

AVERAGE DISCHARGE.--18 years (water years 1966-83), 102 ft<sup>3</sup>/s (73,900 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,780 ft<sup>3</sup>/s May 21 at 1200 hours (gage height, 8.60 ft), no peak above base of 7,000 ft<sup>3</sup>/s; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	1.4	1.8	4.2	97	6.6	4.3	5.2	174	962	3.2	3.8
2	3.8	1.0	1.5	34	84	5.3	.00	5.1	150	271	1.8	14
3	1.8	.73	3.2	27	72	8.2	.00	5.1	88	26	1.2	49
4	2.2	.83	2.7	17	82	31	.52	5.0	45	8.2	1.5	44
5	1.3	1.1	1.2	12	123	22	4.7	5.0	72	8.2	1.5	4.4
6	1.3	1.5	.96	11	117	21	5.6	5.0	150	6.8	1.2	13
7	1.7	2.2	.75	13	95	16	1.9	5.0	150	6.8	6.2	23
8	11	2.5	3.8	10	95	5.0	7.6	5.0	105	6.8	116	205
9	.79	2.7	3.8	8.4	82	1.3	14	5.0	84	6.8	21	155
10	34	14	3.2	3.0	74	.02	11	5.0	139	6.8	5.6	55
11	14	35	2.2	1.3	67	.00	9.6	3.8	386	6.8	2.7	33
12	3.9	2.8	1.8	1.7	61	.00	8.8	3.8	620	5.6	2.7	119
13	2.3	2.2	1.5	1.3	51	.00	8.2	25	200	5.6	2.7	478
14	4.5	2.0	1.2	.68	42	.00	7.7	30	45	5.6	3.8	369
15	15	2.2	1.2	.42	39	.00	7.3	92	21	5.6	3.8	211
16	4.1	3.2	1.2	.54	30	68	6.9	28	9.7	4.6	3.2	133
17	2.4	2.7	.96	.78	26	113	6.7	.65	264	4.6	2.7	69
18	1.9	1.5	.96	21	24	78	6.5	.00	591	4.6	2.2	43
19	.84	1.5	.96	64	16	55	6.3	5.5	75	4.6	2.2	33
20	.77	.96	.75	64	9.4	42	6.1	177	21	3.8	3.2	26
21	1.1	.75	.75	105	25	18	5.9	927	14	3.8	2.7	21
22	1.9	.62	.75	87	65	8.8	5.8	193	12	3.8	2.7	18
23	2.1	.62	.75	52	63	12	5.7	418	9.7	3.8	3.8	19
24	1.7	.62	.75	32	85	30	5.6	139	9.7	3.8	3.2	21
25	1.5	2.7	.75	25	63	135	5.5	45	9.7	3.8	3.8	23
26	1.2	14	.75	14	42	208	5.4	274	8.2	3.8	3.8	30
27	1.4	6.8	2.2	14	23	58	5.4	220	8.2	4.6	3.8	33
28	.96	6.8	5.0	9.2	13	33	5.3	72	8.2	3.8	3.8	32
29	.56	4.6	10	7.9	---	17	5.2	33	8.2	2.7	3.8	32
30	1.1	2.2	12	4.7	---	13	5.2	162	8.2	3.8	4.6	34
31	1.4	---	.88	76	---	15	---	174	---	3.8	3.8	---
TOTAL	124.72	121.73	70.22	722.12	1665.4	1020.22	178.72	3073.15	3485.8	1402.3	228.2	2343.2
MEAN	4.02	4.06	2.27	23.3	59.5	32.9	5.96	99.1	116	45.2	7.36	78.1
MAX	34	35	12	105	123	208	14	927	620	962	116	478
MIN	.56	.62	.75	.42	9.4	.00	.00	.00	8.2	2.7	1.2	3.8
AC-FT	247	241	139	1430	3300	2020	354	6100	6910	2780	453	4650
CAL YR 1982	TOTAL	39150.54	MEAN	107	MAX	4830	MIN	.56	AC-FT	77660		
WTR YR 1983	TOTAL	14435.78	MEAN	39.6	MAX	962	MIN	.00	AC-FT	28630		

## RED RIVER BASIN

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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 September 1982.

WATER TEMPERATURES: July 1968 to September 1982.

INSTRUMENTATION.--Continuous recording of specific conductance was discontinued on September 1982.

## 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.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY	COLI- FORM, FECAL, 0.7 JUM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	
								(PER- CENT SATUR- ATION)	(MG/L)			
OCT 26...	0900	1.2	73500	7.8	8.0	5.7	11.3	141	3.6	K20	880	
JAN 04...	0830	17	56000	7.5	.0	3.4	13.8	129	1.8	K8	740	
MAR 29...	1300	16	48600	7.9	17.5	17	9.3	125	.5	<4	160	
MAY 10...	1310	5.0	78800	7.9	19.0	1.7	8.5	137	2.0	K12	800	
JUL 26...	1030	3.7	48500	7.7	27.5	16	7.4	119	2.8	K40	9000	
SEP 01...	1000	3.8	76000	7.7	25.0	4.1	7.4	129	2.6	K12	>10000	
DATE		HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 26...	5500	5400	1600	360	20000	120	39	90	4600	32000		.90
JAN 04...	4600	4400	1300	320	13000	87	30	130	3600	22000		.60
MAR 29...	4000	3800	1100	290	11000	79	29	130	2900	18000		.60
MAY 10...	5500	5500	1600	370	19000	120	43	90	6000	29000		.70
JUL 26...	3600	3600	1100	210	12000	90	27	70	3000	18000		.40
SEP 01...	5900	5900	1700	400	20000	120	46	70	4700	33000		.60
DATE		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 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 26...	7.2	56000	58700	<.10	.060	.40	.020	.010	25	.08		77
JAN 04...	12	40500	40300	.37	.520	.60	.040	.010	183	8.4		98
MAR 29...	11	37500	33400	.16	.300	.50	.110	.110	36	1.6		66
MAY 10...	7.4	59200	56100	<.10	.480	.70	.060	.050	15	.20		72
JUL 26...	7.4	34400	34400	.23	.400	1.00	.050	.030	49	.49		95
SEP 01...	7.2	58400	59900	<.10	.720	.50	.030	<.010	21	.22		54

## RED RIVER BASIN

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC	BARIUM,	BERYL-	CADMIUM	CHRO-	COBALT,	COPPER,	IRON,	LEAD,
		DIS- SOLVED (UG/L AS AS)	DIS- SOLVED (UG/L AS BA)	LIUM, DIS- SOLVED (UG/L AS BE)	DIS- SOLVED (UG/L AS CD)	MIUM, DIS- SOLVED (UG/L AS CR)	DIS- SOLVED (UG/L AS CO)	DIS- SOLVED (UG/L AS CU)	DIS- SOLVED (UG/L AS FE)	DIS- SOLVED (UG/L AS PB)
OCT 26...	0900	1	100	<10	<2	<1	6	2	290	10
MAR 29...	1300	2	<100	<10	<1	<1	2	3	160	<1
MAY 10...	1310	1	300	<10	1	<1	<1	3	230	<1
SEP 01...	1000	3	300	20	1	<1	<1	5	210	<1
DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA-	MERCURY	MOLYB-	NICKEL,	SELE-	SILVER,	STRON-	VANA-	ZINC,
		NESE, DIS- SOLVED (UG/L AS MN)	DIS- SOLVED (UG/L AS HG)	DENUM, DIS- SOLVED (UG/L AS MO)	DIS- SOLVED (UG/L AS NI)	NIUM, DIS- SOLVED (UG/L AS SE)	DIS- SOLVED (UG/L AS AG)	TIUM, DIS- SOLVED (UG/L AS SR)	DIUM, DIS- SOLVED (UG/L AS V)	DIS- SOLVED (UG/L AS ZN)
OCT 26...	210	110	.2	6	6	1	<2	20000	380	60
MAR 29...	200	200	<.1	6	2	2	<1	16000	160	40
MAY 10...	230	150	<.1	6	1	1	<1	21000	330	30
SEP 01...	260	80	.1	5	2	1	<1	24000	310	40



## RED RIVER BASIN

53

## 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 downstream from confluence of North and South Groesbeck Creeks, 4 mi north of Quanah, and 9 mi upstream from mouth.

DRAINAGE AREA.--303 mi<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 National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--21 years (water years 1963-83), 130 ft<sup>3</sup>/s (0.58 in/yr), 9,420 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,900 ft<sup>3</sup>/s Sept. 19, 1974 (gage height, 23.56 ft), from rating curve extended above 6,100 ft<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.--Maximum discharge, 17.6 ft<sup>3</sup>/s May 21 at 1100 hours (gage height, 6.51 ft); maximum gage height, 6.53 ft June 11 at 2230 hours, no peak above base of 1,000 ft<sup>3</sup>/s; minimum, 1.2 ft<sup>3</sup>/s Sept. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	4.5	5.1	4.6	6.3	4.8	5.2	5.7	5.1	4.3	3.2	2.0
2	3.9	4.3	4.9	5.1	6.1	4.6	5.0	5.5	4.8	4.2	3.1	2.1
3	4.0	4.0	5.0	4.9	5.8	4.7	4.9	5.6	4.9	3.6	3.2	2.1
4	4.1	4.1	4.9	4.8	5.7	4.9	5.4	5.5	4.5	3.5	2.9	2.0
5	4.0	4.4	4.7	4.8	5.8	4.9	7.5	5.4	4.5	4.4	2.8	1.9
6	3.8	4.4	4.5	4.8	5.6	4.6	5.8	5.5	5.1	4.7	2.8	2.0
7	3.9	4.4	4.6	4.6	5.6	4.4	5.8	5.3	5.4	4.6	2.7	2.0
8	4.1	4.6	4.4	4.5	5.5	4.6	5.1	5.2	4.7	4.4	2.9	2.0
9	3.7	4.3	4.6	4.0	5.4	4.4	5.0	5.2	4.5	4.2	3.0	2.1
10	3.6	4.3	5.1	4.0	5.4	4.6	5.9	5.3	4.5	4.0	2.9	2.1
11	3.9	4.5	5.1	3.8	5.2	4.4	5.7	5.6	7.7	3.9	2.9	2.1
12	3.9	4.0	5.0	3.9	4.9	4.6	5.1	5.6	9.8	3.5	2.8	2.1
13	4.0	3.5	4.9	4.1	4.9	5.0	4.9	4.7	6.6	3.5	2.7	2.4
14	4.1	3.7	4.9	5.0	5.0	5.5	5.2	5.2	4.9	3.6	2.8	2.6
15	3.9	4.2	4.8	5.7	5.0	5.5	5.0	5.4	4.3	3.9	2.7	2.6
16	4.0	4.3	4.7	4.7	4.3	6.2	4.9	5.2	4.2	3.9	2.7	2.4
17	4.2	4.5	4.7	4.6	4.6	6.2	5.5	5.0	4.7	4.0	2.7	2.3
18	4.2	4.6	4.6	5.0	4.7	6.2	5.9	4.7	6.0	3.8	2.6	1.8
19	3.9	4.7	4.6	5.1	4.7	6.2	5.5	4.5	5.2	3.2	2.5	1.5
20	3.5	4.4	4.4	5.1	4.8	5.7	5.8	5.2	4.7	2.8	2.8	1.3
21	3.9	4.3	4.5	5.3	4.5	5.5	6.2	13	4.3	3.7	2.6	1.5
22	4.5	4.7	4.5	5.2	4.7	5.2	6.6	8.4	4.1	4.1	2.8	1.8
23	4.3	4.6	4.6	5.0	5.0	5.5	6.2	5.9	3.3	3.2	2.8	2.1
24	4.3	4.7	4.6	5.0	4.9	5.5	5.6	5.0	3.6	2.9	2.6	2.0
25	4.3	4.9	4.3	4.9	4.8	6.0	5.1	4.7	4.7	3.0	2.6	2.1
26	4.2	5.5	3.9	4.7	5.0	9.7	5.3	5.6	4.3	3.0	2.5	2.3
27	4.2	6.0	4.6	4.9	4.9	7.5	5.8	5.4	4.2	2.6	2.5	2.4
28	4.2	5.5	4.7	5.3	4.7	6.0	5.7	5.1	4.3	2.5	2.3	2.4
29	4.4	5.4	4.6	5.5	---	5.9	5.7	4.9	4.6	2.3	2.3	2.2
30	4.2	5.1	4.6	5.3	---	5.9	5.7	4.9	4.4	2.5	2.3	2.3
31	4.4	---	4.6	5.8	---	6.1	---	5.3	---	3.2	2.1	---
TOTAL	124.8	136.4	145.0	150.0	143.8	170.8	167.0	173.5	147.9	111.0	84.1	62.5
MEAN	4.03	4.55	4.68	4.84	5.14	5.51	5.57	5.60	4.93	3.58	2.71	2.08
MAX	4.5	6.0	5.1	5.8	6.3	9.7	7.5	13	9.8	4.7	3.2	2.6
MIN	3.2	3.5	3.9	3.8	4.3	4.4	4.9	4.5	3.3	2.3	2.1	1.3
CFSM	.01	.02	.02	.02	.02	.02	.02	.02	.02	.01	.009	.007
IN.	.02	.02	.02	.02	.02	.02	.02	.02	.02	.01	.01	.01
AC-FT	248	271	288	298	285	339	331	344	293	220	167	124
CAL YR 1982	TOTAL	2626.5	MEAN 7.20	MAX 318	MIN 3.1	CFSM .02	IN .32	AC-FT 5210				
WTR YR 1983	TOTAL	1616.8	MEAN 4.43	MAX 13	MIN 1.3	CFSM .02	IN .20	AC-FT 3210				

## RED RIVER BASIN

07299840 GREENBELT LAKE NEAR CLARENDON, TX

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

DRAINAGE AREA.--457 mi<sup>2</sup>, of which 191 mi<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.

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

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum contents, 33,510 acre-ft Mar. 31 at 0200 hours (elevation, 2,648.38 ft); minimum, 28,660 acre-ft Sept. 30 (elevation, 2,644.62 ft).

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

2,644.0	27,900	2,647.0	31,660
2,645.0	29,120	2,648.0	32,990
2,646.0	30,370	2,649.0	34,360

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33430	32580	32430	32520	32820	33310	33410	33240	32750	33000	31300	29570
2	33400	32540	32420	32520	32880	33320	33470	33180	32740	32960	31260	29510
3	33390	32510	32460	32520	32880	33360	33410	33180	32710	32900	31160	29450
4	33360	32510	32460	32550	32950	33390	33330	33180	32670	32830	31130	29370
5	33320	32510	32480	32560	32980	33410	33320	33180	32660	32790	31070	29330
6	33260	32470	32480	32560	33000	33410	33400	33100	32630	32740	31030	29450
7	33210	32460	32430	32580	33000	33400	33400	33060	32600	32680	30950	29580
8	33150	32460	32430	32590	33030	33400	33440	33040	32600	32630	30900	29520
9	33140	32460	32470	32590	33100	33400	33480	33030	32580	32580	30890	29480
10	33130	32460	32480	32600	33140	33370	33480	33040	32590	32520	30810	29420
11	33110	32360	32500	32600	33130	33400	33470	33000	33390	32460	30780	29380
12	33110	32380	32500	32600	33180	33390	33460	32980	33400	32430	30690	29360
13	33090	32340	32510	32620	33180	33390	33360	32870	33370	32350	30680	29360
14	32990	32330	32510	32590	33170	33390	33410	32920	33390	32300	30630	29320
15	33000	32290	32510	32580	33170	33430	33430	32900	33330	32210	30560	29270
16	32990	32290	32540	32580	33180	33440	33410	32860	33310	32130	30510	29260
17	32990	32290	32550	32580	33170	33460	33400	32710	33430	32100	30450	29210
18	32960	32310	32520	32600	33200	33460	33400	32790	33430	32060	30380	29150
19	32880	32330	32520	32620	33220	33460	33370	32720	33410	32010	30310	29150
20	32870	32310	32520	32660	33150	33430	33360	32790	33370	31940	30260	29020
21	32860	32300	32520	32670	33220	33430	33390	32860	33330	31860	30210	29000
22	32830	32290	32520	32700	33280	33440	33330	32870	33310	31780	30160	28970
23	32800	32220	32520	32710	33280	33470	33360	32840	33260	31730	30120	28900
24	32790	32220	32380	32740	33290	33470	33360	32870	33210	31660	30030	28850
25	32790	32250	32460	32740	33290	33480	33350	32870	33150	31620	30000	28830
26	32760	32310	32500	32740	33290	33480	33310	32830	33140	31580	29980	28800
27	32740	32360	32500	32750	33290	33470	33330	32820	33140	31540	29870	28770
28	32670	32400	32500	32750	33310	33470	33320	32800	33090	31490	29810	28740
29	32630	32400	32500	32790	---	33470	33320	32780	33030	31430	29780	28710
30	32630	32420	32480	32800	---	33480	33280	32780	33040	31360	29720	28660
31	32620	---	32470	32800	---	33480	---	32780	---	31380	29650	---
MAX	33430	32580	32550	32800	33310	33480	33480	33240	33430	33000	31300	29580
MIN	32620	32220	32380	32520	32820	33310	33280	32710	32580	31360	29650	28660
(†)	2647.72	2647.57	2647.61	2647.86	2648.23	2648.36	2648.21	2647.84	2648.04	2646.78	2645.42	2644.62
(‡)	-810	-200	0	+330	+510	+170	-200	-500	+260	-1660	-1730	-990
(††)	373	314	319	316	283	321	333	412	427	654	696	525

CAL YR 1982 MAX 35640 MIN 26640 ‡ -2910 †† 4709

WTR YR 1983 MAX 33480 MIN 28660 ‡ -4973 †† 4973

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

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

## RED RIVER BASIN

55

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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
DEC 30...	1245	568	3.0	190	47	45	18	43
DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
DEC 30...	1.4	6.3	140	81	44	.70	3.7	326

## RED RIVER BASIN

07300000 SALT FORK RED RIVER NEAR WELLINGTON, TX

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

DRAINAGE AREA.--1,222 mi<sup>2</sup>, of which 209 mi<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 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, 42 mi upstream.

AVERAGE DISCHARGE.--14 years (water years 1953-66) prior to completion of Greenbelt Lake, 72.6 ft<sup>3</sup>/s (52,600 acre-ft/yr); 17 years (water years 1967-83) regulated, 45.2 ft<sup>3</sup>/s (32,750 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,480 ft<sup>3</sup>/s June 5 at 0200 hours (gage height, 6.15 ft); minimum, daily, 2.3 ft<sup>3</sup>/s Sept. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	8.9	21	22	50	23	21	10	6.8	5.6	16	2.8
2	6.9	9.4	19	23	45	25	14	7.6	5.5	5.3	7.1	2.9
3	6.8	8.8	21	25	69	35	14	11	4.5	3.8	5.3	3.0
4	6.9	8.4	33	26	54	48	13	9.4	4.1	3.7	5.7	2.8
5	6.2	9.1	28	27	50	45	25	8.7	568	3.5	5.2	2.6
6	5.3	11	21	40	60	25	27	7.8	15	3.9	5.2	2.8
7	5.1	12	17	52	70	18	29	7.5	29	3.8	6.9	2.9
8	64	12	16	45	82	17	37	7.8	31	4.1	8.1	2.7
9	17	15	18	37	114	14	54	8.9	31	3.5	6.4	2.6
10	8.4	20	30	23	83	15	45	9.4	33	4.1	5.6	2.9
11	6.3	23	43	18	53	17	32	8.9	1340	3.5	5.2	3.9
12	6.4	15	29	15	41	17	20	7.9	220	3.6	13	4.0
13	6.5	14	29	15	36	18	18	59	73	3.6	36	21
14	6.4	15	23	15	37	18	19	116	31	4.2	5.1	6.5
15	8.0	15	21	14	36	18	18	9.3	27	4.6	4.2	4.1
16	7.3	15	18	14	36	206	19	5.8	20	4.5	3.8	4.1
17	6.9	16	18	14	34	148	22	5.1	100	4.6	3.3	3.7
18	6.2	16	18	21	36	82	22	3.7	92	3.7	3.1	3.0
19	5.6	15	17	18	39	58	20	4.2	26	3.5	4.0	2.6
20	5.2	13	15	17	33	58	19	4.8	11	3.4	4.0	2.3
21	5.6	12	17	16	34	48	23	6.9	7.3	3.1	2.9	3.0
22	6.5	12	17	18	71	45	22	6.3	6.9	3.1	3.5	3.2
23	6.6	9.3	17	25	62	54	16	5.5	7.7	3.0	3.4	3.0
24	6.7	10	18	26	42	65	13	5.0	7.4	3.1	3.3	3.0
25	6.8	14	14	29	34	82	14	4.6	7.4	3.1	3.4	3.3
26	6.3	31	13	21	29	97	14	7.3	7.9	3.8	3.0	3.4
27	6.9	57	12	17	29	45	15	4.4	8.9	2.5	3.4	3.4
28	6.1	41	16	16	27	29	14	3.7	6.3	2.5	3.2	3.8
29	6.6	33	23	20	---	25	15	3.1	6.3	4.3	3.1	4.1
30	7.4	25	22	19	---	25	13	4.3	6.3	5.1	3.1	3.8
31	8.9	---	21	54	---	29	---	6.2	---	46	2.7	---
TOTAL	271.9	515.9	645	742	1386	1449	647	370.1	2740.3	160.1	188.2	117.2
MEAN	8.77	17.2	20.8	23.9	49.5	46.7	21.6	11.9	91.3	5.16	6.07	3.91
MAX	64	57	43	54	114	206	54	116	1340	46	36	21
MIN	5.1	8.4	12	14	27	14	13	3.1	4.1	2.5	2.7	2.3
AC-FT	539	1020	1280	1470	2750	2870	1280	734	5440	318	373	232
CAL YR 1982	TOTAL	18169.3	MEAN	49.8	MAX	2560	MIN	1.3	AC-FT	36040		
WTR YR 1983	TOTAL	9232.7	MEAN	25.3	MAX	1340	MIN	2.3	AC-FT	18310		



## 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, 330 micromhos July 30, 1982.

WATER TEMPERATURES: Maximum daily, 40.0°C July 20, 1981; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 3,750 microhos Nov. 27; minimum daily, 1,050 micromhos June 11.

WATER TEMPERATURES: Maximum daily, 35.0°C July 26; minimum daily, 2.0°C Dec. 30, Feb. 3.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- IDITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)
OCT 25...	1730	8.2	3350	7.9	18.5	5	10	12.1	140	1.9	80	290
JAN 03...	1720	25	2800	8.0	3.0	<1	44	15.8	127	1.5	K31	470
MAR 29...	0945	24	2900	8.0	8.0	1	3.3	15.2	140	.1	110	620
MAY 03...	1330	11	3250	7.9	23.0	<1	.70	11.5	145	<.9	K41	120
JUL 26...	0745	3.7	3150	7.7	21.5	<1	1.8	9.3	115	.3	1700	1500
AUG 30...	1230	3.2	3050	8.0	27.5	<1	2.0	10.8	151	K.6	400	K3900

DATE	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)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L CAC03)	SULFATE DIS- SOLVED AS (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 25...	1800	1700	580	91	190	2.0	4.5	140	1600	270	.70	19
JAN 03...	1200	990	340	76	220	2.9	4.3	170	980	320	.70	19
MAR 29...	1400	1200	410	80	210	2.6	3.9	170	1200	290	.60	19
MAY 03...	1600	1400	490	90	190	2.2	3.7	150	1400	260	.60	17
JUL 26...	1600	1500	510	87	150	1.7	4.1	140	1500	230	.60	22
AUG 30...	1700	1600	540	89	130	1.4	3.8	130	1600	190	.60	22

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 25...	2840	33	36	1.8	.020	1.8	.090	.71	.80	.010	1.5
JAN 03...	2060	95	16	.97	.030	1.0	.130	--	<.10	.060	3.0
MAR 29...	2320	21	2	1.3	.020	1.3	.100	.60	.70	.020	1.5
MAY 03...	2540	1	<1	1.7	.020	1.7	.080	.42	.50	.010	2.7
JUL 26...	2590	17	7	1.8	.040	1.8	.110	.79	.90	.030	1.4
AUG 30...	2650	10	10	--	<.020	1.8	.210	.29	.50	.010	1.1

## RED RIVER BASIN

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

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	271.9	3200	2600	1910	280	206	1400	1030	1600
NOV.	1982	515.9	3500	2910	4050	300	417	1600	2180	1800
DEC.	1982	645	3210	2610	4540	280	489	1400	2450	1600
JAN.	1983	742	2840	2240	4490	260	512	1200	2420	1400
FEB.	1983	1386	2600	2010	7510	240	891	1100	4050	1200
MAR.	1983	1449	2710	2110	8270	250	963	1100	4460	1300
APR.	1983	647	2990	2390	4170	270	465	1300	2250	1500
MAY	1983	370.1	2980	2380	2380	270	265	1300	1280	1400
JUNE	1983	2740.3	1680	1230	9110	160	1190	660	4910	740
JULY	1983	160.1	2910	2320	1000	260	112	1200	540	1400
AUG.	1983	188.2	2880	2280	1160	260	131	1200	625	1400
SEPT	1983	117.2	3120	2510	795	270	87	1400	428	1500
TOTAL		9232.7	**	**	49400	**	5720	**	26600	**
WTD. AVG.		25	2540	1980	**	230	**	1100	**	1200

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3220	3350	3460	2890	2780	2760	3040	3250	3060	3230	2750	3040
2	3290	3370	3500	2770	2690	2830	3130	3100	3320	3350	3030	3070
3	3270	3390	3550	2650	2560	2710	3080	3040	3200	3230	3190	3090
4	3250	3350	3500	2740	2500	2810	3150	3210	3160	3210	3100	3100
5	3270	3380	3150	3170	2480	2670	3120	3170	1880	3190	3110	3110
6	3240	3390	3250	2620	2400	2840	3060	3120	2090	3160	3130	3090
7	3220	3370	3330	2670	2590	2880	2980	3140	2780	3170	3020	3110
8	2690	3380	3370	2830	2670	2920	2920	3130	3420	3150	3280	3120
9	3350	3410	3400	2890	2510	3010	2650	3150	3270	3160	3220	3110
10	3380	3340	3510	2980	2530	2940	2740	3170	3120	3190	3110	3120
11	3400	3580	2960	3060	2590	2930	2900	3180	1050	3150	3080	3130
12	3370	3470	3070	3100	2560	3020	2980	3240	1620	3160	2900	3110
13	3400	3450	3180	3050	2650	2970	3070	3000	2220	3130	2160	3180
14	3350	3400	3210	3070	2660	2900	3150	2660	2670	3150	3170	2950
15	3390	3330	3170	3090	2690	2950	3060	3350	3000	3140	3100	3130
16	3410	3410	3230	3100	2660	2400	3100	3200	3320	3150	3110	3090
17	3480	3400	3250	3130	2680	2520	3110	3190	2900	3170	3040	3070
18	3450	3400	3270	3010	2700	2670	3120	3280	2750	3160	3090	3080
19	3410	3470	3200	2900	2670	2760	3100	3190	3040	3180	3060	3100
20	3370	3380	3260	2780	2790	2770	3070	3140	3320	3190	3040	3180
21	3380	3370	3290	2690	2740	2780	2950	3180	3360	3200	3050	3170
22	3370	3350	3250	2580	2560	2820	3080	3120	3270	3210	3070	3130
23	3400	3410	3220	2660	2520	2730	3100	3060	3330	3230	3060	3120
24	3370	3430	3110	2690	2570	2650	3050	3170	3270	3200	3050	3150
25	3400	3500	3020	2750	2560	2640	3030	3180	3300	3180	3040	3140
26	3370	3540	2900	2830	2750	2830	3050	2980	3340	3210	3060	3130
27	3360	3750	2810	2860	2740	2900	3100	3250	3250	3190	3090	3130
28	3450	3680	2700	2850	2750	2920	3030	3120	3320	3230	3080	3150
29	3430	3590	2910	2840	---	2980	3070	3170	3290	3200	3070	3140
30	3400	3650	3130	2910	---	3020	3080	3230	3250	3170	3070	3140
31	3360	---	3090	2880	---	2950	---	3260	---	2220	3050	---
MEAN	3340	3440	3200	2870	2630	2820	3040	3150	2940	3160	3040	3110

## RED RIVER BASIN

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

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	11.0	11.0	---	---	10.0	---	24.0	20.0	25.0	---	25.0
2	21.0	11.0	12.0	---	3.0	12.0	15.0	24.0	31.0	34.0	25.0	---
3	18.0	15.0	---	3.0	2.0	17.0	18.0	16.0	20.0	30.0	25.0	33.0
4	19.0	8.0	8.0	4.0	---	13.0	---	13.0	20.0	---	29.0	---
5	19.0	9.0	11.0	9.0	---	11.0	10.0	---	21.0	23.0	26.0	24.0
6	---	18.0	10.0	12.0	5.0	16.0	9.0	16.0	20.0	22.0	24.0	25.0
7	15.0	---	8.0	10.0	7.0	11.0	---	18.0	---	25.0	24.0	25.0
8	21.0	9.0	---	5.0	5.0	10.0	10.0	---	30.0	20.0	25.0	24.0
9	20.0	19.0	---	8.0	8.0	10.0	16.0	15.0	19.0	22.0	25.0	22.0
10	---	16.0	5.0	---	10.0	10.0	18.0	15.0	22.0	26.0	26.0	25.0
11	19.0	17.0	6.0	5.0	9.0	9.0	22.0	18.0	15.0	25.0	27.0	32.0
12	14.0	11.0	9.0	14.0	10.0	19.0	15.0	31.0	20.0	23.0	27.0	20.0
13	12.0	14.0	10.0	8.0	13.0	---	---	25.0	23.0	25.0	25.0	18.0
14	14.0	---	7.0	6.0	6.0	10.0	15.0	12.0	19.0	23.0	27.0	19.0
15	11.0	10.0	10.0	10.0	9.0	15.0	21.0	26.0	23.0	22.0	28.0	22.0
16	11.0	11.0	11.0	---	5.0	---	20.0	15.0	---	26.0	30.0	20.0
17	25.0	14.0	8.0	4.0	9.0	5.0	24.0	15.0	25.0	22.0	28.0	23.0
18	24.0	15.0	14.0	---	8.0	12.0	24.0	24.0	31.0	25.0	28.0	---
19	---	17.0	5.0	---	9.0	4.0	---	22.0	25.0	24.0	25.0	21.0
20	19.0	12.0	3.0	---	6.0	---	14.0	16.0	28.0	25.0	25.0	17.0
21	10.0	8.0	4.0	---	---	11.0	13.0	15.0	32.0	22.0	25.0	22.0
22	8.0	9.0	4.0	7.0	15.0	---	15.0	20.0	23.0	---	24.0	15.0
23	20.0	4.0	7.0	7.0	13.0	---	15.0	18.0	32.0	---	26.0	16.0
24	12.0	---	10.0	8.0	10.0	15.0	11.0	24.0	23.0	---	26.0	17.0
25	10.0	---	---	8.0	---	8.0	---	31.0	---	30.0	28.0	---
26	10.0	5.0	---	7.0	10.0	12.0	25.0	21.0	30.0	35.0	28.0	28.0
27	13.0	5.0	---	9.0	16.0	13.0	19.0	34.0	23.0	25.0	25.0	18.0
28	17.0	19.0	3.0	10.0	17.0	10.0	15.0	24.0	21.0	25.0	28.0	20.0
29	18.0	7.0	5.0	15.0	---	10.0	16.0	---	23.0	23.0	25.0	20.0
30	10.0	9.0	2.0	---	---	21.0	17.0	---	22.0	25.0	25.0	20.0
31	10.0	---	8.0	5.0	---	11.0	---	13.0	---	30.0	25.0	---
MEAN	15.5	11.5	7.5	8.0	9.0	11.5	16.5	20.0	23.5	25.5	26.0	22.0

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

DRAINAGE AREA.--1,082 mi<sup>2</sup>, of which 379 mi<sup>2</sup> probably is noncontributing.

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

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

REMARKS.--Records poor. Some regulation by Lake McClellan (capacity, 5,000 acre-ft) 41 mi upstream. Flow is affected at times by discharge from the flood-detention pools of eight floodwater-retarding structures with a combined detention capacity of 14,200 acre-ft. These structures control runoff from 124 mi<sup>2</sup>. Gage-height telemeter at station.

AVERAGE DISCHARGE.--19 years, 32.1 ft<sup>3</sup>/s (23,260 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,130 ft<sup>3</sup>/s May 14 at 0730 hours (gage height, 4.15 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	8.9	25	2.0	14	.00	279	2.1	.67	.00
2	.00	.00	.00	10	22	1.5	1.8	.00	158	.53	.53	.00
3	.00	.00	.22	10	20	22	2.0	.03	59	.53	.42	.00
4	.00	.00	.02	7.7	18	122	3.2	.01	20	.53	.42	.00
5	.00	.00	.03	35	16	108	22	.00	62	.53	.42	.00
6	.00	.00	.03	48	50	54	67	.00	18	.53	.42	.00
7	.00	.00	.03	42	80	39	125	.00	26	.53	5.6	.00
8	.00	.00	.02	20	98	31	345	.00	11	.53	.53	.00
9	.00	.00	.83	19	48	28	243	.00	6.1	.53	.00	.00
10	.00	.00	.69	8.7	81	28	98	.00	250	.42	.00	.00
11	.00	.00	6.8	5.6	52	31	42	.01	1420	.53	.00	.00
12	.00	.00	.12	4.5	32	28	13	.00	308	.53	.00	.00
13	.00	.00	.16	5.2	49	24	8.0	38	165	.53	1.7	.00
14	.00	.00	.82	4.4	36	21	2.4	966	31	.53	.00	.00
15	.00	.00	.26	1.9	30	22	2.9	46	8.9	.67	.00	.00
16	.00	.00	.26	2.4	19	152	3.8	21	2.5	.53	.00	.00
17	.00	.00	.34	3.1	16	162	4.7	8.7	146	.53	.00	.00
18	.00	.00	.42	10	17	66	3.7	1.3	162	.53	.00	.00
19	.00	.00	.26	9.0	15	66	2.2	.11	90	.53	.00	.00
20	.00	.00	.20	8.0	15	43	1.5	91	25	.53	.00	.00
21	.00	.00	.26	7.0	84	6.7	3.6	527	7.7	.53	.00	.00
22	.00	.00	.53	9.0	86	15	6.7	181	2.5	.53	.00	.00
23	.00	.00	.82	10	21	52	3.6	70	.53	.53	.00	.00
24	.00	.00	3.0	16	6.0	114	1.0	32	.53	.42	.00	.00
25	.00	.00	4.2	13	1.8	102	.12	8.1	.53	.20	.00	.00
26	.00	.01	4.2	18	2.1	73	.09	401	1.8	.34	.00	.00
27	.00	.90	7.7	7.2	2.7	16	.18	299	8.9	.42	.00	.00
28	.00	.00	10	7.7	1.8	5.5	.16	114	2.1	.42	.00	.00
29	.00	.00	7.2	13	---	6.9	.16	36	.67	.53	.00	.00
30	.00	.00	6.7	6.9	---	8.0	.12	226	4.2	.82	.00	.00
31	.00	---	8.9	36	---	8.1	---	343	---	1.2	.00	---
TOTAL	.00	.91	65.02	407.2	944.4	1457.7	1020.93	3409.26	3276.96	18.14	10.71	.00
MEAN	.000	.030	2.10	13.1	33.7	47.0	34.0	110	109	.59	.35	.000
MAX	.00	.90	10	48	98	162	345	966	1420	2.1	5.6	.00
MIN	.00	.00	.00	1.9	1.8	1.5	.09	.00	.53	.20	.00	.00
AC-FT	.00	1.8	129	808	1870	2890	2030	6760	6500	36	21	.00
CAL YR 1982	TOTAL	17541.22	MEAN	48.1	MAX	1150	MIN	.00	AC-FT	34790		
WTR YR 1983	TOTAL	10611.23	MEAN	29.1	MAX	1420	MIN	.00	AC-FT	21050		



## RED RIVER BASIN

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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 north of Kelton, 8 mi upstream from Texas-Oklahoma State line, and 8.5 mi northeast of Wheeler.

DRAINAGE AREA.--287 mi<sup>2</sup>, of which 20 mi<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, from topographic map.

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

AVERAGE DISCHARGE.--21 years (water years 1963-83), 13.4 ft<sup>3</sup>/s (0.68 in/yr), 9,710 acre-ft/yr.

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 153 ft<sup>3</sup>/s May 14 at 0700 hours (gage height, 8.98 ft), no peak above base of 500 ft<sup>3</sup>/s; minimum, 0.01 ft<sup>3</sup>/s Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	4.1	8.3	7.5	14	15	17	14	32	3.5	.46	.25
2	1.6	4.2	8.3	7.5	12	15	17	13	16	3.3	.42	.22
3	1.7	4.2	8.1	7.0	13	17	17	12	7.4	3.0	.41	.16
4	1.7	4.4	8.1	7.0	12	30	17	12	7.9	2.6	.36	.12
5	1.7	4.8	8.1	7.5	11	31	18	11	15	2.4	.44	.08
6	1.6	5.0	7.9	8.0	12	24	19	10	14	2.3	.39	.05
7	1.6	5.2	7.9	9.0	14	21	20	9.5	13	2.2	.46	.04
8	2.1	5.3	7.0	10	17	19	21	9.3	12	2.0	.44	.03
9	2.4	5.5	6.0	11	19	18	24	9.7	12	1.8	.40	.02
10	2.1	5.5	7.0	12	22	17	23	9.6	11	1.6	.44	.02
11	2.1	5.6	9.0	12	24	17	21	9.7	19	1.5	.41	.33
12	2.3	5.3	8.0	11	23	16	20	9.2	28	1.4	.38	.20
13	2.4	5.3	8.0	12	21	16	18	13	22	1.2	.38	.40
14	2.4	5.4	8.5	12	19	16	18	72	14	1.2	.45	.43
15	2.6	5.8	9.0	11	18	16	17	12	11	1.1	.40	.39
16	2.6	6.1	9.0	11	17	19	17	11	9.1	.99	.38	.41
17	2.7	6.2	9.1	11	17	24	17	10	11	.91	.37	.36
18	2.6	6.4	9.2	12	17	21	17	9.8	11	.80	.35	.33
19	2.5	6.5	8.7	12	17	20	17	9.0	8.0	.74	.37	.33
20	2.5	6.4	8.8	12	16	19	17	9.6	6.8	.61	.92	.26
21	2.8	6.5	9.0	11	16	19	17	20	5.9	.57	.56	.35
22	3.0	6.7	9.1	11	17	18	17	11	5.3	.46	.47	.42
23	3.2	6.6	9.1	10	17	18	17	10	4.9	.41	.48	.41
24	3.2	6.6	9.7	11	16	19	16	10	4.6	.37	.33	.39
25	3.4	7.0	9.2	12	16	19	16	11	4.5	.36	.21	.35
26	3.6	8.2	9.0	12	16	19	15	25	4.5	.42	.11	.34
27	3.6	11	8.5	11	16	18	15	15	5.2	.39	.07	.28
28	3.6	11	8.5	12	15	17	14	10	4.9	.41	.03	.19
29	3.6	9.3	8.0	14	---	17	14	9.5	4.6	.41	.03	.15
30	3.9	8.6	8.0	14	---	16	14	9.0	3.9	.42	.12	.17
31	4.1	---	8.0	15	---	16	---	22	---	.42	.11	---
TOTAL	80.5	188.7	260.1	335.5	464	587	527	427.9	328.5	39.79	11.15	7.48
MEAN	2.60	6.29	8.39	10.8	16.6	18.9	17.6	13.8	11.0	1.28	.36	.25
MAX	4.1	11	9.7	15	24	31	24	72	32	3.5	.92	.43
MIN	1.3	4.1	6.0	7.0	11	15	14	9.0	3.9	.36	.03	.02
CFSM	.01	.02	.03	.04	.06	.07	.07	.05	.04	.005	.001	.001
IN.	.01	.03	.04	.05	.06	.08	.07	.06	.05	.01	.00	.00
AC-FT	160	374	516	665	920	1160	1050	849	652	.79	.22	.15

CAL YR 1982	TOTAL	4839.17	MEAN	13.3	MAX	307	MIN	.57	CFSM	.05	IN	.67	AC-FT	9600
WTR YR 1983	TOTAL	3257.62	MEAN	8.92	MAX	72	MIN	.02	CFSM	.03	IN	.45	AC-FT	6460

RED RIVER BASIN  
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 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 15...	1810	6.0	929	5.0	360	110	110	22	62
FEB 08...	0850	18	738	2.0	250	48	66	20	55
MAR 23...	1010	18	842	5.0	330	71	96	22	58
MAY 02...	1725	13	800	21.5	290	91	80	22	59
JUN 13...	1955	17	736	25.0	290	51	85	19	51
JUL 05...	1630	.36	1280	36.0	520	420	140	41	83

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 15...	1.5	3.4	260	170	43	.70	28	595
FEB 08...	1.6	2.3	200	110	40	.60	13	427
MAR 23...	1.4	2.0	260	130	43	.70	24	532
MAY 02...	1.6	2.3	200	160	45	.70	22	511
JUN 13...	1.4	3.2	240	110	35	.70	25	473
JUL 05...	1.6	3.1	97	480	66	.60	25	897

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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 upstream from Catfish Creek, 4.4 mi downstream from confluence of North and Middle Forks, 17 mi southeast of Childress, and 71.0 mi upstream from mouth.

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

Water-quality records: Chemical analyses: July 1968 to September 1982.

REMARKS.--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. These structures control runoff from 6.97 mi<sup>2</sup> in the Kent Creek drainage basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft<sup>3</sup>/s June 9, 1960 (gage height, 13.59 ft), from rating curve extended above 4,000 ft<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 June 1, 1957; flood in May 1935 reached a stage of 18 ft and was the second highest, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,170 ft<sup>3</sup>/s May 13 at 0130 hours (gage height, 10.26 ft), no other peak above base of 2,200 ft<sup>3</sup>/s; minimum daily, 0.10 ft<sup>3</sup>/s Sept. 10, 11.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	5.9	4.9	9.1	14	41	8.5	14	4.4	14	7.1	178	.11		
2	5.9	4.4	11	19	28	8.3	13	3.1	23	17	11	.13		
3	6.5	4.0	13	22	21	8.8	12	3.5	15	12	3.5	.13		
4	6.5	4.0	12	24	18	10	11	3.5	8.7	2.4	1.4	.13		
5	6.5	4.4	17	21	24	8.9	22	3.1	44	2.0	1.2	.14		
6	6.5	4.4	14	20	23	7.2	20	2.4	19	2.0	.97	.14		
7	5.4	4.9	12	13	19	5.6	17	1.7	15	1.7	1.7	.12		
8	5.4	4.9	10	9.8	16	5.1	17	1.4	11	1.7	3.1	.12		
9	4.9	4.4	13	9.0	16	5.3	15	1.7	16	2.0	.97	.11		
10	4.9	5.4	18	9.1	16	4.9	14	2.4	49	2.0	.63	.10		
11	4.4	7.8	20	6.7	14	5.7	13	2.4	544	2.4	4.9	.10		
12	4.4	5.4	18	6.5	13	6.3	10	33	277	2.0	2.7	6.7		
13	4.9	4.9	14	6.2	12	6.5	7.8	560	133	2.0	.97	52		
14	4.9	4.4	11	6.4	11	6.8	6.5	11	49	2.0	.63	92		
15	4.7	3.1	9.8	5.9	10	5.8	5.9	7.1	68	1.7	.78	14		
16	4.4	4.0	9.1	6.1	9.7	20	6.5	4.4	34	1.7	.40	5.1		
17	4.5	4.4	8.4	5.9	8.4	24	6.5	3.1	86	1.4	.25	3.2		
18	3.1	4.4	8.4	7.9	8.8	14	5.9	1.7	144	1.4	.19	1.8		
19	2.7	4.4	7.8	14	8.7	11	5.9	1.7	48	1.4	.15	1.3		
20	2.7	4.0	8.4	15	8.4	11	5.4	4.9	36	.64	.19	.73		
21	2.7	3.5	8.4	20	9.9	8.4	10	428	24	.47	.25	.61		
22	2.7	4.0	8.4	21	14	8.0	9.1	156	19	.42	.19	1.2		
23	2.9	3.5	7.8	17	11	8.3	7.8	55	16	.38	.15	1.1		
24	3.4	3.6	7.1	14	8.8	9.7	5.9	30	15	.33	.15	1.0		
25	2.8	6.9	5.9	11	7.9	12	5.9	21	14	.30	.19	.90		
26	2.7	17	6.7	9.6	7.1	80	4.9	18	30	.22	.15	1.2		
27	2.7	32	14	8.7	7.5	28	4.9	14	19	.17	.25	1.4		
28	2.2	23	14	8.8	8.3	16	4.0	12	14	.20	.25	1.2		
29	3.5	14	14	8.9	---	14	4.4	10	10	.22	.25	1.0		
30	4.0	13	17	9.1	---	13	4.9	9.6	7.8	.17	.19	.99		
31	4.4	---	15	19	---	13	---	12	---	34	.13	---		
TOTAL	133.1	213.0	362.3	388.6	400.5	394.1	290.2	1422.1	1802.5	103.42	215.78	188.76		
MEAN	4.29	7.10	11.7	12.5	14.3	12.7	9.67	45.9	60.1	3.34	6.96	6.29		
MAX	6.5	32	20	24	41	80	22	560	544	34	178	92		
MIN	2.2	3.1	5.9	5.9	7.1	4.9	4.0	1.4	7.8	.17	.13	.10		
CFSM	.002	.003	.005	.006	.007	.006	.004	.02	.03	.002	.003	.003		
IN.	.00	.00	.01	.01	.01	.01	.00	.02	.03	.00	.00	.00		
AC-FT	264	422	719	771	794	782	576	2820	3580	205	428	374		
CAL YR 1982	TOTAL	32836.01	MEAN	90.0	MAX	5750	MIN	.40	CFSM	.04	IN	.56	AC-FT	65130

## RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX

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

DRAINAGE AREA.--20,570 mi<sup>2</sup>, of which 5,936 mi<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 National Geodetic Vertical Datum of 1929. July 11, 1924, to Aug. 31, 1925, nonrecording gage at site 1,000 ft downstream at same datum. Dec. 16, 1959, to Jan. 11, 1960, nonrecording gage at present site and datum.

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

AVERAGE DISCHARGE.--23 years (water years 1961-83), 841 ft<sup>3</sup>/s (609,300 acre-ft/yr).

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

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,480 ft<sup>3</sup>/s June 15 at 0345 hours (gage height, 8.45 ft), no peak above base of 9,000 ft<sup>3</sup>/s; minimum daily, 1.7 ft<sup>3</sup>/s Sept. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	38	79	70	899	256	583	176	710	1040	53	45
2	77	35	75	95	567	244	472	150	903	699	69	41
3	77	30	69	107	390	228	383	143	639	397	67	33
4	74	32	66	119	350	225	350	136	521	252	60	25
5	70	33	66	121	357	211	383	132	472	574	57	19
6	61	33	61	120	350	199	397	129	370	2300	51	16
7	56	32	56	119	357	190	397	107	319	1360	45	15
8	57	35	48	115	370	199	370	98	301	630	65	14
9	46	35	46	113	383	203	383	101	296	404	40	15
10	45	39	60	102	383	214	383	98	301	331	33	18
11	45	53	67	95	383	206	370	113	279	247	40	29
12	53	53	71	89	376	198	331	113	290	178	65	41
13	47	52	75	88	376	178	307	132	426	139	50	49
14	47	50	78	77	370	170	284	1440	2870	122	38	63
15	47	57	70	71	344	178	268	1240	5270	116	33	115
16	47	58	71	67	313	232	247	1040	2140	122	30	111
17	47	59	71	63	290	310	242	592	1510	143	33	103
18	55	58	70	62	273	419	222	991	1060	162	37	74
19	49	61	65	77	262	390	208	927	878	158	48	52
20	39	57	59	84	247	411	195	547	659	155	49	35
21	42	56	56	92	232	434	296	1610	1060	150	44	19
22	41	58	56	116	227	397	449	5290	731	141	40	11
23	41	55	55	117	227	376	565	3320	480	148	38	7.9
24	39	55	55	116	237	338	376	3310	363	136	37	4.9
25	39	71	49	130	252	301	286	2320	296	104	29	1.8
26	38	96	49	130	252	435	251	1830	273	74	23	1.8
27	41	107	67	132	257	1050	237	1350	195	63	20	1.7
28	47	88	63	112	257	1590	215	1610	222	57	24	1.7
29	44	82	61	113	---	1870	200	1130	565	43	40	1.7
30	39	85	63	92	---	1140	190	1080	565	39	50	1.7
31	41	---	65	134	---	779	---	831	---	41	51	---
TOTAL	1568	1653	1962	3138	9581	13571	9840	32086	24964	10525	1359	966.2
MEAN	50.6	55.1	63.3	101	342	438	328	1035	832	340	43.8	32.2
MAX	77	107	79	134	899	1870	583	5290	5270	2300	69	115
MIN	38	30	46	62	227	170	190	98	195	39	20	1.7
AC-FT	3110	3280	3890	6220	19000	26920	19520	63640	49520	20880	2700	1920
CAL YR 1982	TOTAL	326263.0	MEAN	894	MAX	11400	MIN	30	AC-FT	647100		
WTR YR 1983	TOTAL	111213.2	MEAN	305	MAX	5290	MIN	1.7	AC-FT	220600		



## RED RIVER BASIN

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07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to September 1981.

WATER TEMPERATURES: July 1968 to September 1981.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

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

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CaCO3)
OCT 26...	1415	42	8350	8.0	17.5	50	11.7	130	6.2	K20	170	1300
JAN 04...	1200	119	9650	8.0	4.0	7.1	15.2	124	1.6	200	140	1600
MAR 29...	1700	1760	3600	7.7	13.0	3300	11.1	111	>23	K10000	260000	620
MAY 10...	1830	101	11000	8.0	19.5	4.3	11.5	135	3.4	<4	K1400	1600
JUL 20...	1000	146	5280	8.2	27.0	26	10.3	135	5.5	K47	980	1020
AUG 31...	1630	31	4350	8.1	34.5	14	10.6	160	5.6	K4	1700	1100

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)	ALKA- LINITY FIELD (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 26...	1200	340	120	1400	17	10	140	1100	2400	.50	6.5
JAN 04...	1400	430	130	1600	18	8.8	170	1300	2600	.40	4.9
MAR 29...	530	170	47	720	13	7.3	90	500	1100	.40	5.6
MAY 10...	1500	410	150	1700	19	12	150	1300	2800	.40	3.3
JUL 20...	920	250	96	750	11	9.5	100	850	1200	.50	4.2
AUG 31...	1000	250	110	560	7.7	11	80	910	910	.70	9.2

DATE	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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 26...	5560	5460	<.10	.060	1.40	.030	<.010	<.010	38	4.3	94
JAN 04...	5300	6180	.40	.220	.80	.080	.060	.040	46	15	93
MAR 29...	2690	2610	.62	.370	11.0	1.40	.040	.040	5250	24900	73
MAY 10...	7180	6470	<.10	.060	1.00	.080	.030	.020	82	22	42
JUL 20...	3340	3220	<.10	.070	1.40	.140	.020	<.010	4	1.6	76
AUG 31...	3020	2810	<.10	.090	1.40	.030	<.010	<.010	22	1.8	75

## RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 26...	1415	3	<100	<10	<5	<1	80	<5	40	15
MAR 29...	1700	2	100	<10	<1	<1	2	1	30	1
MAY 10...	1830	2	200	<10	1	<1	3	3	20	2
AUG 31...	1630	5	100	<10	1	<1	1	5	30	1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 26...	70	30	.1	3	50	2	<5	3900	23	20
MAR 29...	40	<10	<.1	4	4	2	<1	2000	14	20
MAY 10...	100	30	<.1	4	4	2	<1	5500	34	10
AUG 31...	70	20	<.1	5	2	2	<1	3500	17	10

## RED RIVER BASIN

67

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 north of Truscott, about 47.6 mi upstream from confluence with South Wichita River, and 188.4 mi upstream from mouth.

DRAINAGE AREA.--937 mi<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 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.--23 years (water years 1961-83), 56.8 ft<sup>3</sup>/s (0.82 in/yr), 41,150 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,900 ft<sup>3</sup>/s Sept. 19, 1965 (gage height, 21.96 ft); minimum, 0.01 ft<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.--Maximum discharge, 725 ft<sup>3</sup>/s May 12 at 2400 hours (gage height, 9.02 ft), no peak above base of 1,000 ft<sup>3</sup>/s; minimum daily, 2.6 ft<sup>3</sup>/s July 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	16	24	24	55	17	20	14	15	14	4.7	3.8
2	17	16	22	32	42	16	21	11	16	11	7.2	3.9
3	15	16	23	30	38	16	19	11	14	9.8	6.2	4.0
4	15	16	25	27	30	17	18	11	12	7.3	5.7	3.8
5	14	15	26	25	27	16	24	11	12	6.7	6.3	3.5
6	14	15	24	24	24	16	25	9.2	14	6.4	4.8	3.7
7	14	17	22	24	22	15	26	8.2	14	6.3	4.8	3.5
8	15	17	21	22	20	15	27	7.9	13	6.1	5.4	3.7
9	13	17	21	22	19	16	26	8.7	21	5.9	6.0	4.0
10	13	18	25	21	18	16	24	9.7	27	5.7	8.1	4.3
11	14	19	27	20	18	16	20	24	19	5.6	7.3	4.9
12	16	19	28	19	16	16	18	72	26	5.5	7.3	5.5
13	18	19	26	19	17	17	17	122	22	5.5	6.6	6.1
14	18	18	24	18	17	17	16	28	14	5.3	11	8.6
15	18	18	22	18	16	16	17	20	11	5.3	11	8.6
16	17	18	21	18	16	34	16	17	10	6.0	4.8	9.2
17	17	19	22	18	16	32	16	16	13	6.6	12	8.8
18	16	19	20	19	17	29	16	13	16	6.7	5.4	7.9
19	16	18	20	21	16	25	15	13	16	5.6	5.4	7.0
20	15	14	20	22	16	23	14	36	12	5.5	4.8	6.5
21	16	14	20	28	16	21	77	96	9.8	4.8	3.8	6.7
22	16	14	20	29	18	21	42	41	8.3	4.2	3.3	7.6
23	18	15	20	27	18	21	27	29	7.9	4.0	3.3	7.6
24	18	20	20	24	17	22	21	19	7.4	3.9	3.3	7.7
25	18	25	20	22	17	24	18	17	8.4	3.7	3.3	8.2
26	17	30	19	20	17	69	16	16	8.7	3.5	3.3	8.5
27	17	37	24	19	17	40	15	15	50	3.4	3.3	9.1
28	16	37	22	18	17	30	13	14	69	2.8	3.3	9.9
29	16	31	22	18	---	24	14	12	31	2.6	4.3	9.7
30	16	26	21	18	---	20	15	11	19	2.8	4.3	10
31	16	---	20	43	---	19	---	13	---	3.1	4.0	---
TOTAL	494	593	691	709	597	696	653	745.7	536.5	175.6	174.3	196.3
MEAN	15.9	19.8	22.3	22.9	21.3	22.5	21.8	24.1	17.9	5.66	5.62	6.54
MAX	18	37	28	43	55	69	77	122	69	14	12	10
MIN	13	14	19	18	16	15	13	7.9	7.4	2.6	3.3	3.5
CFSM	.02	.02	.02	.02	.02	.02	.02	.03	.02	.006	.006	.007
IN.	.02	.02	.03	.03	.02	.03	.03	.03	.02	.01	.01	.01
AC-FT	980	1180	1370	1410	1180	1380	1300	1480	1060	348	346	389
CAL YR 1982	TOTAL	24797.6	MEAN 67.9	MAX 3580	MIN 6.2	CFSM .07	IN .98	AC-FT 49190				
WTR YR 1983	TOTAL	6261.4	MEAN 17.2	MAX 122	MIN 2.6	CFSM .02	IN .25	AC-FT 12420				

## RED RIVER BASIN

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 35,800 micromhos Oct. 9, 1982; minimum daily, 600 micromhos June 19, 1982.

WATER TEMPERATURES: 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, 35,800 micromhos Oct. 9; minimum daily, 1,600 micromhos May 13.

WATER TEMPERATURES: Maximum daily, 36.0°C July 29, Aug. 11, 12; minimum daily, 0.0°C Jan. 1, 2.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO
OCT 04...	1215	16	19900	24.5	3000	3000	870	210	3600	30
DEC 20...	1410	20	--	--	--	--	--	--	--	--
FEB 07...	1330	23	15000	4.5	2500	2400	730	170	2700	24
MAR 14...	1245	16	--	--	--	--	--	--	--	--
APR 25...	1330	18	17900	22.0	2500	2400	720	170	3200	29
JUN 01...	1010	16	20000	17.5	2600	2500	750	180	3900	34
JUL 19...	1340	6.7	24400	33.0	3500	3400	1000	240	5000	38
AUG 30...	1240	4.8	29200	32.5	4100	4100	1200	280	5800	41

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 04...	30	79	2700	6200	.40	1.1	13700	18	.78	90
DEC 20...	--	--	--	--	--	--	--	3	.16	53
FEB 07...	14	140	2100	4100	.40	6.8	9910	14	.87	100
MAR 14...	--	--	--	--	--	--	--	14	.60	95
APR 25...	14	100	2400	5200	.40	23	11800	123	6.0	39
JUN 01...	14	89	2400	6300	.40	1.6	13600	31	1.3	93
JUL 19...	20	56	3400	7800	.50	1.3	17500	10	.18	64
AUG 30...	24	48	3800	9300	.50	1.7	20400	12	.16	89



## RED RIVER BASIN

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07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	494	19600	13300	17800	5900	7940	2500	3370	*
NOV.	1982	593	18500	12500	20000	5500	8880	2400	3850	*
DEC.	1982	691	17400	11600	21700	5100	9540	2300	4250	*
JAN.	1983	709	17400	11700	22300	5100	9810	2300	4370	*
FEB.	1983	597	16000	10600	17100	4600	7460	2100	3410	*
MAR.	1983	696	16100	10700	20100	4700	8780	2100	3990	*
APR.	1983	653	16100	10700	18900	4700	8240	2100	3740	*
MAY	1983	745.7	13800	9180	18500	4000	8000	1800	3710	*
JUNE	1983	536.5	15900	10700	15500	4700	6770	2100	3040	*
JULY	1983	175.6	18000	12200	5800	5500	2600	2300	1090	*
AUG.	1983	174.3	25200	17800	8360	8200	3880	3100	1460	*
SEPT	1983	196.3	26700	18900	10000	8800	4680	3200	1720	*
TOTAL		6261.4	**	**	196000	**	86600	**	38000	**
WTD. AVG.		17	17200	11600	**	5100	**	2200	**	**

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	18400	---	---	20100	16600	16500	16600	18600	16800	17700
2	---	---	18200	---	---	20200	16900	16600	16800	16900	16500	16700
3	---	---	18500	---	---	20000	17000	16800	16900	16900	16600	16700
4	18900	18700	18800	---	---	20100	16800	16400	16600	17300	16900	17100
5	19100	18700	18900	---	---	20300	16700	16400	16600	17400	17200	17300
6	19300	18800	19100	---	---	20200	16900	16700	16700	17500	17200	17400
7	19300	18600	19100	---	---	19900	16900	16600	16800	17600	17200	17500
8	19500	18600	19200	---	---	19800	17100	16900	17000	17600	17400	17500
9	35800	18800	20300	---	---	20000	17200	16600	17100	18000	17500	17700
10	28100	18900	19700	---	---	19900	16700	16300	16500	18200	17900	18100
11	19400	19100	19200	---	---	19500	16500	16100	16300	18400	18200	18300
12	19100	18000	18900	---	---	19300	16600	16400	16500	18400	18200	18300
13	19800	18600	18900	---	---	19200	16800	16500	16700	18400	18200	18300
14	---	---	20100	---	---	19400	16800	16500	16700	18500	18300	18400
15	---	---	20200	---	---	19400	17000	16600	16800	18700	18500	18600
16	---	---	20300	---	---	19600	17100	16900	17000	18800	18500	18600
17	---	---	20400	---	---	19500	17100	16800	17000	18700	18600	18600
18	---	---	20100	---	---	19300	17200	16900	17100	18700	17900	18300
19	---	---	20100	---	---	19400	17400	17200	17300	18000	17900	17900
20	---	---	20200	---	---	19600	18500	17300	17800	18000	17200	17700
21	---	---	20000	---	---	19500	18600	18400	18500	17200	16800	16900
22	---	---	20200	---	---	19500	18700	18500	18600	17000	16900	17000
23	---	---	19700	---	---	19300	18600	18500	18500	17300	16400	17100
24	---	---	19600	18500	17500	18100	18700	18500	18600	17400	17100	17300
25	---	---	19800	17400	16900	17100	18900	18700	18800	17500	17200	17300
26	---	---	19900	16800	15400	16200	19000	18300	18800	17600	17300	17500
27	---	---	19700	15700	15300	15400	18300	17900	18100	17900	17600	17700
28	---	---	19800	16000	15700	15800	18200	18000	18100	18000	17600	17800
29	---	---	20000	16400	16100	16200	18400	16900	18200	18100	17700	17800
30	---	---	20100	16500	16300	16400	18500	18400	18500	18200	18000	18100
31	---	---	20200	---	---	---	18600	17700	18400	18000	5600	13800
MONTH	35800	18000	19600	18500	15300	18900	19000	16100	17400	18800	5600	17600

## RED RIVER BASIN

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	13500	8800	11800	18200	17800	18000	17300	16700	17100	19800	19000	19300
2	15300	11800	13600	18100	17800	17900	17200	16500	16800	19900	19400	19600
3	14900	14200	14600	18000	17800	17900	17300	16700	17000	20000	19400	19800
4	16200	15000	15900	18000	17900	17900	17400	16700	17300	20400	19600	20000
5	16700	16200	16500	18100	18000	18100	17000	16300	16600	20900	20000	20400
6	16600	15900	16200	18300	18100	18200	17100	16400	16800	21200	20400	20800
7	15900	14500	15200	18500	18300	18400	17100	16700	16800	21400	20700	21000
8	---	---	15400	18400	18200	18300	16800	16500	16700	21100	20700	20900
9	---	---	15600	18400	18200	18300	16700	16300	16500	21100	20700	20900
10	---	---	15900	18500	18300	18400	16800	16600	16700	21000	19300	20600
11	---	---	16300	18700	18600	18700	17200	16500	16800	19500	10400	16300
12	---	---	16700	18800	18600	18700	17500	17100	17300	19600	---	14500
13	---	---	16400	18800	18500	18600	17800	17500	17600	15600	1600	8940
14	---	---	16500	18900	18400	18500	18200	17700	18000	13200	7400	9920
15	---	---	16900	18600	18300	18500	18300	18100	18200	16200	11700	14300
16	---	---	17200	18400	8700	14300	18500	18100	18300	17200	16200	16800
17	---	---	17400	16500	14800	15800	18900	18400	18600	18100	17000	17500
18	---	---	17100	16600	16300	16500	19000	18500	18700	19300	18200	18700
19	---	---	17500	16900	16600	16700	19300	18700	19000	19900	16400	19200
20	---	---	17700	17100	16900	17000	19300	18700	19100	19000	6200	14400
21	---	---	18000	17300	16900	17100	18900	3800	10400	11000	1900	6180
22	---	---	17400	17500	17300	17400	13000	9100	11700	13200	8200	11200
23	17600	17500	17500	17600	15100	17400	15300	11200	13100	15100	12300	13700
24	17600	17400	17500	17600	17400	17500	16200	15300	15700	17000	15100	16000
25	18000	17600	17700	17500	10500	16700	17200	16200	16700	18500	17100	17800
26	18000	17700	17800	14000	5600	10900	18100	16900	17500	18900	17900	18400
27	17900	17600	17700	13000	8900	10500	19000	18000	18500	19600	18400	19000
28	18000	17700	17900	14900	13200	13900	19300	18600	18900	19500	18800	19200
29	---	---	---	15600	15000	15300	19300	18700	19000	19800	18800	19300
30	---	---	---	16500	15000	15800	19400	18600	19000	19400	18700	19000
31	---	---	---	17100	16600	16800	---	---	---	19100	18700	18900
MONTH	18000	8800	16500	18900	5600	16900	19400	3800	17000	21400	1600	17200

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	19200	18800	19000	8600	7200	7900	27300	26100	26600	28400	27100	27700
2	20000	19000	19500	9500	8600	9100	26800	25600	26300	28500	27100	27700
3	20300	19400	19800	10500	9500	10000	27400	26000	26700	28600	27100	27800
4	19900	19100	19500	11500	10500	11000	27000	26000	26400	28700	27200	27900
5	19300	18800	19100	12400	11300	11900	26400	25100	25800	28900	27400	28000
6	19100	18600	18900	13600	12100	12900	27400	25600	26500	29200	27500	28300
7	19700	18700	19100	14800	13600	14200	27200	26200	26600	29300	27900	28500
8	20200	19300	19700	16200	14700	15500	27100	26200	26600	29400	27800	28500
9	19800	17200	18900	17600	16100	16900	26600	25800	26200	29300	28000	28600
10	18800	15000	17400	19000	17400	18300	26600	25600	26200	29400	28000	28600
11	15400	14400	15000	19900	18600	19300	27300	25800	26500	29000	25600	28000
12	18400	12600	15400	20500	19400	20000	27500	26100	26800	28600	27200	27900
13	19500	16400	18100	21100	20100	20600	27900	26400	27200	27700	27100	27400
14	20000	19100	19400	21500	20400	20800	---	---	20500	27500	26700	27100
15	20200	19300	19800	21700	20600	21100	23400	10300	17000	27000	26200	26600
16	20400	19600	20000	21600	20900	21200	23300	10400	17100	27000	26100	26600
17	20200	19400	20000	21900	20900	21300	27000	23700	25900	27100	26100	26600
18	20400	12200	17800	---	---	21600	26400	11100	18700	27300	26200	26700
19	18400	16000	17400	23600	23100	23600	26100	11500	20800	27300	26200	26700
20	17000	14800	16000	24100	22800	23500	27700	26100	26900	26700	26200	26400
21	18700	16900	17900	24700	23300	24000	28400	26900	27700	26600	26000	26300
22	19600	18600	19100	25000	23700	24300	29200	27600	28300	26400	25900	26100
23	19700	19000	19300	25400	24000	24700	29400	27800	28500	26200	25500	25800
24	19700	18800	19200	25600	24300	25000	29300	27800	28500	26200	25500	25800
25	20400	19200	19800	26000	24700	25400	29300	27800	28500	26500	25600	26000
26	21100	20000	20400	26300	24900	25500	29200	27600	28300	26500	25800	26100
27	21000	8300	15500	26500	25000	25800	29400	27800	28500	26300	25600	25900
28	19900	12300	9500	27100	25300	26200	29300	27900	28600	26300	25500	25800
29	13400	6000	7790	27800	25800	26800	29500	28100	28800	25900	25300	25500
30	7200	6000	6540	27900	26200	26900	29100	27400	28200	25600	25000	25300
31	---	---	---	27600	26300	26700	28500	26900	27700	---	---	---
MONTH	21100	6000	17500	27900	7200	20100	29500	10300	25900	29400	25000	27000

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.5	1.5	3.0	17.0	12.0	15.0	17.0	10.0	13.5	24.5	20.5	23.0
2	4.0	.5	2.0	18.0	13.5	16.0	16.0	7.0	11.5	24.5	16.5	20.5
3	4.0	1.0	2.5	18.0	15.5	17.0	19.5	10.0	15.0	24.0	15.0	19.5
4	3.0	2.0	2.0	17.5	16.0	16.5	16.5	9.0	12.5	26.0	15.5	20.5
5	7.0	2.0	4.0	16.0	13.0	15.0	12.0	6.5	9.0	25.5	16.5	21.0
6	5.0	3.0	4.0	16.5	12.5	14.5	11.0	7.5	9.5	26.5	16.5	21.5
7	3.5	1.0	2.0	16.5	12.5	14.5	9.0	7.0	8.0	26.0	17.5	22.0
8	---	---	---	15.5	13.0	14.5	10.5	6.5	8.5	24.0	17.0	20.5
9	---	---	---	15.5	12.0	14.0	16.0	6.0	11.0	25.5	16.0	20.5
10	---	---	---	15.0	11.0	13.0	20.5	10.0	15.5	24.5	18.0	20.5
11	---	---	---	15.0	10.5	13.0	22.0	13.0	18.0	24.5	17.5	21.0
12	---	---	---	16.0	11.0	14.0	21.5	14.0	18.0	30.0	18.0	23.5
13	---	---	---	17.5	13.5	15.5	20.5	15.0	17.5	25.0	18.0	21.5
14	---	---	---	20.5	14.0	17.0	17.5	9.5	13.5	22.0	15.5	18.0
15	---	---	---	17.0	14.5	15.5	19.5	9.5	14.5	24.0	13.5	18.5
16	---	---	---	14.5	8.0	10.5	21.5	12.5	16.5	25.0	16.0	20.5
17	---	---	---	11.0	6.5	9.0	22.5	13.5	18.0	27.0	17.0	21.5
18	---	---	---	13.5	7.5	10.5	23.5	14.0	19.0	25.0	16.0	21.0
19	---	---	---	11.0	6.5	8.5	23.5	14.5	18.5	24.5	16.5	20.5
20	---	---	---	10.5	5.0	7.5	19.0	12.5	16.0	21.5	16.5	19.5
21	---	---	---	12.0	3.5	8.0	19.5	12.0	16.0	22.0	15.5	18.5
22	---	---	---	9.0	7.0	7.5	22.0	16.0	18.5	27.0	17.0	22.0
23	14.0	12.0	13.5	8.5	7.0	7.5	22.0	14.5	18.0	27.5	19.0	23.5
24	15.5	11.5	13.5	12.5	8.0	9.5	24.0	14.0	19.0	29.0	19.0	24.0
25	13.0	10.5	11.5	17.0	10.0	13.0	24.0	15.5	19.5	28.0	20.5	24.0
26	11.0	9.5	10.0	14.5	10.0	12.5	25.5	15.5	20.5	31.0	22.0	26.0
27	12.5	7.5	10.0	14.5	7.5	11.0	27.0	18.0	22.5	31.5	22.5	27.0
28	15.0	9.5	12.5	16.0	8.0	12.0	25.5	18.5	22.0	31.0	22.5	27.0
29	---	---	---	18.5	10.5	14.0	25.0	20.0	22.5	31.0	22.0	26.5
30	---	---	---	20.0	12.0	16.0	28.0	19.5	24.0	25.5	17.5	22.0
31	---	---	---	21.5	13.0	17.5	---	---	---	18.0	15.5	16.5
MONTH	15.5	.5	7.0	21.5	3.5	13.0	28.0	6.0	16.0	31.5	13.5	21.5

## RED RIVER BASIN

07311700 NORTH WICHITA RIVER NEAR TRUSCOTT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

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



## RED RIVER BASIN

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07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX

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

DRAINAGE AREA.--584 mi<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 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.--23 years (water years 1961-83), 36.6 ft<sup>3</sup>/s (0.85 in/yr), 26,520 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft<sup>3</sup>/s Oct. 18, 1960 (gage height, 15.40 ft); maximum gage height, 16.48 ft 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.--Maximum discharge, 954 ft<sup>3</sup>/s May 21 at 0200 hours (gage height, 9.79 ft), no other peak above base of 800 ft<sup>3</sup>/s; no flow for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	4.1	9.1	12	36	8.4	9.3	11	9.1	10	2.0	.00
2	3.3	5.7	8.9	15	21	8.1	9.3	10	9.9	7.6	.09	.00
3	3.3	4.7	9.3	14	20	8.0	8.7	10	8.2	5.8	.00	.00
4	3.3	4.4	10	14	18	8.2	10	10	17	5.6	.00	.00
5	3.2	4.6	9.6	13	17	8.5	19	9.6	24	18	.00	.00
6	3.1	4.6	9.4	13	16	8.8	10	9.2	81	3.1	.00	.00
7	3.0	4.6	9.2	12	16	8.7	11	8.9	21	2.4	.00	.00
8	2.8	4.6	8.8	12	14	8.8	10	8.6	14	2.0	.00	.00
9	2.8	5.0	8.8	12	14	8.6	9.6	8.6	322	1.5	.00	.00
10	2.7	6.2	10	11	13	8.3	8.7	9.0	115	1.2	.00	.00
11	2.7	8.2	11	12	13	8.3	8.0	108	34	.89	.00	1.0
12	3.5	6.7	11	11	13	7.7	7.2	17	20	.76	.00	.03
13	4.0	7.3	10	11	13	7.9	6.5	50	14	.45	.00	.00
14	3.4	7.0	9.8	12	12	7.6	6.1	16	88	.30	.00	.00
15	3.4	6.5	9.0	11	12	7.6	6.1	14	14	.20	.00	.00
16	3.5	6.4	8.6	11	12	24	6.1	11	10	.12	.00	.00
17	3.5	6.3	8.6	12	12	18	6.1	10	9.6	.02	.00	.00
18	3.5	6.3	8.3	12	11	13	6.0	9.8	9.2	.00	.00	.00
19	3.6	7.7	8.0	13	11	12	6.0	14	8.9	.00	.00	.00
20	3.5	7.9	8.0	14	10	11	5.6	27	9.0	.00	.00	.00
21	3.5	6.2	8.0	18	11	10	221	251	8.1	.00	.00	.00
22	3.8	6.6	8.3	18	11	9.9	41	16	6.9	.00	.00	.00
23	3.8	6.1	8.3	18	10	10	22	9.3	6.3	.00	.00	.00
24	3.8	6.4	8.3	16	9.4	9.7	16	6.7	5.9	.00	.00	.00
25	3.9	9.2	8.6	15	9.5	14	13	6.2	5.2	.00	.00	.00
26	5.1	11	8.8	15	10	38	12	6.0	4.8	.00	.00	.00
27	6.0	16	11	15	9.0	11	11	5.9	40	.00	.00	.00
28	5.5	13	10	14	8.7	9.7	11	6.0	107	.00	.00	.00
29	4.0	11	11	14	---	8.6	11	5.5	18	.00	.00	.00
30	4.0	10	11	14	---	8.0	11	11	16	.04	.00	.00
31	4.0	---	11	77	---	7.9	---	26	---	16	.00	---
TOTAL	112.8	214.3	289.7	481	382.6	338.3	538.3	721.3	1056.1	75.98	2.09	1.03
MEAN	3.64	7.14	9.35	15.5	13.7	10.9	17.9	23.3	35.2	2.45	.067	.034
MAX	6.0	16	11	77	36	38	221	251	322	18	2.0	1.0
MIN	2.7	4.1	8.0	11	8.7	7.6	5.6	5.5	4.8	.00	.00	.00
CFSM	.006	.01	.02	.03	.02	.02	.03	.04	.06	.004	.000	.000
IN.	.01	.01	.02	.03	.02	.02	.03	.05	.07	.00	.00	.00
AC-FT	224	425	575	954	759	671	1070	1430	2090	151	4.1	2.0

CAL YR 1982 TOTAL 19831.50 MEAN 54.3 MAX 2070 MIN 2.2 CFSM .09 IN 1.26 AC-FT 39340  
WTR YR 1983 TOTAL 4213.50 MEAN 11.5 MAX 322 MIN .00 CFSM .02 IN .27 AC-FT 8360

## RED RIVER BASIN

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURES: October 1967 to current year.

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

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

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, 38.5°C July 30, 1983; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 31,000 micromhos Nov. 4; minimum daily, 1,000 micromhos June 13.

WATER TEMPERATURES: Maximum daily, 38.5°C July 30; minimum daily, 0.0°C Dec. 29, 30, Jan. 4, Feb. 2, 3, 7.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 04...	1010	3.6	30600	23.0	4600	4600	1300	340	6600
FEB 07...	1525	16	22300	7.0	3100	3000	860	220	4200
APR 25...	1505	13	19300	23.0	2800	2700	790	200	3600
JUN 01...	1135	8.6	8350	16.5	1500	1500	430	110	1300
07...	1355	19	3990	22.0	1200	1100	360	69	450

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 04...	44	29	86	3300	11000	.30	1.8	22600
FEB 07...	34	20	120	2400	6600	.30	4.6	14400
APR 25...	31	19	94	2200	6100	.40	2.6	13000
JUN 01...	15	13	66	1400	2100	.30	5.5	5400
07...	5.9	10	63	1000	760	.30	5.8	2690

## RED RIVER BASIN

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07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	112.8	28600	19400	5900	9400	2860	3000	924	*
NOV.	1982	214.3	28400	19200	11100	9300	5380	3000	1740	*
DEC.	1982	289.7	26200	17800	13900	8500	6640	2900	2280	*
JAN.	1983	481	23700	16100	20900	7700	9950	2700	3500	*
FEB.	1983	382.6	22200	15000	15500	7100	7330	2600	2680	*
MAR.	1983	338.3	24700	16700	15300	8000	7280	2800	2540	*
APR.	1983	538.3	14000	9490	13800	4400	6390	1700	2530	*
MAY	1983	721.3	11300	7650	14900	3500	6890	1400	2760	*
JUNE	1983	1056.1	7920	5370	15300	2400	6830	1100	3180	1400
JULY	1983	75.98	18700	12700	2600	5900	1210	2300	477	*
AUG.	1983	2.09	7900	5360	30	2300	13	1200	6.6	1500
SEPT	1983	1.03	22000	14900	42	7000	19	2600	7.3	*
TOTAL		4213.50	**	**	129000	**	60800	**	22600	**
WTD. AVG.		12	16800	11400	**	5300	**	2000	**	**

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1			30000			30300			26000			26800
2			30200			30500			26400			24300
3			30300			30900			26500			25500
4			30600			31000			25400			26000
5			30300			30800			25600			26300
6			29800			30900			25900			26200
7			29000			30700			26100			26400
8			28100			30600			26300			26300
9			28000			30500			26400			26400
10			27900			30300			24600			26900
11			27000			28700			24000			27100
12			25800			29700			23800			27200
13			25400			29600			25300			27100
14			25700			29800			25700			27200
15			25900			30300			25800			27300
16			26300			30200			25900			27400
17			26500			30100			26100			27500
18			27200			29900			26300			27400
19			27800			29700			26400			27100
20			28400			29900			27000			27000
21			28600			30000			26500			26300
22			28500			29800			27300			25400
23			28800			30000			27400			24700
24			28700			30100			27500			25600
25			29000			27700			27300			25700
26			29400			25500			27500			25500
27			29700			22500			25400			26200
28			30000			23100			26600			25800
29			30400			25800			27200			26200
30			30500			26300			27500			26100
31			30400						27700			10500
MONTH			28500			29200			26200			25900

## RED RIVER BASIN

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1			8320			28200	---	---	26200			22500
2			15500			28300	---	---	25500			25400
3			17800			28400	---	---	24700			26400
4			20500			28200	---	---	17500			27400
5			21600			28400	---	---	14300			28400
6			21500			28600	---	---	22000			29400
7			22000			29000	---	---	25300			30100
8			22600			29200	---	---	24100			29900
9			23500			29300	---	---	24900			30300
10			23700			29500	---	---	24800			29100
11			23800			29600	---	---	27400			6830
12			24000			29700	---	---	28000			7500
13			24100			29500	28000	26700	27300			5920
14			25200			29800	28200	26800	27700			7910
15			25800			30100	28100	27300	27700			10500
16			25700			15700	28400	27300	27900			19500
17			25800			18100	28800	27400	28100			26700
18			25900			22100	29000	27600	28300			28100
19			26000			24500	29500	27800	28600			25000
20			26100			25700	29100	28200	28700			21500
21			27000			26100	27800	2900	4820			3400
22			26400			26500	19100	5600	9410			4750
23			26600			26200	22600	19600	21500			5760
24			27100			26600	22000	18900	20400			15800
25			27000			24200	18800	17800	18300			17500
26			26200			18300	17700	15400	16300			20500
27			27600			23500	15900	14100	15300			24800
28			27900			22700	16800	15400	16000			26500
29						25500	17400	16100	16900			27200
30						26000	19100	17500	18300			25000
31						26100	---	---	---			12800
MONTH			23800			26200	29500	2900	22200			20100

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	9570			23300			7500			---
2	21700	9700	15600			24400			16800			---
3	25000	21800	23200			23800			---			---
4	26800	6400	22800			20800			---			---
5	20100	3000	13000			12500			---			---
6	16200	2800	8200			18400			---			---
7	4800	1800	3580			18600			---			---
8	15300	4700	8930			22400			---			---
9	17000	2600	3630			23000			---			---
10	14200	3700	9050			23200			---			---
11	10200	2800	7480			24600			---			22100
12	11500	10300	11000			24100			---			19500
13	12300	1000	11100			24200			---			---
14	9800	2200	3940			24300			---			---
15	---	---	7630			24600			---			---
16	---	---	10900			25100			---			---
17	---	---	15700			25500			---			---
18	---	---	16500			---			---			---
19	---	---	17000			---			---			---
20	---	---	20200			---			---			---
21	---	---	22400			---			---			---
22	---	---	22900			---			---			---
23	---	---	22400			---			---			---
24	---	---	22300			---			---			---
25	---	---	23100			---			---			---
26	---	---	23000			---			---			---
27	---	---	18500			---			---			---
28	---	---	3430			---			---			---
29	---	---	7610			---			---			---
30	---	---	15000			22500			---			---
31	---	---	---			15400			---			---
MONTH	26800	1000	14000			22100			12200			20800



## RED RIVER BASIN

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07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1			3.0			10.0	---	---	13.0	25.5	20.0	22.5
2			.0			11.0	---	---	7.0	24.0	16.0	19.5
3			.0			15.0	---	---	12.0	24.5	14.0	19.5
4			2.0			15.0	---	---	12.0	25.0	14.5	20.0
5			2.0			11.0	---	---	5.0	24.0	15.5	19.5
6			1.0			9.0	---	---	7.0	25.5	16.0	20.5
7			.0			9.0	---	---	5.0	26.5	17.0	21.5
8			4.0			11.0	---	---	7.0	25.0	16.5	20.5
9			5.0			9.0	---	---	6.0	25.5	15.5	20.0
10			5.0			7.0	---	---	9.0	26.0	17.5	21.0
11			6.0			6.0	---	---	13.0	21.0	17.0	19.0
12			4.0			9.0	21.5	18.0	20.0	24.0	19.5	21.5
13			5.0			10.0	21.5	13.5	17.0	21.5	20.0	21.0
14			7.0			12.0	18.0	8.0	13.0	21.5	16.0	18.0
15			10.0			15.0	20.0	7.5	14.0	16.5	15.0	15.5
16			5.0			10.0	21.5	11.0	16.5	18.0	15.0	16.5
17			5.0			5.0	23.5	11.5	17.5	19.0	16.5	18.0
18			6.0			6.0	24.0	12.5	18.0	19.0	16.0	18.0
19			8.0			7.0	24.0	13.5	18.0	19.5	16.0	18.0
20			7.0			6.0	19.5	11.0	15.0	18.5	17.0	18.0
21			7.0			3.0	17.0	11.5	14.5	21.5	14.0	17.5
22			7.0			6.0	20.5	14.5	17.0	27.0	16.0	21.0
23			6.0			7.5	22.0	14.0	17.5	27.5	18.0	22.5
24			10.0			---	23.5	13.0	18.5	29.5	18.0	23.5
25			7.0			---	23.5	14.0	18.5	29.0	20.0	23.5
26			8.0			---	26.0	15.0	20.0	31.5	21.0	25.0
27			7.0			15.0	28.0	17.5	22.5	32.0	21.0	26.0
28			8.0			8.0	26.0	17.0	22.0	32.5	21.5	26.0
29						11.0	25.5	19.5	22.5	32.0	21.0	26.0
30						11.5	28.5	19.0	23.5	25.5	14.5	20.5
31						12.5	---	---	---	17.5	14.0	15.5
MONTH			5.0			9.5	28.5	7.5	14.5	32.5	14.0	20.5

## RED RIVER BASIN

07311800 SOUTH WICHITA RIVER NEAR BENJAMIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	20.5	14.0	17.0	30.0	24.0	27.0	34.0	21.5	28.5			
2	30.0	16.5	23.0	29.5	24.5	27.0	36.0	21.5	29.5			
3	32.5	21.5	26.5	30.0	23.5	26.5	---	---	---			
4	32.5	21.0	25.5	32.0	23.0	27.0	---	---	---			
5	27.0	19.5	22.5	32.0	24.0	27.5	---	---	---			
6	21.0	15.5	18.0	31.5	23.0	27.0	---	---	---			
7	27.0	14.5	20.5	31.5	22.0	26.0	---	---	---			
8	31.0	19.0	24.5	31.5	21.0	25.5	---	---	---			
9	25.5	19.0	22.0	31.0	20.5	25.5	---	---	---			
10	27.0	23.5	25.0	30.5	22.0	26.0	---	---	---			
11	28.0	21.0	24.5	28.5	22.0	25.0	---	---	---			
12	29.0	21.5	24.5	30.0	22.0	25.0	---	---	---			
13	31.5	20.0	25.0	30.0	22.5	25.0	---	---	---			
14	25.0	19.0	22.0	28.5	22.0	25.0	---	---	---			
15	25.5	21.0	23.5	28.5	23.0	25.0	---	---	---			
16	24.0	21.5	23.0	26.5	23.0	24.5	---	---	---			
17	24.0	20.5	22.5	28.5	23.0	25.5	---	---	---			
18	27.5	22.0	24.5	---	---	---	---	---	---			
19	28.5	23.5	26.0	---	---	---	---	---	---			
20	28.5	23.5	26.0	---	---	---	---	---	---			
21	29.5	23.5	26.5	---	---	---	---	---	---			
22	29.5	24.0	27.0	---	---	---	---	---	---			
23	28.5	24.0	26.5	---	---	---	---	---	---			
24	28.0	23.0	26.0	---	---	---	---	---	---			
25	28.5	23.0	25.5	---	---	---	---	---	---			
26	28.5	23.0	25.5	---	---	---	---	---	---			
27	30.0	21.0	25.0	---	---	---	---	---	---			
28	29.5	21.0	24.5	---	---	---	---	---	---			
29	31.0	22.0	26.0	---	---	---	---	---	---			
30	30.0	22.0	26.0	38.5	22.5	30.0	---	---	---			
31	---	---	---	35.5	23.0	27.5	---	---	---			
MONTH	32.5	14.0	24.0	38.5	20.5	26.0	36.0	21.5	29.0			

## 07312000 LAKE KEMP NEAR MABELLE, TX

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

DRAINAGE AREA.--2,086 mi<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 higher.

REMARKS.--The lake is formed by a rolled earthfill dam 8,890 ft long. The original dam was completed Aug. 25, 1923, but deliberate impoundment had begun Oct. 1, 1922. Enlargement of the dam was completed in November 1973. The 3,000-foot-wide uncontrolled spillway is located approximately 600 ft to right and slightly upstream from right end of dam. The controlled outlet works near center of dam consist of two hydraulically operated slide gates 5 ft 8 in by 13 ft with a 13-foot-diameter conduit and spillway basin. The dam and lake are owned by the city of Wichita Falls and the Wichita County Water Improvement District No. 2. Water is used for irrigation in the Wichita River Valley, 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 June 30, 1941 (elevation, 1,152.0 ft), present datum; minimum since first appreciable storage, 26,160 acre-ft June 30, 1953 (elevation, 1,108.0 ft), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 240,200 acre-ft Apr. 22 at 2200 hours (elevation, 1,142.14 ft); minimum, 166,300 acre-ft Sept. 30 (elevation, 1,136.01 ft).

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

1,136.0	166,200	1,142.0	238,200
1,138.0	186,700	1,144.0	268,000
1,140.0	210,900		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234800	222900	223800	225600	232400	233800	237100	235400	235800	236800	213500	185200
2	234900	222900	223700	225700	232400	233800	236400	234700	235900	236500	212300	184000
3	234900	221900	224000	225900	232200	234000	236400	233800	235800	236400	211300	182600
4	234700	221500	224000	226400	232100	234400	236800	233000	235100	236200	210300	181500
5	234500	221500	224000	226300	232200	234500	236900	232200	234700	236400	209600	180200
6	234200	221500	223700	226600	232200	234000	237100	231800	234100	236200	209000	179100
7	234100	221500	223800	226400	232500	233800	237100	230800	233700	235700	207800	178000
8	233800	221200	223500	226700	232800	233700	237200	230300	233200	234500	206800	177100
9	232700	221500	223700	226700	232700	233500	237400	229200	233000	233700	206000	176100
10	231700	221800	224100	227000	233000	233000	237400	229000	232500	232700	205100	175300
11	230800	222000	224400	226800	233100	232800	237900	228400	232500	232000	204500	175700
12	230400	221300	224400	227000	233000	233000	237400	229700	231800	231100	203600	175200
13	229600	220900	224600	227100	232800	233200	237900	230800	234400	230100	202800	174800
14	228800	220400	224600	227000	233200	233500	237400	232000	236100	229000	202000	174700
15	228500	220200	224500	226800	233400	233200	237200	232200	236200	228100	201000	174400
16	227700	220400	224500	226800	233400	234400	237100	231500	235900	227800	200000	174100
17	227000	220100	225200	226600	233400	234100	237200	231800	236100	227400	198900	173700
18	226400	220400	224800	226600	233700	234100	236800	231700	235900	227000	197900	173300
19	225600	220700	224800	226700	234000	234200	236700	230700	235900	226400	197200	172700
20	224800	220400	224600	226700	233700	234000	236400	231800	235700	225500	196000	171600
21	224200	220200	224900	226800	233700	233700	238800	232500	235500	224600	195200	170800
22	224000	220200	225200	226800	233700	233200	240100	234100	235500	224000	194200	170200
23	223800	219700	224900	227100	233700	233500	239800	235100	235200	223100	193400	169600
24	223700	220000	225100	227000	233700	233500	239800	235400	234900	222400	192500	169100
25	223500	220400	224200	227400	233700	234900	239700	235700	235100	221500	191700	168700
26	223300	221600	224500	227000	233400	236200	239700	236500	235900	220200	190800	168400
27	224000	223000	225300	226800	233400	235800	238200	236800	237100	218900	190000	168000
28	223300	223100	224800	227300	233500	235700	236900	236500	238100	217600	189100	167700
29	223000	223500	224600	227100	---	236800	236100	236500	237900	216800	188400	167100
30	223100	223300	224500	227300	---	236700	235400	235800	237400	215600	187400	166500
31	223000	---	224500	230400	---	237200	---	235900	---	214500	186300	---
MAX	234900	223500	225300	230400	234000	237200	240100	236800	238100	236800	213500	185200
MIN	223000	219700	223500	225600	232100	232800	235400	228400	231800	214500	186300	166500
(†)	1140.91	1140.93	1141.02	1141.45	1141.67	1141.93	1141.80	1141.84	1141.94	1140.28	1137.96	1136.03
(‡)	-11700	+300	+1200	+5900	+3100	+3700	-1800	+500	+1500	-22900	-28200	-19800

CAL YR 1982 MAX 282800 MIN 152100 † +67600  
WTR YR 1983 MAX 240100 MIN 166500 ‡ -68200

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## RED RIVER BASIN

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 downstream from Lake Kemp Dam, 6.2 mi north of Mabelle, and 13 mi northeast of Seymour.

DRAINAGE AREA.--2,086 mi<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 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.--24 years, 137 ft<sup>3</sup>/s (99,260 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,290 ft<sup>3</sup>/s Mar. 24, 1976 (gage height, 10.47 ft); minimum daily, 0.15 ft<sup>3</sup>/s June 22, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,560 ft<sup>3</sup>/s Oct. 27 at 1500 hours (gage height, 6.40 ft); minimum daily, 0.29 ft<sup>3</sup>/s July 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.53	1.6	1.3	1.3	1.3	.74	1.0	92	.53	177	386	358
2	.84	2.0	1.4	1.9	1.0	.76	.85	92	.45	.50	388	359
3	.84	2.2	1.7	1.4	1.0	.74	.76	145	63	.29	287	359
4	.64	2.0	1.5	1.2	1.0	.66	.82	220	105	.36	228	357
5	.53	1.9	1.4	1.2	.93	.51	1.2	219	106	.48	230	356
6	.64	1.6	1.4	1.1	.99	.64	.98	218	200	.35	230	357
7	.64	1.6	1.4	1.1	.88	.74	.97	221	252	186	230	357
8	120	1.6	1.6	1.2	.95	.81	.87	222	252	305	231	283
9	243	1.5	1.5	1.1	.99	.85	.80	222	253	304	228	226
10	243	1.6	1.6	1.1	.94	.85	.83	223	252	306	224	226
11	243	1.4	2.2	1.1	.98	.82	.71	222	253	306	220	227
12	240	1.7	1.4	1.1	.86	.70	.66	85	251	305	221	55
13	240	1.5	1.2	1.0	.78	.71	.95	.95	256	305	221	2.8
14	240	1.8	1.1	1.2	.79	.69	.95	.91	214	305	212	1.4
15	240	1.5	1.2	1.0	.93	.67	.89	.69	.75	211	214	21
16	240	1.5	1.3	.98	.85	1.3	.87	.55	.45	79	217	84
17	240	1.5	1.2	1.0	.85	1.0	.92	.43	.96	78	221	85
18	234	1.6	1.2	1.2	.85	.91	.95	.42	.42	78	219	85
19	234	1.3	1.2	1.1	.69	.99	1.1	55	.33	172	217	85
20	181	1.5	1.3	1.2	.75	1.0	1.1	90	.32	237	216	85
21	97	1.6	1.3	1.2	.84	.92	1.7	90	.37	235	218	85
22	42	1.5	1.1	1.1	.81	.90	.85	90	.40	236	215	85
23	3.6	1.9	1.0	1.0	.75	.97	1.1	34	.40	227	213	85
24	3.0	1.7	1.1	1.1	.88	.95	.93	.66	.44	227	212	85
25	2.8	1.6	1.3	1.0	.85	.86	90	.58	.39	340	215	85
26	2.7	2.3	1.5	1.2	.71	1.4	91	3.2	.48	395	211	85
27	86	2.5	1.4	1.0	.70	.89	690	.67	136	399	210	88
28	2.2	1.5	1.3	.96	.71	.87	727	.61	255	399	210	90
29	1.9	1.4	1.2	1.0	---	1.0	467	.64	256	397	353	143
30	1.7	1.3	1.1	1.0	---	1.1	266	.67	256	394	358	231
31	1.6	---	1.1	3.4	---	.82	---	.64	---	387	405	---
TOTAL	3187.16	50.2	41.5	37.44	24.56	26.77	2353.76	2551.62	3366.69	6991.98	7660	5031.2
MEAN	103	1.67	1.34	1.21	.88	.86	78.5	82.3	112	226	247	168
MAX	243	2.5	2.2	3.4	1.3	1.4	727	223	256	399	405	359
MIN	.53	1.3	1.0	.96	.69	.51	.66	.42	.32	.29	210	1.4
AC-FT	6320	100	82	74	49	53	4670	5060	6680	13870	15190	9980
CAL YR 1982	TOTAL	26687.27	MEAN	73.1	MAX	811	MIN	.43	AC-FT	52930		
WTR YR 1983	TOTAL	31322.88	MEAN	85.8	MAX	727	MIN	.29	AC-FT	62130		



## RED RIVER BASIN

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07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to current year.

WATER TEMPERATURES: October 1968 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,110 micromhos May 13, 14, 1980; minimum daily, 561 micromhos May 28, 1975.

WATER TEMPERATURES: Maximum daily, 32.0°C Sept. 4, 1972, June 26, July 5, 1975; minimum daily, 0.0°C Dec. 20, 1973, and Feb. 9, 17, 1980.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 6,440 micromhos Sept. 30; minimum daily, 2,680 micromhos Dec. 31.

WATER TEMPERATURES: Maximum daily, 28.0°C on several days during August; minimum daily, 4.0°C Jan. 3.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 12...	0910	242	5200	21.0	900	800	260	61	820
FEB 08...	1445	.95	5650	17.0	1000	860	280	80	820
APR 27...	1145	1090	5800	16.5	980	880	280	67	920
JUN 08...	1440	251	5940	22.5	950	860	270	68	950
JUL 31...	0800	388	6040	27.0	960	870	270	70	940
SEP 28...	0800	89	6370	22.0	1000	940	290	74	1000

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 12...	12	8.1	97	710	1300	.30	7.2	3220
FEB 08...	12	5.8	170	680	1300	.40	10	3280
APR 27...	13	7.9	100	800	1500	.30	20	3660
JUN 08...	14	8.8	98	830	1500	.30	5.3	3690
JUL 31...	14	8.1	93	850	1500	.40	6.2	3700
SEP 28...	14	8.8	86	840	1700	.40	7.1	3970

## RED RIVER BASIN

07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	3187.16	5250	3230	27800	1300	11100	720	6170	950
NOV.	1982	50.2	5590	3450	468	1400	189	760	103	1000
DEC.	1982	41.5	5300	3270	366	1300	147	720	81	960
JAN.	1983	37.44	5320	3280	332	1300	134	720	73	960
FEB.	1983	24.56	5650	3490	232	1400	94	770	51	1000
MAR.	1983	26.77	5630	3480	251	1400	102	770	55	1000
APR.	1983	2353.76	5800	3590	22800	1500	9280	790	5010	1000
MAY	1983	2551.62	5860	3630	25000	1500	10200	790	5480	1000
JUNE	1983	3366.69	5910	3660	33300	1500	13600	800	7280	1000
JULY	1983	6991.98	5970	3710	70000	1500	28600	810	15300	1100
AUG.	1983	7660	6150	3820	79000	1600	32400	830	17200	1100
SEPT	1983	5031.2	6280	3910	53100	1600	21900	850	11500	1100
TOTAL		31322.88	**	**	313000	**	128000	**	68300	**
WTD. AVG.		86	5960	3700	**	1500	**	810	**	1100

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

EQUIVALENT MEAN												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5740	5550	5610	2710	5580	5700	5590	5830	5790	5920	6050	6230
2	5730	5470	5620	3030	5570	5690	5620	5840	5720	5840	6050	6250
3	5740	5550	3580	2760	5580	5850	5640	5850	5800	5770	6040	6250
4	5750	5570	5610	5360	5580	5670	5640	5840	5940	5970	6040	6250
5	5720	5530	5620	5360	5610	5730	3970	5840	5940	5850	6070	6260
6	5210	5660	5610	5630	5620	5730	5640	5850	5940	5810	6060	6250
7	5700	5670	5680	5640	5610	5730	5670	5860	5950	5940	6090	6250
8	5210	5660	5640	5680	5630	5730	5670	5860	5940	5920	6090	6260
9	5220	5660	5660	5640	5600	5710	5660	5860	5940	5930	6090	6260
10	5200	5670	5640	5700	5650	5720	5630	5860	5930	5930	6080	6270
11	5210	5540	5630	5640	5670	5740	5680	5860	5940	5930	6110	6270
12	5200	5670	5600	5670	5680	5780	5670	5870	5950	5930	6110	6220
13	5220	5670	5630	5710	5690	5760	5570	5570	5950	5940	6140	6010
14	5220	5680	5650	5690	5690	5710	5720	5680	5880	5940	6140	5950
15	5240	5640	5630	5710	5690	5700	5710	5680	5870	5950	6140	5900
16	5270	5590	5600	5730	5690	5530	5660	5690	5780	5940	6140	6270
17	5270	5570	5640	5750	5710	5380	5700	5750	5960	5940	6140	6250
18	5270	5560	5710	5730	5680	5680	5650	5730	5490	5940	6130	6270
19	5280	5730	5650	5670	5680	5690	5680	5840	5510	5950	6090	6280
20	5280	5620	5720	5650	5690	5690	5740	5870	5360	5970	6120	6300
21	5300	5600	5700	5640	5680	5690	2780	5920	5710	5960	6120	6300
22	5330	5560	5710	5700	5670	5740	5440	5920	5960	5990	6130	6320
23	5440	5680	4430	5690	5650	5720	5680	5920	5960	5990	6150	6340
24	5440	5690	4600	5700	5680	5730	5690	5920	5950	5990	6140	6360
25	5440	5410	4440	5680	5730	5730	5680	5970	5470	6000	6140	6370
26	5430	5400	4390	5720	5690	5660	5740	5040	5480	6010	6150	6390
27	5530	5420	4460	5720	5700	5640	5810	5060	5470	6020	6330	6390
28	5620	5400	5620	5730	5690	5610	5810	5860	5890	6010	6310	6380
29	5530	5700	5710	5710	---	5590	5820	5860	5910	6030	6260	6410
30	5740	5740	5590	5700	---	4420	5830	5850	5910	6030	6330	6440
31	5740	---	2680	5700	---	5600	---	5860	---	6030	6360	---
MEAN	5430	5600	5290	5390	5660	5650	5530	5780	5810	5950	6140	6270

## RED RIVER BASIN

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07312100 WICHITA RIVER NEAR MABELLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
ONCE-DAILY												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	19.0	14.0	8.0	10.0	12.0	15.0	19.0	15.0	26.0	27.0	27.0
2	19.0	16.0	13.0	7.0	8.0	14.0	11.0	18.0	17.0	23.0	28.0	27.0
3	19.0	12.0	13.0	4.0	8.0	17.0	12.0	18.0	21.0	23.0	27.0	27.0
4	20.0	11.0	12.0	5.0	9.0	16.0	14.0	18.0	21.0	24.0	27.0	27.0
5	19.0	11.0	11.0	7.0	9.0	16.0	9.0	19.0	21.0	24.0	27.0	27.0
6	20.0	13.0	10.0	9.0	9.0	16.0	11.0	19.0	21.0	23.0	27.0	26.0
7	19.0	17.0	11.0	10.0	8.0	15.0	11.0	19.0	22.0	23.0	27.0	26.0
8	19.0	17.0	12.0	11.0	9.0	14.0	11.0	19.0	22.0	25.0	27.0	26.0
9	22.0	17.0	11.0	12.0	9.0	12.0	12.0	19.0	22.0	26.0	27.0	26.0
10	21.0	17.0	10.0	9.0	12.0	12.0	14.0	19.0	22.0	26.0	27.0	26.0
11	21.0	20.0	10.0	9.0	12.0	10.0	14.0	20.0	22.0	26.0	27.0	26.0
12	20.0	13.0	8.0	9.0	12.0	11.0	15.0	20.0	22.0	26.0	28.0	26.0
13	20.0	10.0	8.0	10.0	12.0	13.0	16.0	19.0	22.0	26.0	28.0	22.0
14	20.0	11.0	8.0	10.0	11.0	13.0	11.0	15.0	22.0	26.0	28.0	20.0
15	20.0	8.0	9.0	11.0	13.0	16.0	11.0	16.0	19.0	26.0	28.0	21.0
16	20.0	9.0	11.0	11.0	10.0	12.0	12.0	16.0	19.0	26.0	28.0	25.0
17	20.0	12.0	10.0	10.0	10.0	10.0	15.0	17.0	21.0	26.0	28.0	25.0
18	20.0	14.0	10.0	10.0	12.0	10.0	15.0	15.0	22.0	26.0	28.0	25.0
19	20.0	16.0	10.0	9.0	12.0	10.0	15.0	16.0	22.0	26.0	27.0	25.0
20	18.0	16.0	10.0	9.0	12.0	10.0	14.0	20.0	22.0	27.0	27.0	24.0
21	19.0	16.0	10.0	8.0	11.0	8.0	14.0	18.0	22.0	27.0	28.0	22.0
22	18.0	16.0	11.0	8.0	13.0	10.0	17.0	19.0	24.0	27.0	27.0	22.0
23	15.0	12.0	11.0	8.0	13.0	12.0	16.0	19.0	24.0	27.0	27.0	22.0
24	15.0	9.0	11.0	8.0	13.0	13.0	15.0	19.0	23.0	27.0	28.0	21.0
25	15.0	8.0	10.0	8.0	12.0	13.0	14.0	21.0	23.0	27.0	28.0	22.0
26	14.0	8.0	10.0	9.0	11.0	9.0	15.0	18.0	23.0	27.0	28.0	22.0
27	16.0	9.0	9.0	7.0	11.0	10.0	16.0	21.0	21.0	27.0	28.0	22.0
28	17.0	10.0	9.0	8.0	11.0	11.0	17.0	20.0	24.0	27.0	28.0	22.0
29	14.0	12.0	7.0	9.0	---	13.0	19.0	19.0	25.0	27.0	28.0	23.0
30	14.0	13.0	7.0	11.0	---	12.0	19.0	18.0	25.0	27.0	28.0	22.0
31	19.0	---	8.0	12.0	---	14.0	---	16.0	---	27.0	28.0	---
MEAN	18.5	13.0	10.0	9.0	11.0	12.5	14.0	18.5	21.5	26.0	27.5	24.0

## RED RIVER BASIN

07312110 SOUTH SIDE CANAL NEAR DUNDEE, TX

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

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

GAGE.--Water-stage recorder. Datum of gage is 1,039.70 ft 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.--12 years, 81.2 ft<sup>3</sup>/s (58,830 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 374 ft<sup>3</sup>/s July 22, 1974; maximum gage height, 8.66 ft July 23, 1978; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 278 ft<sup>3</sup>/s Aug. 3, 4; maximum gage height, 7.82 ft Sept. 5, 6; minimum daily discharge, 0.03 ft<sup>3</sup>/s Apr. 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	12	3.2	2.0	.30	103	17	113	75	170	274	259
2	110	47	2.9	1.9	.28	117	7.6	114	91	171	276	258
3	109	45	2.9	1.8	.27	119	4.8	114	90	171	278	260
4	109	39	2.9	1.6	.23	96	3.7	126	91	172	278	262
5	108	36	2.9	1.6	.22	67	3.1	136	91	174	277	263
6	106	34	2.9	1.6	.20	34	3.1	149	92	188	276	255
7	105	33	2.9	1.5	.20	3.9	3.2	159	92	200	275	251
8	103	31	2.9	1.5	.18	2.5	3.2	161	93	200	264	254
9	102	31	2.9	1.3	.17	1.9	3.3	162	95	201	248	256
10	101	29	2.9	1.3	.16	1.5	3.3	155	96	202	248	257
11	91	27	2.9	1.0	.16	1.2	3.6	141	97	203	247	247
12	72	20	2.9	.87	.16	1.0	3.2	142	107	207	247	225
13	72	14	2.9	.84	.16	1.0	2.9	144	118	222	247	226
14	72	14	2.9	.77	.16	.81	2.3	128	98	224	246	225
15	80	14	2.9	.71	.16	.71	2.6	108	79	226	253	223
16	97	14	2.9	.64	.16	.94	2.6	108	78	227	262	222
17	97	14	2.9	.64	3.9	.64	2.6	108	79	227	261	222
18	96	14	2.9	.58	22	.79	6.0	104	79	230	260	222
19	95	13	2.9	.58	54	.86	14	103	79	254	253	222
20	95	14	2.9	.56	58	.49	33	105	101	254	229	222
21	96	25	2.9	.49	89	.45	2.3	67	131	251	228	222
22	95	36	2.9	.49	89	.77	.35	2.8	131	249	228	221
23	93	35	2.9	.44	90	.91	.03	.83	131	245	228	188
24	92	35	2.7	.44	90	.91	.03	.71	145	244	227	157
25	76	35	2.7	.40	90	1.2	.10	.52	165	262	239	157
26	59	20	2.5	.40	90	.85	25	.66	165	272	248	157
27	47	4.5	2.5	.40	89	.18	69	.71	175	271	247	156
28	35	4.4	2.2	.37	89	.44	92	.66	174	272	246	156
29	9.2	4.0	2.2	.37	---	.74	110	.59	166	272	248	156
30	9.2	3.2	2.2	.33	---	.64	113	.62	169	272	262	173
31	8.7	---	2.1	.33	---	9.5	---	39	---	273	261	---
TOTAL	2551.1	697.1	86.1	27.75	857.07	570.83	536.91	2694.10	3373	7006	7861	6574
MEAN	82.3	23.2	2.78	.90	30.6	18.4	17.9	86.9	112	226	254	219
MAX	111	47	3.2	2.0	90	119	113	162	175	273	278	263
MIN	8.7	3.2	2.1	.33	.16	.18	.03	.52	75	170	227	156
AC-FT	5060	1380	171	55	1700	1130	1060	5340	6690	13900	15590	13040
CAL YR 1982	TOTAL	21344.20	MEAN	58.5	MAX	195	MIN	.58	AC-FT	42340		
WTR YR 1983	TOTAL	32834.96	MEAN	90.0	MAX	278	MIN	.03	AC-FT	65130		

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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 northwest of Kamay, 8 mi upstream from Wichita River, and 9 mi south of Electra.

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 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, about 30 mi upstream. Several small diversions above station.

AVERAGE DISCHARGE.--23 years, 54.2 ft<sup>3</sup>/s (1.13 in/yr), 39,300 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft<sup>3</sup>/s Mar. 17, 1961 (gage height, 33.57 ft); no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 804 ft<sup>3</sup>/s June 14 at 1430 hours (gage height, 15.33 ft), no peak above base of 1,000 ft<sup>3</sup>/s; minimum daily, 0.01 ft<sup>3</sup>/s Sept. 4-10.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	3.0	4.0	3.7	289	4.2	4.4	3.3	6.8	6.2	4.2	.03
2	3.3	2.8	3.9	6.4	51	4.2	4.2	2.4	5.6	5.9	4.6	.02
3	4.0	3.2	3.9	7.5	13	3.7	4.2	2.2	4.7	5.7	3.6	.03
4	3.2	4.2	3.9	8.6	6.8	4.1	4.4	2.1	4.2	4.6	2.0	.01
5	2.2	4.0	5.2	32	4.2	4.4	39	2.7	3.3	19	1.2	.01
6	2.8	3.2	4.3	18	2.6	3.8	27	3.0	2.5	145	.72	.01
7	3.3	3.3	3.2	6.7	2.6	3.8	8.9	2.8	2.1	42	.37	.01
8	3.3	4.4	3.0	3.7	2.4	4.1	6.6	2.8	1.9	16	.36	.01
9	3.0	4.0	2.8	2.4	2.3	4.0	5.1	2.4	1.6	8.3	.36	.01
10	2.3	2.9	3.4	2.5	2.1	3.6	3.9	2.0	1.9	6.3	.36	.01
11	2.3	2.7	5.1	2.5	2.1	3.4	3.5	2.2	7.3	5.1	2.9	.02
12	3.9	2.0	7.0	2.1	1.9	3.8	2.8	2.2	22	4.2	2.3	.02
13	4.2	3.4	6.4	1.4	2.0	3.6	2.5	2.8	8.3	2.7	2.1	.02
14	4.0	2.4	4.6	.80	1.9	4.3	2.1	29	591	1.9	2.0	4.1
15	4.0	2.3	3.6	.66	1.9	4.4	1.9	37	231	1.5	2.0	4.1
16	3.0	1.9	3.1	2.3	2.1	41	1.7	6.9	60	2.7	2.2	3.8
17	2.3	2.1	3.0	2.5	1.8	22	1.9	3.1	19	4.4	1.8	3.0
18	1.3	2.8	3.0	2.4	1.3	7.8	1.9	52	20	4.3	1.6	2.3
19	1.0	2.6	3.0	2.4	.98	4.7	1.9	21	9.7	4.1	1.7	1.8
20	1.7	1.7	2.9	2.6	.70	4.4	1.6	6.2	5.3	3.9	1.5	1.5
21	1.6	1.4	2.9	2.8	2.3	4.4	258	120	3.9	3.7	1.2	1.4
22	1.3	1.5	3.0	5.1	3.1	3.9	196	55	3.0	3.7	.99	1.4
23	.84	2.3	3.0	6.0	2.2	3.2	24	23	2.4	3.5	.82	1.3
24	2.9	3.7	3.4	3.5	2.1	2.8	7.1	7.7	1.9	3.5	.46	.72
25	4.0	3.1	3.5	2.3	2.1	2.7	1.4	7.5	1.6	3.3	.24	.36
26	4.0	33	3.8	1.9	1.9	15	2.7	84	1.6	4.4	.16	.43
27	3.5	105	5.5	1.5	4.0	80	3.9	84	6.8	4.4	.10	2.0
28	2.8	36	6.5	1.6	4.2	22	4.3	21	10	3.6	.05	2.0
29	3.2	10	6.2	1.7	---	8.3	4.4	8.7	17	3.3	.02	1.9
30	3.9	5.2	4.5	1.5	---	6.3	4.2	6.8	8.5	3.9	.02	1.8
31	3.7	---	3.5	130	---	5.4	---	7.0	---	4.1	.02	---
TOTAL	89.84	260.1	125.1	269.06	414.58	293.3	635.5	612.8	1064.9	335.2	41.95	34.12
MEAN	2.90	8.67	4.04	8.68	14.8	9.46	21.2	19.8	35.5	10.8	1.35	1.14
MAX	4.2	105	7.0	130	289	80	258	120	591	145	4.6	4.1
MIN	.84	1.4	2.8	.66	.70	2.7	1.4	2.0	1.6	1.5	.02	.01
CFSM	.004	.01	.006	.01	.02	.02	.03	.03	.05	.02	.002	.002
IN.	.01	.01	.01	.02	.02	.02	.04	.03	.06	.02	.00	.00
AC-FT	178	516	248	534	822	582	1260	1220	2110	6		



## RED RIVER BASIN

## 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 upstream from Fort Worth and Denver Railway Co. bridge, 8.4 mi upstream from Holliday Creek, and 55.3 mi upstream from mouth.

DRAINAGE AREA.--3,140 mi<sup>2</sup>, of which 2,086 mi<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-DISCHARGE RECORDS

REVISED RECORDS.--WSP 1211: Drainage area.

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

REMARKS.--Water-discharge records good. Flow from 2,086 mi<sup>2</sup> is regulated by Lake Kemp (capacity 603,000 acre-ft) 71 mi 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), 41 mi, upstream for the irrigation of 42,000 acres under permit in the vicinity of Wichita Falls. During the water year, Wichita County Water Improvement District No. 2 diverted 65,130 acre-ft from Lake Diversion for mining, industrial use, recreation, and irrigation.

AVERAGE DISCHARGE.--46 years (water years 1901, 1939-83), 262 ft<sup>3</sup>/s (189,800 acre-ft/yr).

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

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 50,000 ft<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, 842 ft<sup>3</sup>/s June 15 at 1130 hours (gage height, 6.15 ft); minimum daily, 23 ft<sup>3</sup>/s Feb. 16-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	38	41	35	479	37	49	42	37	82	80	82
2	49	33	36	45	351	31	40	41	37	83	87	82
3	58	28	34	57	98	28	35	37	35	80	80	88
4	54	31	33	57	60	32	34	40	36	72	83	79
5	52	33	31	52	46	50	48	37	38	64	90	83
6	50	37	29	52	38	38	86	44	46	70	92	88
7	49	38	28	57	33	33	82	47	40	121	86	97
8	62	37	28	45	31	32	57	51	38	105	101	101
9	63	39	27	38	26	30	45	49	35	82	103	94
10	61	42	30	32	28	28	39	41	37	66	95	93
11	57	42	39	31	28	25	34	41	40	62	90	84
12	50	42	42	31	28	25	32	42	47	61	79	96
13	49	41	41	28	27	25	63	51	50	57	77	98
14	46	35	37	28	24	25	47	83	335	54	69	94
15	47	34	36	30	24	25	36	83	738	62	71	95
16	46	34	32	34	23	90	32	94	327	66	73	95
17	47	31	31	32	23	151	31	61	152	73	72	91
18	50	28	29	44	23	92	28	45	108	74	67	88
19	50	28	28	50	31	70	27	79	81	71	74	82
20	48	28	27	39	34	42	26	77	74	70	98	88
21	49	28	27	36	26	37	77	89	64	68	86	87
22	50	27	27	40	53	32	252	199	61	69	85	82
23	55	27	26	44	57	31	215	126	59	69	80	76
24	57	27	46	50	37	33	87	80	60	66	78	74
25	57	39	43	46	32	30	59	51	75	65	74	73
26	57	93	34	40	27	124	41	59	89	64	78	78
27	57	129	129	38	30	165	36	185	87	65	76	74
28	125	146	207	37	34	106	34	156	81	67	76	65
29	68	83	58	35	---	68	48	72	83	67	77	64
30	54	54	40	35	---	85	52	48	83	65	80	68
31	44	---	37	69	---	79	---	41	---	68	82	---
TOTAL	1709	1352	1333	1287	1751	1699	1772	2191	3073	2208	2539	2539
MEAN	55.1	45.1	43.0	41.5	62.5	54.8	59.1	70.7	102	71.2	81.9	84.6
MAX	125	146	207	69	479	165	252	199	738	121	103	101
MIN	44	27	26	28	23	25	26	37	35	54	67	64
AC-FT	3390	2680	2640	2550	3470	3370	3510	4350	6100	4380	5040	5040
CAL YR 1982	TOTAL	78571	MEAN	215	MAX	3880	MIN	15	AC-FT	155800		
WTR YR 1983	TOTAL	23453	MEAN	64.3	MAX	738	MIN	23	AC-FT	46520		

## RED RIVER BASIN

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07312500 WICHITA RIVER AT WICHITA FALLS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1981 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1981 to current year.

WATER TEMPERATURES: October 1981 to current year.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,660 micromhos Apr. 7, 1982; minimum daily, 317 micromhos May 13, 1982.

WATER TEMPERATURES: Maximum daily, 35.0°C July 21, 1982, and July 4, 1983; minimum daily, 4.5°C Feb. 4-6, 1982, and Feb. 4, 1984.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,220 micromhos Nov. 23, Jan. 16; minimum daily, 1,560 micromhos June 15.

WATER TEMPERATURES: Maximum daily, 35.0°C July 4; minimum daily, 4.5°C Feb. 4.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)
OCT 27...	0830	58	5950	7.8	14.0	9.8	101	3.0	1100	960
JAN 04...	1510	57	5500	7.8	6.0	15.5	130	2.2	1100	960
MAR 30...	0900	67	3350	7.4	12.5	11.4	111	3.0	630	510
MAY 10...	2030	42	6060	8.0	20.5	11.8	139	1.7	1100	960
JUL 20...	0645	70	5840	7.8	27.0	7.4	98	3.8	1000	900
AUG 30...	1830	71	6550	8.0	33.0	9.4	139	3.6	1100	1000

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 27...	280	100	900	12	7.8	150	700	1600	.40
JAN 04...	270	110	730	9.8	5.4	170	490	1500	.30
MAR 30...	150	63	460	8.2	4.5	130	270	900	.30
MAY 10...	280	96	840	11	7.8	140	730	1400	.40
JUL 20...	260	84	870	12	8.0	100	700	1500	.40
AUG 30...	290	97	1000	13	9.6	110	830	1700	.40

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)
OCT 27...	6.7	3680	--	<.020	<.10	.090	1.4	1.50	.080
JAN 04...	6.7	3210	.67	.030	.70	.110	.29	.40	.200
MAR 30...	5.8	1930	.37	.030	.40	.130	1.4	1.50	.240
MAY 10...	3.2	3440	--	<.020	<.10	<.060	--	1.10	.110
JUL 20...	7.1	3490	--	.060	<.10	.070	1.2	1.30	.190
AUG 30...	7.2	4000	--	<.020	<.10	.040	.86	.90	.070

## RED RIVER BASIN

07312500 WICHITA RIVER AT WICHITA FALLS, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	1709	5840	3640	16800	1600	7480	630	2910	1100
NOV.	1982	1352	5880	3690	13500	1700	6020	640	2330	1200
DEC.	1982	1333	5060	3130	11300	1400	4960	540	1960	980
JAN.	1983	1287	6180	3900	13500	1700	6080	670	2330	1200
FEB.	1983	1751	3920	2360	11200	1000	4840	420	1970	740
MAR.	1983	1699	4990	3060	14000	1300	6160	530	2450	960
APR.	1983	1772	4140	2490	11900	1100	5120	440	2100	770
MAY	1983	2191	4480	2700	16000	1200	6910	480	2820	840
JUNE	1983	3073	3560	2110	17500	900	7490	380	3110	660
JULY	1983	2208	5440	3360	20000	1500	8820	580	3490	1000
AUG.	1983	2539	6090	3830	26200	1700	11700	660	4530	1200
SEPT	1983	2539	6680	4270	29300	1900	13300	730	5010	1300
TOTAL		23453	**	**	201000	**	88900	**	35000	**
WTD. AVG.		64	5140	3180	**	1400	**	550	**	990

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6150	6260	5670	5870	2260	6880	3660	6000	5640	5320	5780	6400
2	6130	6510	5460	5890	2480	6810	4080	6050	5400	5310	5770	6500
3	6100	6790	5810	5000	2550	6480	4530	6100	5500	5420	5780	6560
4	6110	6910	5960	5560	2650	6400	5390	6050	5600	5640	5820	6570
5	5960	6790	6240	5280	2840	6230	4550	6000	5750	5820	5790	6550
6	5950	6660	6470	5640	3610	6260	3000	6200	5800	5650	5840	6530
7	6000	6650	6720	6110	4250	6310	2740	6100	5920	5640	5860	6520
8	5800	6540	6730	5950	4860	6400	4220	5900	6000	3830	5850	6400
9	5730	6430	6810	6140	5340	6520	5440	5950	6200	4500	5860	6540
10	5650	6320	6440	6340	5830	6650	5900	6000	6400	5210	5900	6630
11	5730	6360	5700	6570	6140	6800	6340	6100	6200	5430	5950	6660
12	5740	6390	5850	6700	6290	7160	6450	6200	6100	5490	6030	6630
13	6150	6550	5990	7020	6550	7080	5290	5800	6000	5600	6100	6490
14	6170	6540	6090	7060	6600	7130	5640	5600	3130	5710	6140	6530
15	6220	6570	6150	7090	6690	7150	5900	5500	1560	5740	6180	6590
16	6290	6700	5870	7220	6700	5190	6300	5100	1600	5780	6260	6620
17	6300	6800	6090	6890	6750	4200	6810	5300	2690	5760	6350	6680
18	6320	6950	6180	6710	6820	4470	6790	5400	3980	5740	6400	6700
19	6400	6980	6350	6550	6850	4680	6770	4900	4600	5750	6080	6720
20	6260	7010	6530	6610	6020	4800	6800	4500	4620	5730	5960	6740
21	6050	7030	6690	6780	6280	4970	4610	3750	4720	5710	6200	6810
22	5960	7110	6770	6270	6940	5580	2840	2900	4940	5720	6220	6830
23	5860	7220	6900	6100	5300	6290	2170	2800	5280	5730	6240	6860
24	5830	7200	5800	5940	6560	6410	2900	4000	5010	5750	6250	6950
25	5860	6840	5240	6210	6670	6620	3230	4100	4500	5800	6320	7000
26	5840	4280	5500	6330	6790	5250	3570	4000	4270	5900	6400	6850
27	5850	4440	2600	6430	6890	3850	4290	3600	4650	6030	6420	6980
28	4440	4250	2390	6600	6670	3490	5700	2800	4890	6000	6430	6970
29	5050	4560	4170	6820	---	3250	5690	2900	5170	5960	6440	7070
30	5760	5830	5440	6940	---	3000	5700	3900	5440	5920	6400	7150
31	6010	---	5600	4710	---	3310	---	4700	---	5840	6330	---
MEAN	5920	6380	5810	6300	5510	5670	4910	4970	4920	5530	6110	6700

## RED RIVER BASIN

89

07312500 WICHITA RIVER AT WICHITA FALLS, TX--Continued

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	20.0	17.0	5.5	6.0	20.5	17.0	26.0	25.0	29.5	32.0	33.0
2	24.0	19.0	14.5	6.0	7.5	20.0	18.0	26.0	30.0	33.0	33.0	32.0
3	21.0	17.0	12.0	5.0	8.0	19.0	21.0	25.5	31.0	34.0	33.0	31.0
4	28.0	15.5	12.0	11.0	4.5	20.0	20.0	26.0	33.0	35.0	32.0	31.0
5	28.0	15.0	13.0	9.0	6.0	19.5	17.0	29.0	31.0	34.0	34.0	20.0
6	29.5	20.5	13.5	10.5	6.0	19.0	15.0	29.0	28.0	---	33.0	33.0
7	27.0	20.0	12.5	10.0	10.0	19.5	14.0	27.0	29.0	32.0	32.0	34.0
8	28.0	20.0	9.0	12.5	11.5	19.0	13.5	26.0	30.0	33.5	33.0	33.0
9	22.5	---	9.0	---	14.5	18.0	20.0	25.0	30.0	31.5	33.0	30.0
10	21.5	20.0	9.0	13.0	15.0	17.5	20.0	25.5	28.0	32.0	33.0	30.0
11	21.0	19.0	6.0	10.5	11.0	17.0	22.0	29.5	29.0	33.0	33.0	29.0
12	19.5	23.0	7.5	9.5	14.0	17.0	23.0	30.0	29.0	32.5	33.0	30.0
13	21.5	17.0	8.0	14.5	18.0	23.5	20.0	28.0	28.0	31.0	33.0	29.0
14	21.0	14.0	11.5	14.0	20.0	24.0	20.0	22.0	27.0	30.0	30.0	30.0
15	19.0	14.0	8.0	10.0	18.0	19.0	21.0	19.0	28.0	27.5	32.0	30.0
16	22.0	14.0	14.0	12.0	16.0	13.0	22.0	25.5	26.0	26.0	34.0	31.0
17	---	15.0	15.5	11.0	14.5	12.5	23.0	25.0	---	28.5	33.0	---
18	26.0	18.5	15.0	9.0	19.0	11.0	24.0	26.0	30.0	29.0	33.0	---
19	23.5	19.0	15.5	5.0	20.0	11.5	20.0	24.5	32.0	34.0	32.0	---
20	19.0	20.0	14.5	5.5	18.5	13.0	18.0	24.0	33.0	34.5	29.0	22.0
21	19.0	16.0	14.5	6.0	14.5	15.0	19.0	24.0	31.0	33.5	30.0	24.0
22	18.0	19.5	15.5	7.0	15.0	10.0	21.0	25.5	29.0	34.5	33.0	26.0
23	19.0	11.0	15.5	9.0	18.0	13.5	19.0	27.5	31.0	34.5	34.0	24.0
24	18.0	---	14.0	10.0	16.0	14.0	22.0	28.0	31.0	30.0	33.0	25.0
25	19.5	8.0	12.0	10.5	14.5	15.0	22.0	30.0	31.0	31.5	34.0	26.0
26	18.5	7.5	7.0	10.0	13.5	13.5	25.0	---	33.0	33.0	34.0	25.0
27	21.0	8.0	7.0	10.5	15.5	16.0	27.0	---	31.0	33.0	33.0	27.0
28	18.5	11.5	8.0	11.5	18.0	18.5	28.0	29.0	30.0	---	32.0	28.0
29	20.5	14.5	9.0	13.0	---	18.0	28.0	30.0	29.0	33.5	33.0	27.0
30	15.0	16.0	6.5	---	---	19.5	29.0	22.0	28.0	33.0	34.0	26.0
31	---	---	5.5	10.5	---	20.0	---	19.5	---	32.5	33.0	---
MEAN	22.0	16.0	11.5	9.5	13.5	17.0	21.0	26.0	29.5	32.0	32.5	28.5

## 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 southeast of Charlie, and 5.7 mi northwest of Petrolia.

DRAINAGE AREA.--3,439 mi<sup>2</sup>, of which 2,086 mi<sup>2</sup> is above Lake Kemp Dam and 143 mi<sup>2</sup> is above Lake Wichita Dam.

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

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

REMARKS.--Records good. For statement regarding regulations and diversions, see station 07312500. Records furnished by the city of Wichita Falls show that 14,150 acre-ft was returned to river above station as sewage effluent and filter plant washwater. Several observations of water temperature were made during year.

AVERAGE DISCHARGE.--16 years, 265 ft<sup>3</sup>/s (192,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,090 ft<sup>3</sup>/s Nov. 4, 1972 (gage height, 21.21 ft); maximum gage height, 22.32 ft May 15, 1982; minimum discharge, 24 ft<sup>3</sup>/s Feb. 18, 1978, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 712 ft<sup>3</sup>/s June 16 at 0730 hours (gage height, 6.99 ft); minimum daily, 42 ft<sup>3</sup>/s Dec. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	96	121	75	339	82	180	96	82	142	93	120
2	112	84	90	80	648	87	142	100	72	142	111	120
3	166	71	76	120	406	104	99	100	66	131	122	118
4	157	67	78	110	188	128	84	88	94	123	117	129
5	134	63	71	101	117	139	79	81	98	125	119	119
6	125	67	63	91	96	145	116	79	135	120	143	123
7	125	73	58	89	82	120	118	78	126	115	148	131
8	123	76	54	91	75	104	117	81	98	187	145	141
9	137	76	52	81	70	82	94	88	102	182	174	147
10	146	76	56	72	68	67	81	102	97	154	175	138
11	144	78	90	67	66	59	68	109	90	131	160	142
12	152	80	116	64	63	58	65	107	116	120	145	145
13	167	73	93	60	61	71	114	108	107	120	132	153
14	159	69	73	57	59	73	289	223	201	123	124	151
15	133	67	65	57	60	85	97	243	517	102	116	144
16	126	67	59	56	56	79	76	164	642	89	115	145
17	137	67	56	56	49	267	67	156	360	97	119	144
18	131	66	52	59	48	320	63	135	233	107	112	142
19	136	65	47	65	52	202	57	137	175	112	102	144
20	146	59	46	89	298	134	56	168	131	123	144	128
21	153	57	47	79	176	112	72	237	114	128	171	135
22	183	54	47	78	89	107	309	286	98	120	154	136
23	163	54	42	92	107	99	408	294	97	123	137	120
24	152	54	62	96	144	110	276	189	81	123	127	103
25	147	58	167	92	143	105	158	121	76	117	126	101
26	148	179	89	79	90	250	118	93	126	115	111	101
27	135	453	166	71	82	323	103	115	212	120	121	104
28	154	332	346	64	82	277	97	226	167	112	122	97
29	299	250	178	58	---	196	74	202	152	97	119	78
30	151	180	117	56	---	194	74	107	142	95	112	67
31	121	---	85	65	---	206	---	88	---	96	118	---
TOTAL	4571	3111	2762	2370	3814	4385	3751	4401	4807	3791	4034	3766
MEAN	147	104	89.1	76.5	136	141	125	142	160	122	130	126
MAX	299	453	346	120	648	323	408	294	642	187	175	153
MIN	109	54	42	56	48	58	56	78	66	89	93	67
AC-FT	9070	6170	5480	4700	7570	8700	7440	8730	9530	7520	8000	7470
CAL YR 1982	TOTAL	145820	MEAN 400	MAX 5860	MIN 29	AC-FT 289200						
WTR YR 1983	TOTAL	45563	MEAN 125	MAX 648	MIN 42	AC-FT 90370						



## 07314000 LAKE KICKAPOO NEAR ARCHER CITY, TX

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

DRAINAGE AREA.--275 mi<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 long, including a 483-foot-wide reinforced concrete ogee-type uncontrolled spillway near right end of dam. The dam was completed Dec. 15, 1945, and storage began Feb. 1, 1946. The service outlet consists of two gate-controlled 4- by 5-foot conduits. The dam and lake are owned by the city of Wichita Falls, which uses the water for their municipal supply. The capacity table is based on Geological Survey topographic maps, dated 1929. The capacity curve, dated November 1946, was entitled "Lake Kickapoo Area & Capacity Curve". Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

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

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

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

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 95,430 acre-ft Oct. 1-5 (elevation, 1,043.3 ft); minimum, 79,250 acre-ft Sept. 27-30 (elevation, 1,040.5 ft).

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

1,040.0	76,500	1,043.0	93,600
1,041.0	82,000	1,044.0	99,700
1,042.0	87,700		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95430	92420	90060	88880	88880	91240	91240	90650	90650	93600	87700	83140
2	95430	92420	90060	88880	88880	91240	91240	90650	90650	93010	87700	83140
3	95430	91830	90060	88880	88880	91240	91240	90650	90650	93010	87700	83140
4	95430	91830	90060	89470	88880	91240	91240	90650	90650	93010	87700	83140
5	95430	91830	90060	89470	88880	91240	91240	90650	90650	93010	87700	83140
6	94820	91830	90060	89470	88880	91240	91240	90650	90650	93010	87700	82000
7	94820	91830	90060	89470	88880	91240	91240	90650	90650	93010	86560	82000
8	94820	91830	90060	89470	89470	91240	91240	90650	90650	93010	86560	82000
9	94820	91240	90060	89470	90060	91240	91240	90650	90650	93010	86560	82000
10	94210	91240	90060	89470	90060	91240	91240	90650	90650	93010	86560	82000
11	93600	91240	90060	89470	90060	91240	91240	90650	90650	92420	86560	80900
12	93600	91240	90060	89470	90060	91240	90650	90650	90650	92420	85990	80900
13	93600	91240	90060	89470	90060	91240	90650	90650	90650	92420	85990	80900
14	93600	91240	90060	89470	90060	91240	90650	91240	91830	92420	85990	80350
15	93600	91240	90060	89470	90650	91240	90650	91240	91830	91830	85420	80350
16	93600	91240	89470	89470	90650	91240	90650	91240	92420	91830	85420	80350
17	93600	91240	89470	89470	90650	90650	90650	91240	92420	91830	85420	79800
18	93600	90650	89470	89470	90650	90650	90650	91240	93010	91240	85420	79800
19	93600	90650	89470	89470	90650	90650	90650	91240	93600	91240	85420	79800
20	93600	90650	89470	89470	90650	90650	90650	91240	94210	91240	85420	79800
21	93600	90650	89470	89470	90650	90650	90650	91240	94210	90650	85420	79800
22	93600	90650	89470	89470	90650	90650	90650	91240	94210	90650	85420	79800
23	93600	90650	89470	89470	91240	90650	90650	91240	94210	90650	84280	79800
24	93600	90650	89470	89470	91240	90650	90650	91240	94210	90650	84280	79800
25	93600	90650	89470	89470	91240	90650	90650	91240	94210	89470	84280	79800
26	92420	90650	89470	88880	91240	90650	90650	91240	94210	89470	84280	79800
27	92420	90650	89470	88880	91240	90650	90650	91240	94210	89470	83140	79250
28	92420	90650	88880	88880	91240	90650	90650	91240	94210	88880	83140	79250
29	92420	90650	88880	88880	---	91240	90650	91240	94210	88290	83140	79250
30	92420	90060	88880	88880	---	91240	90650	91240	94210	88290	83140	79250
31	92420	---	88880	88880	---	91240	---	91240	---	87700	83140	---
MAX	95430	92420	90060	89470	91240	91240	91240	91240	94210	93600	87700	83140
MIN	92420	90060	88880	88880	88880	90650	90650	90650	90650	87700	83140	79250
(†)	1042.8	1042.4	1042.2	1042.2	1042.6	1042.6	1042.5	1042.6	1043.1	1042.0	1041.2	1040.5
(‡)	-4840	-2360	-1180	0	+2360	0	-590	+590	+2970	-6510	-4560	-3890
(††)	143	12	0	0	61	0	0	137	140	169	135	139
CAL YR 1982	MAX	116500	MIN	88880	†	-12120	††	1271				
WTR YR 1983	MAX	95430	MIN	79250	†	-18010	††	936				

† Elevation, in feet, at end of month.

‡ Changes in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use.

## 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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JUL 27...	1315	412	31.5	120	0	34	9.6	36

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JUL 27...	1.5	6.3	130	12	43	.30	7.0	226

## RED RIVER BASIN

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## 07314500 LITTLE WICHITA RIVER NEAR ARCHER CITY, TX

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

DRAINAGE AREA.--481 mi<sup>2</sup>, of which 275 mi<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 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 936 acre-ft 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 (79,700 acre-ft/yr); 27 years (water years 1946-55, 1967-83) regulated, 41.9 ft<sup>3</sup>/s (30,360 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,900 ft<sup>3</sup>/s Oct. 31, 1941 (gage height, 26.18 ft); no flow at times.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 783 ft<sup>3</sup>/s June 16 at 1000 hours (gage height, 15.60 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.38	3.9	3.2	176	.25	6.4	.02	41	6.8	.00	.00
2	.06	.29	2.3	3.7	54	.19	2.6	.01	12	6.3	.01	.00
3	26	.13	1.7	16	18	.13	1.4	.01	4.4	5.4	.01	.00
4	11	.08	1.4	18	8.4	.08	1.0	.01	1.9	6.1	.01	.00
5	2.4	.08	1.3	23	4.2	.08	2.1	.01	1.1	10	.01	.00
6	1.5	.07	1.2	28	2.3	.05	35	.00	.52	57	.01	.00
7	.66	.05	.98	17	1.5	.05	19	.05	4.8	6.2	.01	.00
8	.28	.05	.67	9.6	1.4	.05	5.5	1.2	5.9	2.2	.00	.00
9	.07	.05	.61	4.0	.99	.03	2.2	.72	4.7	.89	.00	.00
10	.05	.06	.61	2.2	.73	.03	1.2	.33	1.5	.36	.00	.00
11	.03	.09	1.8	1.4	.95	.03	.77	.33	1.2	.21	.00	.00
12	.03	.04	9.0	.87	1.9	.03	.38	.33	4.1	.12	.00	.00
13	.03	.03	12	.59	2.2	.03	34	31	2.5	.15	.00	.00
14	.03	.03	10	.50	2.3	.03	143	139	165	.08	.00	.00
15	.03	.03	4.8	.49	2.3	.08	36	30	613	.05	.00	.00
16	.03	.03	2.8	.34	2.3	.46	9.0	7.7	729	.03	.00	.00
17	.03	.03	1.9	.20	1.5	98	3.4	5.0	185	.02	.00	.00
18	.03	.04	1.4	.18	.72	51	1.5	4.0	23	.02	.01	.00
19	.02	.04	1.1	.06	20	16	.88	4.0	11	.02	.01	.00
20	.02	.05	.82	.03	262	7.0	.39	5.0	7.0	.02	.01	.00
21	.02	.05	.70	.44	132	2.5	6.4	9.6	6.0	.02	.00	.00
22	.02	.05	.61	1.8	17	1.6	39	41	5.3	.02	.00	.00
23	.02	.05	.61	2.3	7.9	.99	9.9	12	4.6	.01	.00	.00
24	.02	.05	.90	2.5	3.2	.50	3.4	122	3.4	.01	.00	.00
25	.02	.13	12	1.6	2.0	.44	1.5	28	1.8	.01	.00	.00
26	.02	9.6	5.1	.78	1.2	20	.61	8.5	1.2	.01	.00	.00
27	.02	123	36	.90	.72	70	.25	15	1.3	.01	.00	.00
28	.02	84	80	.26	.33	18	.13	4.3	7.9	.01	.00	.00
29	25	19	22	.12	---	7.2	.05	1.6	20	.01	.00	.00
30	3.4	9.1	11	.08	---	9.6	.02	1.9	9.4	.01	.00	.00
31	.87	---	4.7	14	---	15	---	22	---	.01	.00	---
TOTAL	71.75	246.68	233.91	154.14	728.04	319.43	366.98	494.62	1879.52	102.10	.09	.00
MEAN	2.31	8.22	7.55	4.97	26.0	10.3	12.2	16.0	62.7	3.29	.003	.000
MAX	26	123	80	28	262	98	143	139	729	57	.01	.000
MIN	.02	.03	.61	.03	.33	.03	.02	.00	.52	.01	.00	.000
AC-FT	142	489	464	306	1440	634	728	981	3730	203	.2	.00
CAL YR 1982	TOTAL	58247.08	MEAN	160	MAX	3290	MIN	.00	AC-FT	115500		
WTR YR 1983	TOTAL	4597.26	MEAN	12.6	MAX	729	MIN	.00	AC-FT	9120		

## RED RIVER BASIN

07314800 LAKE ARROWHEAD NEAR HENRIETTA, TX

LOCATION.--Lat 33°45'51", long 98°22'17", Clay County, Hydrologic Unit 11130209, at intake tower near center of dam on Little Wichita River, 2.3 mi upstream from Lake Creek, 11 mi southwest of Henrietta, and 12.3 mi southeast of Wichita Falls.

DRAINAGE AREA.--822 mi<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 below National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by a rolled earthfill dam 15,900 ft long, including an uncontrolled reinforced concrete ogee spillway 1,581 ft wide located near the left end of dam. The dam was completed in December 1966 and storage began in June 1967. The service outlet works, located in a cylindrical service tower at upstream side of dam, consist of two gated 5-foot-diameter inlets that can be used for controlled releases. The dam was built by the city of Wichita Falls to impound water for municipal, industrial, and recreational uses. The area-capacity curves are based on Geological Survey topographic maps. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	944.4	-
Design flood.....	939.95	551,400
Crest of spillway (top of conservation pool).....	926.4	262,100
Lowest gated outlet (invert).....	874.1	-

COOPERATION.--Capacity table 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, 279,000 acre-ft May 24, 1982 (gage height, 927.42 ft); minimum since first appreciable storage, 4,640 acre-ft Aug. 31 to Sept. 4, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 234,200 acre-ft Oct. 3, 4 (gage height, 924.61 ft); minimum, 194,500 acre-ft Sept. 30 (gage height, 921.81 ft).

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

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

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	233500	229500	228000	227000	225900	229900	229000	229300	226200	227300	215600	206400
2	233500	228600	227500	227000	226400	230200	228900	228000	227300	227100	214900	206200
3	234100	228100	227300	227500	226200	229900	229600	228300	226400	227000	214200	205900
4	234200	227500	227500	227400	226700	230300	229000	228300	225800	225300	214000	205900
5	233800	228400	227500	227300	226700	229900	228600	228600	225300	225800	213900	205100
6	233000	228300	227100	227300	226500	229500	228400	227400	226100	225500	213600	203600
7	233500	228100	227800	227500	227300	229200	228700	226200	226200	224900	212900	203300
8	233000	228000	227800	227500	227400	229000	228900	226100	225800	224800	213300	202600
9	232300	228000	227800	227400	227300	228600	229200	225500	225800	224300	213300	202200
10	232000	228100	227700	227100	227400	227400	229500	225600	225600	224000	213000	201300
11	231800	228300	227700	226800	227000	228100	229600	225900	225800	223600	212900	200700
12	231700	226200	227700	227300	227300	228600	229200	225600	225900	223300	212500	200700
13	231200	226700	227700	226800	227700	228600	229600	227500	225200	222500	212100	199100
14	231400	225600	227500	225900	227700	228900	230200	225800	225100	222300	211600	199800
15	231200	225600	227500	226400	227400	228400	230600	226100	225600	221700	211400	199100
16	230900	225300	227500	226400	227300	227700	230600	226500	226400	221200	210900	199600
17	231400	225200	227500	226700	227500	228100	230500	226200	227500	221200	210200	199200
18	231100	225900	227500	226200	227700	228000	230300	225800	227400	220900	209000	198400
19	229200	225800	227400	226100	229300	228000	229000	226500	227400	220900	210000	198400
20	229600	225100	227400	225900	229300	227700	229500	225200	227100	220500	209800	197700
21	229600	225500	227400	225900	230000	227800	230900	226200	226800	220200	209500	196900
22	229700	225200	227400	226700	230300	227700	229700	226100	226700	219700	209100	196900
23	229600	226400	227300	226700	230500	227500	230200	227000	226100	219400	208700	196300
24	229600	227400	227300	226400	229700	227800	230000	227000	225900	219000	208300	196200
25	229300	227500	227300	225900	229900	227500	230300	227000	226200	218700	208400	195800
26	229200	227700	227300	225600	229700	228700	230000	226500	227100	218400	208100	195700
27	230200	227700	227300	225600	229600	228300	229900	227100	227500	217900	208000	195400
28	229700	227700	227100	225800	230000	228900	229900	226700	227700	217300	207700	195100
29	229900	227800	227100	225900	---	229200	229900	225900	228100	216600	207700	194700
30	230300	228100	227100	225900	---	229300	230200	225200	227500	216200	207600	194500
31	230300	---	227100	225900	---	229000	---	226100	---	215900	206500	---
MAX	234200	229500	228000	227500	230500	230300	230900	229300	228100	227300	215600	206400
MIN	229200	225100	227100	225600	225900	227400	228400	225200	225100	215900	206500	194500
(+)	924.35	924.20	924.13	924.05	924.33	924.26	924.34	924.06	924.16	923.36	922.69	921.81
(+)	-3500	-2200	-1000	-1200	+4100	-1000	+1200	-4100	+1400	-11600	-9400	-12000
(+)	2330	1410	1410	1420	1170	1310	1410	1610	1800	1480	1800	1570

CAL YR 1982 MAX 278500 MIN 225100 + -23,100 †† 20,880  
WTR YR 1983 MAX 234200 MIN 194500 + -39,300 †† 18,720

† Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by the city of Wichita Falls.

## RED RIVER BASIN

95

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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JUL 27...	1130	591	30.0	140	18	37	11	60

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JUL 27...	2.3	9.8	120	13	110	.30	5.7	319



## RED RIVER BASIN

07314900 LITTLE WICHITA RIVER ABOVE HENRIETTA, TX

LOCATION.--Lat 33°49'36", long 98°14'23", Clay County, Hydrologic Unit 11130209, on right bank at downstream side of bridge on U.S. Highways 822 and 287, 1.0 mi downstream from Duck Creek, 2.8 mi west of Henrietta, 6.6 mi upstream from Turkey Creek, and 7.6 mi upstream from Dry Fork Little Wichita River.

DRAINAGE AREA.--1,037 mi<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 National Geodetic Vertical Datum of 1929. Prior to June 26, 1953, nonrecording gage. Prior to July 11, 1975, at site 2.6 mi downstream at same datum.

REMARKS.--Water-discharge records fair. Flow largely regulated by Lake Arrowhead 39 mi upstream (capacity 262,100 acre-ft). The city of Wichita Falls diverted 936 acre-ft from Lake Kickapoo and 18,714 acre-ft from Lake Arrowhead for municipal uses, and returned 14,150 acre-ft 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 565 acre-ft from pool at gage for municipal use. Record of diversions 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 (89,840 acre-ft/yr); 17 years (water years 1967-83) regulated, 37.8 ft<sup>3</sup>/s (27,390 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,630 ft<sup>3</sup>/s May 1, 1966 (gage height, 18.28 ft, at former site); maximum gage height, 23.95 ft May 24, 1982, at present site; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 21 ft at former site, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 110 ft<sup>3</sup>/s Mar. 30 at 1400 hours (gage height, 9.73 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	.00	.00	2.0	.00	.00	27	.27	.00	.00	15	.00
2	20	.00	.00	2.8	.00	.00	17	.27	.00	.00	17	.00
3	24	.00	.00	5.0	.00	.00	12	.16	.00	.00	18	.00
4	13	.00	.00	4.4	.00	.00	7.8	.00	.00	.00	19	.00
5	.58	.00	.00	2.3	.00	.00	16	.00	.00	.00	16	.00
6	.00	.00	.00	.00	.00	.00	12	.00	25	.00	1.5	.00
7	.00	.00	.00	.00	.00	.00	5.6	.00	7.2	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	4.0	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	3.8	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	6.1	.00	.00	.00	.00	2.5
11	.00	.00	.00	.00	.00	.00	5.6	.00	.00	.00	.00	16
12	.00	.00	.00	.00	.00	.00	5.0	.00	.00	.00	.00	17
13	.00	.00	.00	.00	.00	.00	16	.00	.00	.00	.00	17
14	.00	.00	.00	.00	.00	.00	13	1.6	.00	.00	.00	16
15	.00	.00	.00	.00	.00	.00	2.9	2.8	.00	.00	.00	2.2
16	.00	.00	.00	.00	.00	.00	.00	.27	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.77	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	39	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	16	.00	22	2.0	.00	.00	.00	.00
22	.00	.00	.00	.00	11	.00	27	2.8	.00	.00	.00	.00
23	.00	.00	.00	.00	7.3	.00	11	2.8	.00	.00	.00	.00
24	.00	.00	.00	.00	4.4	.00	6.8	.75	.00	.00	.00	.00
25	.00	.00	.00	.00	1.8	.00	4.6	.00	.00	.00	.00	.00
26	.00	.93	1.0	.00	.04	4.9	3.6	.00	.00	.00	.00	.00
27	.00	9.5	72	.00	.00	9.2	2.8	.00	.00	.00	.00	.00
28	.00	2.5	32	.00	.00	13	2.0	.00	.00	.00	.00	.00
29	.00	.00	7.2	.00	---	11	1.3	.00	.00	.00	.00	.00
30	.00	.00	4.4	.00	---	89	.75	.00	.00	.00	.00	.00
31	.00	---	2.8	.00	---	52	---	.00	---	4.5	.00	---
TOTAL	76.58	12.93	119.40	16.50	80.31	179.10	235.65	13.72	32.20	4.50	86.50	70.70
MEAN	2.47	.43	3.85	.53	2.87	5.78	7.86	.44	1.07	.15	2.79	2.36
MAX	24	9.5	72	5.0	39	89	27	2.8	25	4.5	19	.17
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	152	26	237	33	159	355	467	27	64	8.9	172	140
CAL YR 1982	TOTAL	116174.01	MEAN	318	MAX	4990	MIN	.00	AC-FT	230400		
WTR YR 1983	TOTAL	928.09	MEAN	2.54	MAX	89	MIN	.00	AC-FT	1840		

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 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
DEC 29...	1040	7.1	119	3.5	33	0	8.8	2.7	9.7
APR 22...	1535	21	363	18.0	84	13	23	6.5	36

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LILITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
DEC 29...	.8	3.8	36	15	9.5	.10	6.2	77
APR 22...	1.8	4.8	71	12	61	.20	7.3	193

## RED RIVER BASIN

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 upstream from Little Wichita River, 6.4 mi east of Henrietta, and 8.9 mi west of Ringgold.

DRAINAGE AREA.--178 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No known diversions above station.

AVERAGE DISCHARGE.--19 years (water years 1965-83), 25.0 ft<sup>3</sup>/s (1.97 in/yr), 18,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft<sup>3</sup>/s Oct. 13, 1981 (gage height, 31.70 ft), from rating curve extended above 5,100 ft<sup>3</sup>/s on basis of contracted-opening measurement of 15,500 ft<sup>3</sup>/s; no flow for many days most years.

Maximum stage since at least 1920, that of Oct. 13, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1941 reached a stage of 28.8 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	0500	*493	14.79
June 6	1230	376	13.56

Minimum discharge, no flow for several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.25	.19	1.1	3.0	98	1.3	9.7	1.2	1.4	1.0	.02	.00
2	.28	.12	.70	2.7	56	1.1	6.4	.86	1.2	.68	.02	.00
3	101	.06	.39	4.2	20	.96	4.8	.76	2.4	.49	.02	.00
4	37	.03	.20	7.4	9.2	1.1	3.7	.73	2.6	.48	.02	.00
5	8.6	.02	.10	6.6	6.0	1.2	5.5	.67	7.3	.43	.02	.00
6	4.6	.02	.04	4.1	4.0	1.1	8.2	.60	266	.32	.02	.00
7	2.6	.02	.02	2.9	3.2	1.1	6.4	.69	31	.22	.02	.00
8	1.9	.02	.01	2.2	2.6	1.0	5.1	.71	12	.14	.02	.00
9	1.4	.02	.00	1.8	2.4	.96	4.1	.72	6.7	.12	.02	.00
10	.97	.02	.01	1.5	2.1	.86	3.4	.84	3.7	.10	.02	.00
11	.77	.03	.03	1.2	1.9	.79	3.0	.92	2.9	.09	.02	.00
12	.59	.03	.05	1.1	1.7	.76	2.6	.88	2.3	.07	.02	.00
13	.26	.03	.10	.91	1.5	.67	185	2.1	1.7	.06	.02	.00
14	.19	.03	.28	.75	1.3	.67	447	19	1.4	.06	.01	.00
15	.25	.02	.32	.64	1.2	.67	124	4.3	1.2	.05	.01	.00
16	.28	.02	.37	.59	1.1	1.3	25	2.8	.90	.05	.01	.02
17	.23	.02	.32	.55	1.0	27	11	2.5	.68	.05	.01	.00
18	.18	.02	.30	.55	1.0	18	6.4	1.9	.63	.04	.01	.00
19	.15	.03	.26	.64	1.0	9.3	4.3	1.4	.55	.04	.02	.00
20	.11	.04	.17	.64	2.4	6.0	3.2	1.1	.44	.03	.03	.00
21	.11	.06	.12	.64	3.9	4.0	7.0	62	.39	.03	.02	.00
22	.10	.08	.07	.67	4.2	2.8	6.2	23	.37	.03	.02	.00
23	.08	.08	.05	.70	3.5	2.5	6.1	8.7	.35	.02	.02	.00
24	.06	.10	.08	.67	2.9	2.2	4.6	61	.44	.02	.02	.00
25	.05	.18	.08	.64	2.5	2.1	3.2	31	.42	.02	.01	.00
26	.04	1.9	.07	.61	2.1	45	2.7	9.0	.40	.02	.01	.00
27	.03	19	33	.55	1.9	104	2.4	4.3	1.2	.02	.01	.00
28	.74	23	165	.55	1.5	41	2.0	2.6	2.5	.02	.01	.00
29	.60	5.8	45	.58	---	15	1.6	1.9	2.0	.02	.01	.00
30	.40	2.3	11	.55	---	30	1.4	1.7	1.5	.02	.01	.00
31	.22	---	4.9	7.4	---	18	---	1.6	---	.02	.00	---
TOTAL	164.04	53.29	264.14	57.53	240.1	342.44	906.0	251.48	356.57	4.76	.50	.02
MEAN	5.29	1.78	8.52	1.86	8.58	11.0	30.2	8.11	11.9	1.5	.016	.001
MAX	101	23	165	7.4	98	104	447	62	266	1.0	.03	.02
MIN	.03	.02	.00	.55	1.0	.67	1.4	.60	.35	.02	.00	.00
CFSM	.03	.01	.05	.01	.05	.06	.17	.05	.07	.001	.000	.000
IN.	.03	.01	.06	.01	.05	.07	.19	.05	.07	.00	.00	.00
AC-FT	325	106	524	114	476	679	1800	499	707	9.4	1.0	.04
CAL YR 1982	TOTAL	19122.16	MEAN	52.4	MAX	2040	MIN	.00	CFSM	.29	IN	4.00
WTR YR 1983	TOTAL	2640.87	MEAN	7.24	MAX	447	MIN	.00	CFSM	.04	IN	.55
									AC-FT	37930	AC-FT	5240

## RED RIVER BASIN

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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 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 06...	1105	3.9	235	21.5	61	5	16	5.0	22
DEC 29...	1415	35	190	4.5	43	0	11	3.7	20
FEB 09...	1050	2.4	900	6.5	190	46	48	16	100
MAR 23...	1125	3.0	3000	8.5	620	450	160	53	340
MAY 04...	1025	.74	1710	16.5	370	11	89	36	210
JUN 16...	1615	.86	1400	22.0	300	46	74	27	170
JUL 26...	1200	.02	1160	29.0	300	0	71	29	150

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 06...	1.3	6.0	56	13	31	.20	6.9	134
DEC 29...	1.4	4.6	44	15	25	.20	7.0	113
FEB 09...	3.3	4.8	140	35	170	.20	9.1	467
MAR 23...	6.2	7.8	170	42	860	.30	7.0	1570
MAY 04...	4.9	5.5	360	66	300	.60	14	937
JUN 16...	4.4	6.7	250	43	270	.40	14	755
JUL 26...	3.9	3.4	420	33	120	.80	20	679

## RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK

LOCATION.--Lat 33°52'43", long 97°56'03", Jefferson County, Hydrologic Unit 11130201, on left bank on downstream side of bridge abutment on U.S. Highway 81, 0.5 mi downstream from Chicago, Rock Island, and Railroad Co. bridge, 1.2 mi south of Terral, 3.6 mi downstream from Little Wichita River, and at mile 872.

DRAINAGE AREA.--28,723 mi<sup>2</sup>, of which 5,936 mi<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 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.--45 years (water years 1939-83), 2,117 ft<sup>3</sup>/s (1,534,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 197,000 ft<sup>3</sup>/s June 8, 1941 (gage height, 28.12 ft); minimum, 43 ft<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, although floods in 1891 and on May 1, 1908, are reported to have reached about the same stage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,200 ft<sup>3</sup>/s May 23 at 1000 hours (gage height, 16.97 ft), no peak above base of 21,000 ft<sup>3</sup>/s; minimum, 100 ft<sup>3</sup>/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	267	216	409	399	615	562	1740	600	1230	1440	175	127
2	271	197	363	350	2720	570	1380	561	1080	1000	168	127
3	294	174	344	344	3370	573	1130	550	998	1100	166	131
4	332	159	322	354	2420	590	980	518	977	820	174	135
5	311	155	297	399	1460	585	966	420	890	721	185	134
6	269	151	270	400	1120	581	900	376	861	611	186	139
7	252	152	254	394	977	586	900	352	973	1260	189	132
8	239	150	251	383	891	578	1000	343	817	2030	213	124
9	226	153	242	371	838	549	906	337	661	1250	215	123
10	217	156	248	363	805	524	838	341	593	848	196	128
11	220	163	245	349	779	506	810	346	569	624	207	129
12	225	145	245	322	754	492	747	355	552	515	199	128
13	224	153	257	314	725	485	904	401	535	449	181	128
14	227	160	294	311	697	492	1580	1320	534	400	170	133
15	230	153	287	297	656	535	1860	5410	3320	364	175	145
16	221	144	283	287	631	790	889	5070	8150	338	165	164
17	207	146	273	280	614	632	600	2900	5300	308	149	174
18	201	149	254	270	587	632	518	2470	3210	294	142	188
19	202	151	245	280	570	790	561	2990	1990	292	145	181
20	194	151	245	280	616	733	821	2890	1560	292	154	165
21	202	153	242	287	2540	688	1950	2780	1310	290	151	138
22	207	153	242	314	1510	688	920	8340	1150	282	161	124
23	209	146	230	318	857	707	1810	12700	1180	270	182	120
24	224	142	242	322	733	688	1290	8740	1080	254	174	125
25	215	148	297	348	669	662	1130	7660	795	248	161	118
26	206	202	329	356	668	1130	788	5290	635	232	152	121
27	200	249	388	356	640	1830	617	2930	652	212	145	112
28	230	431	708	352	603	2460	561	1880	936	193	135	109
29	232	503	909	344	---	3270	493	1650	846	202	134	109
30	269	464	611	336	---	3030	572	1540	1060	194	134	109
31	268	---	467	398	---	2380	---	1370	---	182	131	---
TOTAL	7291	5769	10293	10478	30065	29318	30161	83430	44444	17515	5214	4020
MEAN	235	192	332	338	1074	946	1005	2691	1481	565	168	134
MAX	332	503	909	400	3370	3270	1950	12700	8150	2030	215	188
MIN	194	142	230	270	570	485	493	337	534	182	131	109
AC-FT	14460	11440	20420	20780	59630	58150	59820	165500	88150	34740	10340	7970
CAL YR 1982	TOTAL	1122114	MEAN	3074	MAX	41400	MIN	142	AC-FT	2226000		
WTR YR 1983	TOTAL	277998	MEAN	762	MAX	12700	MIN	109	AC-FT	551400		



## RED RIVER BASIN

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07315500 RED RIVER NEAR TERRAL, OK--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURES: October 1967 to current year.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 12,700 micromhos Sept. 8, 1981; minimum daily, 450 micromhos May 25, 1975.

WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 13, 16, 17, 1983; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 8,850 micromhos Feb. 15; minimum daily, 893 micromhos May 17.

WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 13, 16, 17; minimum daily, 3.0°C Dec. 30.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 06...	1355	267	4050	26.5	730	600	180	68	600
DEC 31...	0815	482	2800	4.0	460	350	120	39	400
JAN 31...	1545	392	7880	8.0	1100	950	300	89	1300
MAR 24...	1720	677	6140	9.5	1000	870	270	85	950
MAY 17...	1345	2760	945	18.0	190	84	53	15	110
23...	1235	13200	1560	21.0	320	180	92	21	190

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 06...	10	8.4	130	460	1000	.40	5.3	2400
DEC 31...	8.4	5.8	110	270	690	.30	5.6	1600
JAN 31...	18	7.4	170	810	2100	.40	3.1	4710
MAR 24...	13	7.8	160	760	1600	.40	6.0	3780
MAY 17...	3.6	6.2	110	82	180	.30	9.0	521
23...	4.8	7.2	140	190	300	.30	10	894

## RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	7291	4130	2510	49300	950	18700	520	10300	790
NOV.	1982	5769	4200	2550	39700	970	15100	530	8290	800
DEC.	1982	10293	4780	2930	81400	1100	31900	600	16800	880
JAN.	1983	10478	6110	3770	107000	1500	42700	770	21700	1100
FEB.	1983	30065	4360	2680	217000	1100	85900	550	44600	790
MAR.	1983	29318	5060	3100	245000	1200	96400	640	50500	930
APR.	1983	30161	3690	2230	182000	840	68700	470	38200	720
MAY	1983	83430	2070	1240	279000	450	102000	260	59500	420
JUNE	1983	44444	3270	1980	237000	750	89600	420	49800	630
JULY	1983	17515	3470	2100	99100	790	37200	440	20900	680
AUG.	1983	5214	5120	3130	44000	1200	17100	650	9110	950
SEPT	1983	4020	5640	3460	37500	1400	14800	710	7720	1000
TOTAL		277998	**	**	1619000	**	620000	**	337000	**
WTD. AVG.		762	3550	2160	**	830	**	450	**	670

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4200	4100	2790	3680	5310	6680	2920	4110	3650	3160	4960	5290
2	4380	3050	2990	3970	3430	6940	2860	4410	4450	3090	4980	5430
3	4280	3290	3650	4550	1370	7170	3210	4140	4590	3680	4990	5600
4	4020	3860	4060	4670	1360	7300	3430	4130	4160	3000	4920	5650
5	3780	3960	4480	4860	2350	7400	3130	5580	3090	2340	5180	5680
6	3940	4240	5080	5380	3340	7500	3350	6270	3870	2640	5430	5620
7	4130	4340	5110	5100	4680	7050	3730	6390	3860	3070	5240	5580
8	3640	4320	5930	5470	5650	6620	3690	6370	4750	2850	5100	5620
9	4150	4370	6810	5680	6060	6700	3570	6380	5230	2380	4280	5800
10	4140	4440	5800	6110	6240	6900	3740	6000	5300	2990	4900	5870
11	4430	4280	5920	6820	6530	7060	4160	5920	5290	3430	5110	5920
12	4270	4300	6040	6390	7120	7210	4500	6150	5950	4490	5200	5910
13	4160	4500	6130	6880	8000	7320	3940	5750	6310	3830	5090	5960
14	4270	4760	6160	7350	8680	7240	2900	4490	5810	3850	5130	5830
15	4250	4690	6170	7150	8850	6870	2600	2150	3990	3610	5160	5730
16	4210	4630	5950	6930	8640	4010	3240	939	2440	3800	5300	5530
17	4130	4880	6100	6980	8450	5260	4050	893	1490	4040	5240	5700
18	4070	4790	6220	6800	8380	5340	4780	2290	1750	4340	5220	5790
19	4170	4770	6620	6840	8300	5100	5360	1210	2030	4660	5180	5610
20	4190	4830	7180	6890	7720	4410	5560	1230	2260	4770	5120	5370
21	4240	4990	6680	6920	2160	4600	5330	1250	2570	4900	4990	5250
22	4100	5020	7050	5860	2610	4820	5180	1430	2730	5010	5320	5180
23	4150	4910	7200	5950	3740	5510	2370	1580	3680	4890	5610	5300
24	4330	4850	7480	6010	4700	6220	3760	1660	6040	4790	5250	5630
25	4210	4800	6710	5820	5050	6090	3840	2050	6420	4790	4930	5680
26	4090	4200	5960	6170	5240	5740	4020	2480	5920	4800	4890	5740
27	3840	4100	3860	6530	5860	3680	3910	2440	5660	4820	5070	5730
28	3770	4240	2960	6480	6260	3640	4430	2650	4050	4970	5180	5720
29	3970	3680	2330	6970	---	3920	3730	3580	3600	4950	5340	5770
30	4520	3000	2790	8290	---	3480	3870	3000	3090	4990	5390	5730
31	4170	---	2800	7870	---	3770	---	3030	---	5020	5250	---
MEAN	4140	4340	5320	6170	5570	5860	3840	3550	4130	4000	5130	5640

## RED RIVER BASIN

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07315500 RED RIVER NEAR TERRAL, OK--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	22.0	15.0	4.0	7.0	17.0	11.0	22.0	20.0	30.0	32.0	26.0
2	22.0	18.0	14.0	5.0	5.0	13.0	9.0	18.0	24.0	28.0	32.0	27.0
3	25.0	12.0	12.0	4.0	6.0	17.0	14.0	11.0	28.0	28.0	33.0	27.0
4	24.0	14.0	---	6.0	4.0	17.0	17.0	23.0	28.0	---	29.0	30.0
5	24.0	11.0	10.0	4.0	4.0	14.0	12.0	21.0	28.0	29.0	33.0	28.0
6	24.0	12.0	11.0	8.0	4.0	17.0	12.0	23.0	22.0	30.0	32.0	31.0
7	23.0	17.0	10.0	7.0	4.0	16.0	10.0	24.0	24.0	28.0	30.0	30.0
8	25.0	15.0	8.0	8.0	6.0	14.0	8.0	23.0	25.0	27.0	31.0	29.0
9	19.0	16.0	9.0	10.0	8.0	14.0	13.0	21.0	27.0	27.0	30.0	28.0
10	16.0	19.0	7.0	10.0	9.0	14.0	10.0	20.0	26.0	29.0	33.0	30.0
11	16.0	20.0	---	10.0	7.0	13.0	---	23.0	25.0	28.0	34.0	32.0
12	17.0	12.0	---	9.0	7.0	15.0	20.0	22.0	26.0	30.0	32.0	30.0
13	19.0	9.0	5.0	12.0	---	17.0	17.0	22.0	26.0	29.0	35.0	30.0
14	16.0	7.0	8.0	11.0	9.0	20.0	12.0	21.0	23.0	27.0	---	27.0
15	18.0	6.0	6.0	6.0	9.0	18.0	15.0	17.0	25.0	27.0	34.0	27.0
16	18.0	11.0	10.0	9.0	16.0	15.0	13.0	17.0	25.0	26.0	35.0	29.0
17	16.0	10.0	---	6.0	13.0	10.0	20.0	17.0	26.0	29.0	35.0	29.0
18	22.0	12.0	---	8.0	---	14.0	21.0	20.0	28.0	31.0	31.0	30.0
19	18.0	17.0	---	---	11.0	10.0	18.0	21.0	27.0	31.0	25.0	25.0
20	20.0	18.0	---	---	15.0	8.0	15.0	21.0	28.0	30.0	26.0	18.0
21	16.0	13.0	---	5.0	11.0	---	14.0	19.0	29.0	---	32.0	17.0
22	15.0	16.0	11.0	4.0	11.0	9.0	18.0	18.0	29.0	32.0	32.0	21.0
23	15.0	10.0	12.0	6.0	15.0	9.0	17.0	20.0	28.0	32.0	31.0	19.0
24	15.0	5.0	13.0	6.0	15.0	9.0	19.0	23.0	27.0	32.0	32.0	22.0
25	16.0	6.0	8.0	7.0	11.0	9.0	16.0	24.0	26.0	33.0	33.0	19.0
26	14.0	6.0	6.0	7.0	9.0	13.0	22.0	26.0	27.0	33.0	33.0	24.0
27	15.0	5.0	5.0	5.0	12.0	12.0	21.0	25.0	27.0	32.0	29.0	22.0
28	17.0	8.0	4.0	7.0	9.0	12.0	25.0	28.0	25.0	32.0	33.0	27.0
29	14.0	10.0	4.0	9.0	---	11.0	24.0	28.0	30.0	30.0	32.0	27.0
30	15.0	10.0	3.0	8.0	---	11.0	29.0	22.0	29.0	---	32.0	24.0
31	18.0	---	4.0	8.0	---	12.0	---	18.0	---	30.0	29.0	---
MEAN	18.5	12.0	8.5	7.0	9.0	13.5	16.5	21.0	26.5	29.5	31.5	26.0

## RED RIVER BASIN

07315950 MOSS LAKE NEAR GAINESVILLE, TX

LOCATION.--Lat 33°46'26", long 97°12'50", Cooke County, Hydrologic Unit 11130201, on top of upstream side of dam adjacent to guardrail of roadway about 250 ft from right end of Fish Creek dam on Fish Creek, 1.6 mi upstream from Bearhead Creek, 3.7 mi upstream from mouth, and 10 mi northwest of Gainesville.

DRAINAGE AREA.--65 mi<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 upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 1,460 ft long. The dam was completed and storage began Dec. 2, 1966. An uncontrolled morning-glory-type spillway with a 7- by 7-foot opening is designed to discharge 2,500 ft<sup>3</sup>/s at a 10-foot head. The emergency spillway is a 400-foot-wide cut through natural ground located about 100 ft to the left of the left end of dam. The dam was built by the city of Gainesville to impound water for municipal use. Area and capacity tables are based on a 1961 survey. There was no diversion from the lake during the current water year. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	740.0	-
Top of design flood pool.....	736.0	55,230
Crest of spillway.....	725.0	36,440
Crest of spillway (top of conservation pool).....	715.0	23,210
Lowest gated outlet (invert).....	666.0	78

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 50,990 acre-ft Oct. 13, 1981 (elevation, 733.72 ft); minimum since lake first filled in May 1968, 17,740 acre-ft Sept. 26, 1980 (elevation, 709.67 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 23,540 acre-ft Mar. 5 at 1300 hours (elevation, 715.29 ft); minimum, 21,200 acre-ft Sept. 30 (elevation, 713.15 ft).

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

713.0	21,040	715.0	23,210
714.0	22,110	716.0	24,360

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21980	21810	21940	22200	22770	23090	23270	22880	23160	23020	22510	21940
2	21960	21820	21940	22210	22780	23070	23240	22880	23120	23000	22500	21920
3	21930	21790	21940	22220	22830	23070	23230	22860	23080	22960	22460	21870
4	21920	21770	21940	22230	22830	23530	23210	22840	23050	22940	22430	21840
5	21920	21760	21940	22240	22840	23500	23140	22830	23020	22950	22410	21810
6	21910	21760	21940	22240	22850	23380	23120	22810	23010	22940	22400	21780
7	21900	21750	21940	22250	22890	23310	23100	22800	22980	22900	22390	21750
8	21890	21750	21940	22250	22910	23260	23080	22790	22980	22880	22390	21710
9	21870	21740	21940	22260	22910	23190	23070	22780	22980	22870	22390	21700
10	21870	21740	21950	22260	22910	23140	23070	22770	22970	22850	22390	21680
11	21860	21790	22050	22280	22920	23120	23060	22880	22950	22840	22360	21660
12	21850	21740	22090	22280	22940	23110	23050	22880	22950	22790	22340	21650
13	21840	21720	22110	22290	22960	23110	23030	22870	22940	22790	22300	21600
14	21810	21690	22110	22290	22960	23110	23020	22860	22900	22790	22280	21580
15	21790	21680	22110	22290	22970	23100	23010	22840	22900	22800	22250	21530
16	21770	21670	22110	22290	22970	23070	23000	22830	22900	22800	22180	21530
17	21750	21670	22110	22290	22970	23050	22990	22810	22900	22810	22140	21520
18	21720	21670	22150	22290	22980	23050	22990	22810	22880	22810	22170	21500
19	21790	21680	22150	22290	23050	23090	22980	22800	22870	22800	22170	21480
20	21770	21700	22150	22290	23110	23010	22980	22790	22860	22790	22170	21430
21	21770	21690	22150	22290	23140	23000	22970	22780	22850	22770	22170	21400
22	21770	21710	22150	22290	23170	23000	22960	22770	22830	22760	22150	21370
23	21770	21660	22150	22290	23160	22990	22950	23100	22810	22740	22130	21350
24	21740	21640	22180	22290	23140	22990	22940	23080	22800	22720	22100	21320
25	21740	21640	22190	22290	23140	23010	22920	23030	22830	22680	22080	21300
26	21720	21830	22200	22290	23130	23180	22910	23230	22850	22660	22060	21300
27	21710	21910	22200	22290	23120	23160	22900	23220	22950	22630	22050	21290
28	21720	21940	22200	22300	23080	23100	22890	23210	23100	22610	22020	21250
29	21710	21920	22200	22330	---	23160	22880	23190	23080	22570	22000	21240
30	21710	21940	22200	22330	---	23300	22880	23180	23050	22550	21980	21200
31	21740	---	22200	22660	---	23330	---	23180	---	22540	21960	---
MAX	21980	21940	22200	22660	23170	23530	23270	23230	23160	23020	22510	21940
MIN	21710	21640	21940	22200	22770	22990	22880	22770	22800	22540	21960	21200
(†)	713.65	713.84	714.08	714.50	714.88	714.10	714.70	714.97	714.85	714.39	713.86	713.15
(‡)	-270	+200	+260	+460	+420	+250	-450	+300	-130	-510	-580	-760

CAL YR 1982 MAX 24550 MIN 21640 † -850  
WTR YR 1983 MAX 23530 MIN 21200 ‡ -810

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

## RED RIVER BASIN

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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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
AUG 31...	1200	284	30.0	120	11	42	3.8	11

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
AUG 31...	.5	2.9	110	18	14	.20	4.9	163



## RED RIVER BASIN

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 downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 4.5 mi southwest of Thackerville, Okla., 5.0 mi downstream from Fish Creek, 7.0 mi north of Gainesville, and at mile 791.5.

DRAINAGE AREA.--30,782 mi<sup>2</sup>, of which 5,936 mi<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 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 poor. 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 14 discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

AVERAGE DISCHARGE.--47 years, 2,722 ft<sup>3</sup>/s (1,972,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 168,000 ft<sup>3</sup>/s June 9, 1941 (gage height, 24.15 ft); maximum gage height, 29.45 ft Oct. 14, 1981, from floodmark; minimum discharge, 48 ft<sup>3</sup>/s Jan. 27, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,000 ft<sup>3</sup>/s May 17, 24, no peak above base of 24,000 ft<sup>3</sup>/s; maximum gage height, 15.95 ft May 24; minimum daily discharge, 115 ft<sup>3</sup>/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	411	346	730	900	631	744	3510	940	2950	2200	420	148
2	384	435	744	710	947	696	2900	948	2640	3000	380	140
3	398	371	663	637	1940	612	2190	948	2390	2700	350	135
4	600	310	536	553	3890	819	1720	924	2160	2400	300	129
5	696	287	502	497	3670	1330	1450	916	2070	2210	300	128
6	497	272	460	476	2500	1560	1290	908	1900	1810	280	129
7	476	262	445	476	1750	1670	1300	853	1800	1900	265	131
8	430	255	411	497	1420	1440	1280	779	1700	3000	260	132
9	389	245	380	497	1230	1060	1220	751	1600	5000	280	130
10	375	242	389	502	1090	831	1260	751	1500	3500	265	131
11	375	248	416	486	1030	744	1180	772	1400	2300	260	130
12	346	272	426	465	973	730	1080	779	1300	1880	258	126
13	298	250	393	455	908	718	1230	758	1200	1500	225	127
14	302	230	393	440	884	700	1790	744	1180	1350	222	130
15	333	210	389	416	838	692	2690	1720	1150	1200	222	131
16	354	215	389	393	816	750	2900	9950	1120	1100	218	135
17	342	217	389	384	779	900	2500	14600	7530	1200	206	265
18	325	220	393	380	744	820	1570	8720	7390	1100	200	271
19	313	224	371	375	702	790	1200	6750	5580	1000	227	190
20	294	226	354	371	808	770	990	6430	3590	950	282	182
21	294	226	342	371	816	758	956	8070	2620	890	391	174
22	294	228	325	371	838	876	956	9960	2150	800	564	212
23	298	228	317	375	2180	853	932	13200	1940	770	283	200
24	302	222	310	375	1810	816	1340	17000	1700	700	225	179
25	302	215	306	402	1140	772	2420	13400	1830	660	194	160
26	302	269	294	407	932	892	1910	12800	1700	600	191	140
27	306	384	325	411	831	1320	1520	9580	1600	560	191	131
28	313	426	402	421	779	1910	1200	6690	2180	520	179	122
29	329	435	536	445	---	2750	1020	4610	1950	540	168	117
30	333	513	696	450	---	3300	998	3610	1960	500	163	115
31	350	---	1010	497	---	3570	---	3380	---	450	158	---
TOTAL	11361	8483	14036	14435	36876	36193	48502	162241	71780	48290	8127	4570
MEAN	366	283	453	466	1317	1168	1617	5234	2393	1558	262	152
MAX	696	513	1010	900	3890	3570	3510	17000	7530	5000	564	271
MIN	294	210	294	371	631	612	932	744	1120	450	158	115
AC-FT	22530	16830	27840	28630	73140	71790	96200	321800	142400	95780	16120	9060
CAL YR 1982	TOTAL	2008385	MEAN	5502	MAX	62700	MIN	179	AC-FT	3984000		
WTR YR 1983	TOTAL	464894	MEAN	1274	MAX	17000	MIN	115	AC-FT	922100		

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 September 1982.

## 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, and July 24, 30, Aug. 6, 12, 15, 1983; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,570 micromhos Feb. 19; minimum daily, 690 micromhos May 18.

WATER TEMPERATURES: Maximum daily, 35.0°C July 24, 30, Aug. 6, 12, 15; minimum daily, 3.5°C Jan. 1, 22, Feb. 5.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT 19...	1030	313	4070	8.3	19.5	28	8.6	97	39	67	55	750
JAN 19...	1145	375	6040	8.2	3.5	1.3	12.3	96	2.2	K3	K4	1100
MAR 01...	0830	744	4550	8.7	12.0	2.2	11.5	111	12	--	K16	720
APR 19...	1430	1200	2690	8.6	16.0	94	9.6	101	5.5	110	110	500
JUN 07...	1250	1800	3510	8.2	24.5	420	7.8	97	2.3	--	--	600
SEP 13...	0910	127	5350	7.8	25.0	14	5.2	65	6.9	K12	K530	870

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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)
OCT 19...	570	190	67	600	9.9	7.9	180	430	1100	.50	5.0
JAN 19...	880	280	86	950	13	6.9	180	640	1600	.40	2.3
MAR 01...	610	190	60	710	12	6.4	110	470	1200	.40	1.8
APR 19...	350	130	43	380	7.6	6.8	150	290	630	.30	3.5
JUN 07...	450	170	42	500	9.2	6.9	150	400	860	.40	8.6
SEP 13...	790	210	82	820	13	10	79	680	1400	.40	6.6

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 19...	2530	2510	<.10	.100	1.60	.020	.160	.090	41	35	69
JAN 19...	3740	3680	<.10	.120	.60	.140	.110	.060	4	4.1	78
MAR 01...	2750	2700	<.10	.100	1.70	.220	.030	.030	20	40	89
APR 19...	1550	1580	<.10	.110	2.00	.270	.090	.040	168	544	98
JUN 07...	2120	2080	.50	.060	.70	.200	.090	.050	634	3080	99
SEP 13...	3300	3260	<.10	.030	2.00	.120	.010	.020	--	--	--

## RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM, DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 19...	1030	5	<100	<10	<2	<1	2	<2	200	<2
JAN 19...	1145	2	<100	<10	<2	<1	2	<2	10	2
APR 19...	1430	3	100	<10	<1	<1	<1	2	30	<1
SEP 13...	0910	2	100	<10	<1	<1	8	2	20	1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 19...	50	50	<.1	3	<2	<1	<2	2800	21	10
JAN 19...	50	60	<.1	2	4	1	<2	3500	37	10
APR 19...	20	10	.2	1	1	1	<1	1600	10	90
SEP 13...	60	<10	<.1	3	7	<1	<1	3400	24	10

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	11361	3830	2290	70100	940	28800	450	13800	750
NOV.	1982	8483	4000	2390	54700	980	22500	470	10800	770
DEC.	1982	14036	4520	2720	103000	1100	42400	540	20600	850
JAN.	1983	14435	4590	2770	108000	1100	44400	550	21600	850
FEB.	1983	36876	3470	2080	207000	850	85000	410	41100	660
MAR.	1983	36193	3840	2300	224000	940	92100	450	44400	740
APR.	1983	48502	2850	1690	221000	690	90500	330	42900	580
MAY	1983	162241	1570	920	403000	380	164600	180	77200	330
JUNE	1983	71780	2920	1730	335000	710	137300	340	65300	590
JULY	1983	48290	2980	1770	230000	720	94300	340	44800	600
AUG.	1983	8127	4230	2540	55700	1000	22900	500	11000	810
SEPT	1983	4570	4850	2930	36100	1200	14900	590	7230	900
TOTAL		464894	**	**	2049000	**	840000	**	401000	**
WTD. AVG.		1274	2750	1630	**	670	**	320	**	550

## RED RIVER BASIN

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## 07316000 RED RIVER NEAR GAINESVILLE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
EQUIVALENT MEAN												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3770	3890	3560	2790	4230	4550	3450	3540	3070	3260	4440	4890
2	3870	3520	3910	2300	4480	4670	3190	3830	2720	2490	4420	4830
3	3660	3880	2850	2510	3730	4980	2850	3420	2760	3240	4470	4810
4	3680	4140	2830	2690	3350	4250	2550	3620	2570	2850	4530	4880
5	3420	4410	2930	3020	1810	3750	2540	3860	3800	2420	4540	4990
6	2530	4170	3140	3480	1510	3480	2740	4070	3760	2630	4540	5040
7	2870	4020	3380	3790	1380	2610	2960	3900	3640	2570	4560	5140
8	3790	3840	3530	4050	1750	2710	2760	3910	3030	2300	4600	5190
9	3840	3400	3860	4310	2780	3510	2740	4310	2970	2360	4400	5210
10	3780	3620	3940	4630	3760	4970	3290	4920	3000	3030	4470	5270
11	3930	3850	3880	4840	4730	4290	3430	5220	3540	2660	4560	5360
12	3970	3930	4340	4660	5320	5160	3170	5300	3900	2340	4710	5440
13	4030	4080	4830	5090	5340	5080	2950	5330	4200	2280	4580	5390
14	3830	4230	5590	5200	5390	5260	2470	5050	4500	2890	4760	5370
15	3950	4190	5630	5480	5900	5330	2280	3900	4360	3060	4530	5360
16	4070	4160	5590	5960	6460	5510	2030	1500	4550	2850	4520	5350
17	4220	4130	5550	5640	6990	5750	2150	820	3270	3810	4750	2750
18	4180	4110	5470	5930	7330	6150	2220	690	2890	3570	4820	2530
19	4140	4170	5370	6040	7570	5980	2760	700	1750	3540	4540	4200
20	4220	4230	5380	6140	5800	3710	3170	1490	1520	3480	4470	4880
21	4120	4380	5490	5990	4400	4680	3320	1140	1770	3490	3550	5220
22	4110	4360	5260	5730	5710	4980	3670	940	2050	3670	1960	5420
23	4130	4380	5380	5710	1670	4840	3900	1110	2240	3910	2950	5400
24	4100	4460	5580	5590	2090	4630	3500	1290	2490	4060	3620	5110
25	4090	4450	5790	5460	2250	4220	2780	1620	2530	4350	3850	5330
26	4190	3870	5890	5690	2750	2950	2090	1660	3250	4490	4180	5350
27	4200	3670	5550	5330	3450	4030	3130	1690	4440	4670	4370	5360
28	4120	3770	5820	5390	4210	3970	3240	1710	2400	4720	4590	5230
29	3890	3780	5830	5450	---	2400	3560	1750	3370	4680	4800	5150
30	4010	4020	5030	5530	---	2300	3520	2250	3480	4580	5000	5080
31	3960	---	4240	4920	---	2920	---	2510	---	4520	4900	---
MEAN	3890	4040	4690	4820	4150	4310	2950	2810	3130	3380	4350	4980

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
ONCE-DAILY												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.0	19.5	---	3.5	6.0	17.0	13.0	24.0	21.0	28.5	34.0	32.0
2	19.5	17.0	---	5.0	5.5	20.0	11.0	20.0	24.0	30.5	34.0	32.0
3	20.5	10.5	---	4.0	5.5	17.0	12.0	21.0	27.0	30.0	33.0	30.0
4	24.0	11.5	---	4.0	4.0	17.0	16.0	24.0	28.0	31.0	32.0	31.0
5	24.0	10.5	12.0	5.5	3.5	14.5	14.0	24.0	28.0	31.0	33.0	27.0
6	23.5	9.5	12.0	6.5	4.0	16.0	14.0	24.0	25.0	31.5	35.0	28.0
7	23.5	14.0	13.5	8.0	5.5	15.5	13.0	23.0	25.0	32.0	30.0	28.0
8	23.0	14.5	10.0	8.5	8.5	15.0	11.0	22.0	27.0	31.5	31.0	27.0
9	17.0	15.5	9.5	8.5	9.5	13.0	10.0	22.0	27.0	30.0	33.0	26.0
10	15.0	17.0	8.0	10.0	10.0	13.0	17.0	20.0	28.0	30.0	34.0	28.0
11	14.0	17.5	5.5	10.5	10.0	14.0	20.0	25.0	28.0	31.5	34.0	31.0
12	16.5	11.0	5.0	10.0	8.5	11.0	21.0	27.0	28.0	31.5	35.0	32.0
13	17.0	9.0	5.0	11.5	10.5	16.0	18.0	27.0	26.0	31.0	30.0	29.0
14	17.5	7.0	8.5	11.0	13.0	20.0	16.0	23.0	28.0	30.0	32.0	29.0
15	17.5	7.0	9.0	9.0	11.0	18.0	17.0	18.0	29.0	31.0	35.0	28.0
16	14.0	7.0	9.5	8.5	14.5	18.0	17.0	20.0	29.0	25.0	34.0	30.0
17	14.0	8.5	10.5	9.0	14.0	11.0	18.0	20.0	27.0	29.0	33.0	31.0
18	---	9.0	10.0	7.5	16.0	14.5	20.0	21.0	25.0	28.0	32.0	29.0
19	20.0	16.0	10.5	5.0	16.5	11.5	16.0	22.0	27.0	29.5	26.0	26.0
20	15.0	15.0	10.5	4.5	14.0	9.5	14.0	22.0	29.0	29.5	26.0	20.0
21	11.0	11.5	12.0	5.0	14.0	11.5	15.0	21.0	30.0	29.5	29.0	21.0
22	14.5	17.0	15.0	3.5	14.5	9.5	20.0	21.0	31.0	33.0	32.0	22.0
23	11.0	---	16.5	4.0	15.0	8.5	18.0	23.0	30.0	32.5	33.0	22.0
24	10.5	---	16.0	9.0	15.0	11.5	20.0	23.0	28.0	35.0	34.0	20.0
25	13.5	---	10.0	9.0	14.0	11.0	20.0	24.0	27.0	34.5	33.0	24.0
26	13.5	---	6.0	6.0	10.0	14.5	21.0	25.0	28.0	34.5	34.0	26.0
27	15.0	---	6.5	6.5	10.5	11.5	23.0	25.0	30.0	33.5	34.0	28.0
28	15.5	---	6.5	7.5	14.0	14.0	25.0	24.0	28.0	30.0	32.0	27.0
29	15.5	---	6.0	11.0	---	13.0	24.0	27.0	31.0	29.5	34.0	26.0
30	16.0	---	4.0	9.0	---	14.0	23.0	22.0	31.0	35.0	34.0	26.0
31	17.0	---	4.5	10.0	---	17.0	---	21.0	---	32.0	33.5	---
MEAN	17.0	12.5	9.5	7.5	10.5	14.0	17.0	22.5	27.5	31.0	32.5	27.0



## RED RIVER BASIN

## 07331500 LAKE TEXOMA NEAR DENISON, TX

LOCATION.--Lat 33°49'05", long 96°34'20", in NE1/4 sec.33, T.8 S., R.7 E., Bryan County, Okla., Hydrologic Unit 11130210, in control tower of Denison Dam on Red River, 1.2 mi upstream from Shawnee Creek, 1.8 mi upstream from Sand Creek, 4.0 mi northwest of Denison, and at mile 725.9.

DRAINAGE AREA.--39,719 mi<sup>2</sup>, of which 5,936 mi<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 at 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 conduits, and the uncontrolled outlet is a concrete ogee-type weir spillway. Flow was diverted through conduits July 27, 1942; regulated storage began Oct. 31, 1943; power pool was first filled Mar. 15, 1945. Dead storage, 11,000 acre-ft at elevation 610.0 ft in Cumberland pool. When contents are below 2,105,000 acre-ft, 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. 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 June 5, 1957 (elevation, 643.18 ft); minimum since power pool was first filled, 1,565,100 acre-ft Sept. 16, 1964; minimum elevation, 599.96 ft Mar. 1, 2, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 2,477,000 acre-ft May 27 (elevation, 619.55 ft); minimum, 2,270,000 acre-ft Sept. 30 (elevation, 612.29 ft).

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

612.0	2,248,000	617.0	2,643,000
614.0	2,399,000	621.0	3,018,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2490000	2430000	2440000	2460000	2460000	2570000	2610000	2600000	2800000	2770000	2500000	2370000
2	2490000	2440000	2450000	2460000	2460000	2570000	2590000	2600000	2790000	2760000	2490000	2370000
3	2490000	2430000	2440000	2460000	2470000	2580000	2590000	2590000	2780000	2750000	2490000	2370000
4	2490000	2430000	2440000	2460000	2470000	2580000	2600000	2580000	2760000	2750000	2490000	2360000
5	2480000	2430000	2450000	2450000	2490000	2600000	2590000	2580000	2750000	2750000	2480000	2360000
6	2480000	2420000	2450000	2450000	2500000	2610000	2590000	2570000	2730000	2740000	2480000	2360000
7	2480000	2430000	2450000	2440000	2500000	2620000	2590000	2580000	2730000	2730000	2480000	2350000
8	2480000	2430000	2450000	2440000	2510000	2630000	2590000	2580000	2720000	2730000	2470000	2350000
9	2480000	2430000	2450000	2440000	2520000	2630000	2600000	2580000	2720000	2720000	2470000	2350000
10	2480000	2430000	2460000	2440000	2520000	2630000	2600000	2580000	2710000	2710000	2460000	2350000
11	2480000	2430000	2460000	2440000	2520000	2640000	2600000	2580000	2700000	2700000	2460000	2350000
12	2470000	2430000	2460000	2430000	2530000	2640000	2600000	2590000	2690000	2700000	2450000	2340000
13	2470000	2430000	2450000	2430000	2530000	2650000	2610000	2580000	2690000	2690000	2450000	2340000
14	2470000	2430000	2450000	2430000	2530000	2650000	2620000	2620000	2710000	2680000	2450000	2340000
15	2470000	2420000	2450000	2430000	2530000	2650000	2630000	2640000	2710000	2680000	2440000	2340000
16	2470000	2420000	2440000	2430000	2530000	2660000	2640000	2660000	2710000	2670000	2430000	2330000
17	2470000	2420000	2440000	2430000	2530000	2650000	2650000	2700000	2710000	2660000	2420000	2330000
18	2460000	2420000	2440000	2420000	2540000	2640000	2640000	2730000	2710000	2650000	2410000	2330000
19	2460000	2420000	2440000	2420000	2540000	2630000	2630000	2750000	2710000	2640000	2420000	2330000
20	2460000	2420000	2440000	2420000	2550000	2620000	2630000	2760000	2710000	2630000	2420000	2320000
21	2450000	2420000	2440000	2430000	2550000	2610000	2630000	2800000	2710000	2620000	2410000	2320000
22	2450000	2420000	2440000	2420000	2550000	2590000	2640000	2810000	2700000	2600000	2410000	2310000
23	2450000	2410000	2450000	2420000	2560000	2580000	2640000	2840000	2700000	2590000	2410000	2310000
24	2450000	2410000	2450000	2420000	2560000	2570000	2640000	2860000	2700000	2580000	2410000	2300000
25	2440000	2410000	2450000	2420000	2560000	2550000	2640000	2870000	2700000	2570000	2400000	2300000
26	2430000	2420000	2450000	2420000	2560000	2580000	2640000	2870000	2700000	2560000	2390000	2290000
27	2420000	2430000	2460000	2410000	2560000	2570000	2630000	2870000	2700000	2540000	2390000	2290000
28	2420000	2430000	2460000	2410000	2560000	2570000	2620000	2860000	2780000	2530000	2390000	2280000
29	2410000	2430000	2450000	2420000	---	2570000	2610000	2850000	2790000	2520000	2390000	2270000
30	2410000	2430000	2450000	2420000	---	2580000	2610000	2830000	2780000	2510000	2380000	2270000
31	2410000	---	2450000	2440000	---	2580000	---	2820000	---	2510000	2370000	---
MAX	2490000	2440000	2460000	2460000	2560000	2660000	2650000	2870000	2800000	2770000	2500000	2370000
MIN	2410000	2410000	2440000	2410000	2460000	2550000	2590000	2570000	2690000	2510000	2370000	2270000
(†)	614.15	614.45	614.64	614.53	616.09	616.28	616.57	618.90	618.51	615.37	613.67	612.29
(‡)	-89000	+24000	+14000	-8000	+124000	+17000	+25000	+210000	-36000	-274000	-133000	-103000

CAL YR 1982 MAX 4250000 MIN 2340000 † -42000  
WTR YR 1983 MAX 2870000 MIN 2270000 ‡ -224000

† 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 downstream from Denison Dam powerhouse, 0.4 mi upstream from Shawnee Creek (spillway flow return), 4.5 mi north of Denison, and at mile 725.5.

DRAINAGE AREA.--39,720 mi<sup>2</sup>, of which 5,936 mi<sup>2</sup> probably is noncontributing. At site used prior to October 1961, drainage area 39,777 mi<sup>2</sup>, of which 5,936 mi<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 National Geodetic Vertical Datum of 1929.. Oct. 9, 1923, to Sept. 24, 1934, nonrecording gage, and July 29, 1942, to Sept. 30, 1961, water-stage recorder at county road bridge 2.5 mi downstream. Prior to Oct. 1, 1931, at datum 6.85 ft higher; Oct. 1, 1931, to Sept. 24, 1934, at datum 7.07 ft higher; and July 29, 1942, to Sept. 30, 1961, at datum 2.64 ft lower. Sept. 25, 1934, to July 28, 1942, water-stage recorder at railway bridge 1.9 mi downstream at datum 7.36 ft higher.

REMARKS.--Water-discharge records good. 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 (4,118,000 acre-ft/yr); 39 years (water years 1945-83) regulated, 4,336 ft<sup>3</sup>/s (3,141,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 201,000 ft<sup>3</sup>/s May 21, 1935 (gage height, 31.8 ft, at site and datum then in use); maximum gage height, 32.0 ft Apr. 25, 1942, at site and datum used in 1943; minimum daily discharge, 12 ft<sup>3</sup>/s Jan. 10, 1944.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,300 ft<sup>3</sup>/s May 24-27; maximum gage height, 11.00 ft May 26; minimum daily discharge, 27 ft<sup>3</sup>/s Nov. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2310	5030	54	62	1470	77	1400	5630	10500	10800	4940	243
2	1300	2240	59	67	4800	934	4160	6160	10600	8490	2130	491
3	1320	2200	3450	540	775	58	2490	4290	10600	8580	1830	699
4	1810	1350	90	2990	710	70	4680	6290	9740	8290	1550	1640
5	2110	1490	54	2940	177	77	5110	1510	10600	8600	3490	987
6	1170	49	792	3960	105	51	3210	1650	10400	8330	1630	1620
7	1130	29	1680	2990	1110	376	2360	805	5590	8380	919	169
8	2700	80	269	2840	566	1340	1270	126	5510	5850	1970	679
9	109	37	924	99	133	912	774	1760	5520	6430	3380	92
10	38	76	1560	2840	366	82	966	1870	5540	5780	1680	74
11	1570	944	1470	3210	96	425	1120	1420	5550	7310	2190	1610
12	1750	67	913	3210	78	78	66	1750	5920	5820	2750	3490
13	100	29	5630	1290	74	72	2970	132	5540	5790	3210	189
14	41	27	2270	81	276	1380	1790	394	7730	5780	2630	67
15	1310	2010	687	1200	1250	2600	832	144	5890	5770	3040	1480
16	86	496	3580	83	1320	2640	64	3340	7270	5200	4220	3490
17	264	128	884	841	1670	4540	431	4160	8080	5170	2790	436
18	3990	72	283	3260	1460	5600	4020	7580	8300	6740	2940	61
19	1590	2400	54	2260	1200	5620	5680	10600	8210	6900	2400	2270
20	89	1510	50	2000	1060	6660	5340	10600	7890	6990	2220	1530
21	1630	441	50	106	1850	5670	4740	10600	8110	6750	3350	1130
22	2840	980	50	693	856	7030	2280	10600	7360	6540	2490	2610
23	70	1900	47	62	763	6960	258	13100	5710	5230	2290	1320
24	39	235	750	3320	3880	5760	118	19000	5700	6990	3340	92
25	2360	51	556	124	2790	6780	3540	19100	3040	7200	4710	1210
26	3810	59	1190	3140	783	5730	3690	19100	2720	6610	2180	3920
27	3450	1850	780	1190	1100	5630	7130	17400	3350	6420	2700	3240
28	3000	275	3110	2160	157	5660	7030	14100	6100	7070	144	2430
29	4010	61	3750	59	---	4660	5670	14000	8650	7240	946	2910
30	754	57	4260	52	---	5110	5610	14000	10800	3650	2850	2140
31	916	---	89	697	---	1520	---	12400	---	3300	3070	---
TOTAL	47666	26173	39385	48366	30875	94102	88799	233611	216520	208000	79979	42319
MEAN	1538	872	1270	1560	1103	3036	2960	7536	7217	6710	2580	1411
MAX	4010	5030	5630	3960	4800	7030	7130	19100	10800	10800	4940	3920
MIN	38	27	47	52	74	51	64	126	2720	3300	144	61
AC-FT	94550	51910	78120	95930	61240	186700	176100	463400	429500	412600	158600	83940
CAL YR 1982	TOTAL	2859601	MEAN	7835	MAX	47600	MIN	27	AC-FT	5672000		
WTR YR 1983	TOTAL	1155795	MEAN	3167	MAX	19100	MIN	27	AC-FT	2293000		

## 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. Chemical and biochemical analyses: October 1974 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: 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, 1,640 micromhos Mar. 3; minimum daily, 968 micromhos Oct. 1.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 18...	1545	3990	1060	8.3	21.5	.70	7.0	81	.8	80	42
JAN 19...	1500	2260	1160	7.6	6.5	2.2	11.0	91	.9	K2	K2
FEB 28...	1415	157	1610	8.4	9.0	2.1	12.8	113	1.3	<1	K3
APR 19...	1220	5680	1280	8.2	12.0	2.0	10.0	95	1.1	<1	K9
JUN 07...	0830	5590	1340	8.2	20.0	4.3	7.2	81	1.0	--	--
SEP 12...	1452	3490	1340	7.8	26.0	2.4	4.8	60	1.2	K360	K420

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 18...	260	150	70	20	110	3.1	6.2	110	150	180	.30
JAN 19...	290	170	77	23	130	3.5	5.9	120	160	200	.30
FEB 28...	340	220	89	28	210	5.1	5.4	120	190	330	.30
APR 19...	310	180	83	25	140	3.6	5.8	130	180	230	.30
JUN 07...	320	190	85	27	150	3.8	5.3	130	180	240	.30
SEP 12...	310	200	81	27	150	3.8	5.5	120	180	250	.30

DATE	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 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 18...	1.4	620	605	<.10	.090	1.00	.030	.060	35	377	39
JAN 19...	2.3	680	671	.24	<.060	.90	.040	.040	6	37	91
FEB 28...	2.9	962	928	.17	.170	1.00	.060	.040	2	.85	76
APR 19...	2.3	738	746	.18	.130	.80	.050	.010	7	107	100
JUN 07...	2.0	784	768	.23	.100	.80	.060	.020	9	136	93
SEP 12...	5.4	793	773	<.10	.160	.80	.050	.040	--	--	--

## RED RIVER BASIN

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	
DATE	TIME										
OCT 18...	1545	1	140	<1	<1	<1	<3	<1	3	8	
JAN 19...	1500	1	150	<1	<1	<1	<3	<1	<3	<1	
APR 19...	1220	1	150	<1	<1	<1	<3	1	5	<1	
SEP 12...	1452	2	130	<1	<1	<1	<3	1	<3	1	
		LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 18...	21	<1	<.1	<10	<1	<1	<1	<1	750	<6.0	6
JAN 19...	21	4	.1	<10	3	<1	<1	<1	850	<6.0	6
APR 19...	22	3	.2	<10	<1	<1	<1	<1	930	<6.0	76
SEP 12...	16	39	.1	<10	1	<1	<1	<1	940	<6.0	<3

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	47666	1060	590	75900	200	26100	120	15300	250
NOV.	1982	26173	1090	611	43200	210	14900	120	8770	260
DEC.	1982	39385	1110	621	66000	210	22700	130	13400	260
JAN.	1983	48366	1140	641	83700	220	28800	130	17200	270
FEB.	1983	30875	1230	692	57700	240	19800	140	12000	280
MAR.	1983	94102	1280	722	183000	250	63100	150	38500	290
APR.	1983	88799	1290	730	175000	250	60200	150	36800	300
MAY	1983	233611	1310	740	466000	250	160400	160	98300	300
JUNE	1983	216520	1320	744	435000	260	149500	160	91800	300
JULY	1983	208000	1340	757	425000	260	146100	160	90000	300
AUG.	1983	79979	1350	765	165000	260	56800	160	35100	310
SEPT	1983	42319	1360	772	88200	270	30300	160	18700	310
TOTAL		1155795	**	**	2265000	**	779000	**	476000	**
WTD. AVG.		3167	1280	726	**	250	**	150	**	300

## RED RIVER BASIN

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

DAY	SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	968	1090	1080	1110	1150	1580	1250	1300	1340	1330	1340	1340
2	984	1090	1100	1110	1170	1390	1260	1290	1380	1320	1340	1340
3	1000	1080	1100	1110	1190	1640	1270	1260	1360	1320	1340	1350
4	1020	1140	1100	1120	1200	1460	1280	1290	1340	1310	1340	1360
5	1020	1080	1100	1120	1200	1460	1280	1290	1320	1310	1340	1370
6	1020	1080	1100	1130	1200	1450	1270	1290	1310	1300	1340	1380
7	1080	1090	1100	1140	1200	1450	1280	1290	1330	1340	1350	1320
8	1080	1100	1100	1140	1190	1330	1290	1300	1330	1320	1350	1380
9	1070	1100	1070	1130	1190	1270	1290	1300	1350	1320	1350	1370
10	1070	1100	1100	1130	1200	1260	1290	1300	1380	1340	1350	1370
11	1060	1090	1100	1140	1200	1270	1290	1300	1350	1340	1350	1370
12	1060	1080	1100	1130	1200	1270	1290	1300	1320	1360	1350	1380
13	1060	1080	1100	1140	1200	1280	1290	1300	1290	1340	1360	1380
14	1060	1090	1110	1140	1200	1280	1290	1300	1280	1350	1360	1380
15	1060	1090	1110	1140	1200	1290	1290	1310	1280	1340	1360	1380
16	1060	1090	1110	1140	1230	1280	1290	1310	1290	1340	1350	1370
17	1060	1080	1120	1140	1210	1270	1290	1310	1290	1350	1350	1370
18	1060	1090	1120	1140	1220	1270	1290	1310	1290	1350	1350	1360
19	1070	1100	1120	1140	1240	1270	1290	1310	1280	1340	1350	1360
20	1070	1100	1120	1160	1250	1270	1290	1310	1270	1340	1350	1370
21	1070	1100	1120	1160	1270	1270	1290	1310	1290	1340	1350	1370
22	1070	1090	1120	1160	1280	1270	1290	1310	1300	1340	1350	1360
23	1070	1090	1120	1150	1260	1270	1290	1310	1300	1340	1360	1360
24	1070	1090	1120	1150	1250	1280	1290	1310	1290	1350	1360	1360
25	1070	1090	1120	1160	1280	1280	1290	1310	1290	1350	1350	1350
26	1070	1090	1120	1190	1300	1280	1290	1310	1300	1350	1350	1350
27	1070	1090	1120	1170	1320	1280	1310	1310	1300	1350	1350	1350
28	1070	1090	1120	1170	1610	1280	1320	1310	1300	1350	1360	1350
29	1090	1090	1120	1180	---	1280	1320	1310	1310	1360	1360	1350
30	1090	1080	1120	1180	---	1280	1310	1320	1330	1350	1360	1350
31	1090	---	1120	1190	---	1280	---	1320	---	1350	1360	---
MEAN	1060	1090	1110	1150	1240	1330	1290	1300	1310	1340	1350	1360

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	---	14.5	---	8.5	8.0	11.0	---	20.0	---	---	26.0
2	---	20.0	14.5	---	8.5	9.0	---	16.0	20.0	---	21.0	23.0
3	---	20.0	14.5	10.0	8.0	9.0	---	16.0	20.0	---	21.0	---
4	---	19.5	---	10.0	8.0	10.0	11.0	16.5	---	---	22.0	---
5	---	19.5	---	10.0	---	---	11.0	16.0	---	24.0	---	---
6	---	---	16.5	10.0	---	---	11.0	16.0	21.0	25.0	---	24.0
7	---	---	15.0	10.5	8.0	10.0	11.0	---	21.0	24.0	---	23.0
8	---	19.0	14.5	---	8.0	---	12.0	---	20.0	22.0	---	23.0
9	---	---	22.0	---	9.0	10.0	---	16.0	---	---	21.0	23.0
10	---	19.0	14.0	10.5	8.0	12.0	---	16.0	20.0	---	---	---
11	---	---	---	10.0	8.0	11.0	11.0	16.0	---	22.0	22.0	---
12	24.0	18.5	14.0	10.0	---	---	11.0	16.0	---	22.0	22.0	22.0
13	24.0	---	13.0	10.0	---	---	12.0	16.0	20.0	22.5	---	22.0
14	23.0	---	13.0	10.0	7.0	11.0	12.0	---	21.0	22.5	---	22.0
15	23.0	16.5	13.0	---	7.0	11.0	12.0	---	21.0	22.5	22.0	22.0
16	---	19.0	13.0	---	7.0	12.0	---	18.0	21.0	---	22.0	22.0
17	---	19.0	12.5	9.5	8.0	12.0	---	18.0	21.0	---	22.0	---
18	22.5	17.5	---	9.5	7.0	---	14.0	---	---	24.0	23.0	---
19	22.0	17.5	---	9.5	---	13.0	14.0	19.0	---	24.0	23.0	25.0
20	22.0	---	12.0	9.5	---	---	14.0	19.0	22.0	24.0	---	24.0
21	22.0	---	12.0	9.0	---	11.0	---	---	22.0	24.0	---	---
22	22.0	16.0	12.5	---	9.0	11.5	15.0	19.0	22.0	24.0	23.0	---
23	---	16.0	12.5	---	---	10.5	13.0	---	21.0	---	22.0	---
24	---	---	---	9.0	9.5	11.5	---	19.0	21.0	---	22.0	---
25	22.0	16.0	---	8.5	9.5	11.0	13.0	19.0	---	24.0	22.0	---
26	21.0	---	---	8.0	---	---	13.0	19.5	---	23.0	---	24.0
27	20.0	---	11.5	9.0	---	---	13.0	19.5	21.0	23.0	---	24.0
28	20.0	---	11.0	8.0	9.5	12.0	13.0	---	21.0	23.0	---	24.0
29	---	14.0	12.0	---	---	12.0	13.0	---	21.0	23.0	23.0	24.0
30	---	---	11.0	15.0	---	11.0	---	---	22.0	---	26.0	24.0
31	---	---	---	8.5	---	11.5	---	21.5	---	22.0	---	---
MEAN	22.5	18.0	13.5	9.5	8.0	11.0	12.5	17.5	21.0	23.0	22.5	23.5

## RED RIVER BASIN

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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 upstream from Henson Creek, and 2.4 mi east of Randolph.

DRAINAGE AREA.--72 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 564.38 ft 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.--20 years (water years 1964-83), 57.5 ft<sup>3</sup>/s (10.85 in/yr), 41,660 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft<sup>3</sup>/s May 13, 1982 (gage height observed, 26.55 ft); no flow each year except 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1922, 24.6 ft about 1935, from information by State Department of Highways and Public Transportation and local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,140 ft<sup>3</sup>/s Feb. 20 at 1900 hours (gage height, 18.86 ft), no other peak above base of 4,000 ft<sup>3</sup>/s; no flow Oct. 3-6, Aug. 5 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.58	7.1	44	1010	45	48	8.9	6.5	4.2	.05	.00
2	.01	54	819	90	79	43	41	14	5.5	5.5	.04	.00
3	.00	6.0	372	66	49	42	35	15	4.9	3.1	.03	.00
4	.00	1.4	51	47	42	204	33	9.3	4.3	1.4	.02	.00
5	.00	.56	24	43	50	122	31	8.2	3.8	498	.00	.00
6	.00	.49	15	40	49	62	27	7.4	18	25	.00	.00
7	.02	.57	11	39	40	49	25	7.0	6.1	6.6	.00	.00
8	.04	.55	9.6	38	36	44	24	6.2	4.5	4.5	.00	.00
9	.23	.54	8.8	37	38	40	23	6.1	3.5	3.6	.00	.00
10	.12	.54	50	33	38	38	21	6.9	3.1	3.2	.00	.00
11	.06	.62	781	29	34	35	20	8.7	2.7	2.5	.00	.00
12	.05	.91	110	25	30	35	18	7.8	2.5	1.8	.00	.00
13	.06	.52	47	25	28	34	17	6.9	2.1	1.6	.00	.00
14	.06	.51	38	25	28	33	15	6.9	3.1	1.6	.00	.00
15	.05	.72	29	22	25	32	14	46	2.8	2.4	.00	.00
16	.05	.73	23	22	23	31	14	9.7	2.2	2.1	.00	.00
17	.05	.89	21	22	21	32	13	7.3	1.9	2.5	.00	.00
18	.05	.94	21	22	21	28	13	6.7	1.7	1.8	.00	.00
19	.05	1.1	18	24	21	27	13	6.0	1.5	1.2	.00	.00
20	.04	1.4	16	25	3210	28	12	6.1	1.4	.81	.00	.00
21	.09	1.3	16	24	926	24	13	43	1.1	.56	.00	.00
22	.25	1.4	16	23	141	23	14	22	.76	.42	.00	.00
23	.19	2.8	18	21	92	26	14	24	.62	.32	.00	.00
24	.16	4.8	132	21	73	27	12	14	.56	.24	.00	.00
25	.15	2.1	33	20	59	24	11	7.5	.66	.19	.00	.00
26	.13	46	37	20	53	547	9.7	6.3	3.2	.15	.00	.00
27	.16	356	1340	19	50	69	9.4	6.2	1.4	.11	.00	.00
28	.22	40	116	19	47	42	9.4	5.7	4.8	.07	.00	.00
29	.48	12	58	20	---	37	9.2	4.8	64	.06	.00	.00
30	.45	7.9	46	18	---	149	9.4	4.4	5.5	.08	.00	.00
31	.49	---	43	313	---	60	---	6.8	---	.06	.00	---
TOTAL	3.73	547.87	4326.5	1236	6313	2032	568.1	345.8	164.70	575.67	.14	.00
MEAN	.12	18.3	140	39.9	225	65.5	18.9	11.2	5.49	18.6	.005	.000
MAX	.49	356	1340	313	3210	547	48	46	64	498	.05	.00
MIN	.00	.49	7.1	18	21	23	9.2	4.4	.56	.06	.00	.00
CFSM	.002	.25	1.94	.55	3.13	.91	.26	.16	.08	.26	.000	.000
IN.	.00	.28	2.24	.64	3.26	1.05	.29	.18	.09	.30	.00	.00
AC-FT	7.4	1090	8580	2450	12520	4030	1130	686	327	1140	.3	.00
CAL YR 1982	TOTAL	39210.25	MEAN	107	MAX	10600	MIN	.00	CFSM	1.49	IN	20.26
WTR YR 1983	TOTAL	16113.51	MEAN	44.1	MAX	3210	MIN	.00	CFSM	.61	IN	8.33
									AC-FT	77770	AC-FT	31960



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 to right of outlet channel, 2.0 mi southeast of Chicota, and 4.6 mi upstream from mouth.

DRAINAGE AREA.--175 mi<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, non-recording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam about 7,080 ft long, including an emergency spillway 100 ft wide located near the right abutment of dam. The dam was completed and deliberate impoundment began Sept. 28, 1967. The flood-control outlet works consist of an uncontrolled morning-glory-type drop-inlet spillway that is connected to a 7.25-foot-diameter concrete conduit through the dam. A 24- and 12-inch-diameter low-flow pipe is provided for additional outlets. The lake was built for flood control, municipal, and industrial water supply, recreation, fish and wildlife conservation, and for channel improvement on Sanders Creek. Water is diverted from the lake for municipal and industrial uses by the city of Paris. Any resultant effluent is discharged into Pine Creek below Lake Crook, which is located in another drainage basin. The capacity table is based on Geological Survey topographic maps dated 1949. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	488.5	-
Crest of spillway.....	477.0	352,700
Top of flood-control pool.....	460.5	189,100
Crest of morning-glory drop-inlet spillway (top of conservation pool).....	450.6	122,100
Streambed.....	393.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 208,000 acre-ft Dec. 11, 12, 1971 (elevation, 462.87 ft); minimum since conservation pool was first reached on Apr. 20, 1968, 100,900 acre-ft Nov. 10, 1978 (elevation, 446.80 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 163,900 acre-ft Mar. 6 (elevation, 457.07 ft); minimum, 116,700 acre-ft (elevation, 449.68 ft).

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

449.0	112,800	455.0	149,800
451.0	124,500	457.0	163,400
453.0	136,800	459.0	177,800

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	119200	117100	127300	134600	127600	151100	137200	128000	133800	131500	125800	121800
2	119000	118900	127500	134200	128900	149500	136700	128000	133300	131200	125500	121600
3	118900	119000	130800	133600	128900	149100	136100	128100	132900	131000	125300	121400
4	118900	119000	135200	133100	128800	156200	135500	128100	132800	131000	125100	121300
5	118700	119000	136000	132700	128800	163100	135000	128100	132300	132300	125000	121100
6	118600	119000	135400	132300	128800	163400	134400	127800	132200	134200	124800	121000
7	118700	119100	134800	131800	128600	161800	133900	127500	131900	134800	124700	120800
8	119300	119000	134200	131600	128600	160300	133400	127300	131500	134200	124900	120700
9	119200	118900	133400	131300	129200	158500	132800	127100	131000	133700	124800	120500
10	119000	118900	133700	131000	130100	156600	132600	126700	130400	133100	124800	120300
11	119000	119000	135500	130600	130400	155000	132200	126500	130200	132600	124600	120200
12	118800	118800	137700	130200	130400	153400	131700	126500	129700	132100	124300	120100
13	118700	118500	138200	130000	130300	155200	131400	126500	129600	131600	124300	119900
14	118600	118400	137700	129700	130000	153600	130900	128000	129200	131200	124300	119700
15	118600	118300	136800	129400	129900	148700	130600	128500	129100	130700	124200	119600
16	118300	118200	136200	129100	129900	147000	130200	128500	128700	130300	123900	119500
17	118200	118200	135600	128900	129700	145400	129900	128400	128500	130000	123800	119500
18	118100	118200	135000	128500	129400	143800	129400	128400	128400	129700	123500	119400
19	117900	118200	134400	128400	129100	142500	128900	128300	128500	129400	123500	119500
20	117800	118200	133800	128300	136500	141100	128800	128300	128000	129200	123500	119200
21	117500	118200	133400	127800	157800	140000	128600	129100	128100	128900	123400	119000
22	117500	118500	132900	127700	161000	138900	129200	130500	127900	128600	123200	119000
23	117300	118300	132600	127500	160600	138100	129100	130800	127500	128300	123100	118800
24	117200	118300	132100	127300	159200	137200	128900	130700	127500	128000	122900	118600
25	117100	118400	131600	126900	157500	136300	128800	130200	127500	127600	122800	118500
26	117000	119800	131500	126900	155800	137100	128500	131500	127300	127300	122700	118300
27	117000	122600	133800	126900	154200	137400	128400	133500	127200	127000	122500	118300
28	116900	126000	135700	126700	152600	136800	128100	135900	128500	126700	122400	118200
29	116900	127200	136200	126800	---	136300	128000	135700	129200	126400	122300	118000
30	116800	127200	135700	126600	---	137500	128000	134900	131000	126200	122200	117900
31	116800	---	135100	126800	---	137800	---	134400	---	126100	121900	---
MAX	119300	127200	138200	134600	161000	163400	137200	135900	133800	134800	125800	121800
MIN	116800	117100	127300	126600	127600	136300	128000	126500	127200	126100	121900	117900
(†)	449.70	451.45	452.73	451.38	455.43	453.16	451.57	452.62	452.07	451.26	450.56	449.88
(‡)	-2400	+10400	+7900	-8300	+25800	-14800	-9800	+6400	-3400	-4900	-4200	-4000

CAL YR 1982 MAX 203900 MIN 116800 ‡ +9900  
WTR YR 1983 MAX 163400 MIN 116800 ‡ -1300

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

## RED RIVER BASIN

07335390 PAT MAYSE LAKE NEAR CHICOTA, TX--Continued

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## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JAN 04...	1100	143	8.0	55	6	19	1.9	5.4

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LILITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JAN 04...	.3	3.2	49	13	5.6	.20	1.2	79

## RED RIVER BASIN

07335400 SANDERS CREEK NEAR CHICOTA, TX  
(Outflow from Pat Mayse Lake)

LOCATION.--Lat 33°51'09", long 95°32'40", Lamar County, Hydrologic Unit 11140101, on upstream side of Pat Mayse Dam, 2,800 ft to right of morning-glory drop inlet, 2.0 mi southeast of Chicota, and 4.6 mi upstream from mouth.

DRAINAGE AREA.--175 mi<sup>2</sup> at Pat Mayse Dam; 184 mi<sup>2</sup> at former site 2.6 mi 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 National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1967, at site 2.6 mi downstream at datum 52.77 ft lower. Oct. 1, 1967, to Sept. 30, 1970, at datum 10.00 ft higher.

REMARKS.--Records good. 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.--16 years, 131 ft<sup>3</sup>/s (94,910 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum outflow, 1,110 ft<sup>3</sup>/s May 27, 1982 (gage height, 22.41 ft), maximum gage height, 22.87 ft Dec. 11, 12, 1971; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum outflow, 918 ft<sup>3</sup>/s Mar. 6 at 1100 hours (gage height, 17.07 ft); no flow Aug. 31 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	5.0	65	378	72	877	471	72	288	173	30	.00
2	6.2	3.1	68	358	100	870	441	72	264	171	26	.00
3	6.2	3.1	116	330	116	862	406	80	244	168	21	.00
4	6.2	3.1	254	306	114	877	373	80	233	161	18	.00
5	6.2	3.1	398	291	112	907	346	77	227	188	17	.00
6	6.2	3.1	381	268	112	917	312	72	206	245	14	.00
7	6.2	3.1	352	251	109	914	285	66	200	320	12	.00
8	6.2	3.1	324	238	103	910	262	59	183	309	12	.00
9	6.2	3.1	294	222	112	904	239	54	164	282	13	.00
10	6.2	3.1	279	207	136	898	221	49	151	258	13	.00
11	6.2	3.1	342	195	154	892	207	47	139	231	11	.00
12	6.2	3.1	450	179	159	886	193	46	124	214	8.7	.00
13	6.2	3.1	548	167	159	880	179	43	120	188	7.5	.00
14	6.2	3.1	536	159	150	872	161	52	108	170	6.9	.00
15	6.2	3.1	490	146	144	865	146	85	104	159	6.4	.00
16	6.2	3.1	450	138	140	858	135	88	98	144	5.4	.00
17	6.2	3.1	411	128	132	850	128	85	89	134	4.1	.00
18	6.2	3.1	384	117	127	841	116	88	85	121	3.0	.00
19	6.2	3.1	349	112	119	820	101	84	86	112	2.0	.00
20	6.2	3.1	324	105	190	740	94	82	80	105	2.0	.00
21	6.2	3.1	297	100	821	660	91	89	75	98	2.0	.00
22	6.2	3.1	282	90	906	587	95	126	74	90	1.5	.00
23	6.2	3.1	268	86	910	524	102	154	69	81	1.0	.00
24	6.2	3.1	251	80	906	483	98	153	63	74	.51	.00
25	6.2	3.1	233	76	901	432	93	139	63	67	.30	.00
26	6.2	3.1	212	70	895	432	89	135	61	59	.24	.00
27	6.2	3.1	276	68	890	457	84	225	57	54	.14	.00
28	6.2	15	371	67	883	450	80	322	59	47	.08	.00
29	6.2	56	457	65	---	411	75	377	90	40	.04	.00
30	6.2	62	439	63	---	442	72	346	130	35	.02	.00
31	6.2	---	408	59	---	482	---	314	---	33	.00	---
TOTAL	192.2	218.6	10309	5119	9672	22800	5695	3761	3934	4531	238.83	.00
MEAN	6.20	7.29	333	165	345	735	190	121	131	146	7.70	.000
MAX	6.2	62	548	378	910	917	471	377	288	320	30	.00
MIN	6.2	3.1	65	59	72	411	72	43	57	33	.00	.00
AC-FT	381	434	20450	10150	19180	45220	11300	7460	7800	8990	474	.00
CAL YR 1982	TOTAL	94403.50	MEAN 259	MAX 1110	MIN 3.1	AC-FT 187200						
WTR YR 1983	TOTAL	66470.63	MEAN 182	MAX 917	MIN .00	AC-FT 131800						

## RED RIVER BASIN

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07336820 RED RIVER NEAR DE KALB, TX

LOCATION.--Lat 33°41'15", long 94°41'39", Bowie County, Tex.-McCurtain County, Okla. State line, Hydrologic Unit 11140106, near left bank at downstream side of bridge on U.S. Highway 259, 4.8 mi upstream from North Mill Creek, 13 mi north of De Kalb, and at mile 556.9.

DRAINAGE AREA.--47,348 mi<sup>2</sup>, of which 5,936 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. At times, flood peaks may be affected by storage in Lake Texoma (station 07331500) located approximately 169 mi upstream, and low flows may be affected by releases for generation of electric power. Gage-height telemeter at station.

AVERAGE DISCHARGE.--15 years (water years 1969-83), 11,510 ft<sup>3</sup>/s (8,339,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189,000 ft<sup>3</sup>/s Dec. 11, 1971 (gage height, 31.55 ft), from graph based on gage readings; minimum, 213 ft<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 June 1957 (gage height, 32.2 ft), from rating curve extended above 186,500 ft<sup>3</sup>/s. The greatest flood since 1936 occurred in February 1938, stage unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 46,000 ft<sup>3</sup>/s May 23 at 1800 hours (gage height, 21.29 ft); minimum, 276 ft<sup>3</sup>/s Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	936	4010	12400	17900	4780	18700	15300	9450	21500	31900	8130	2240
2	1560	4440	8000	16100	7400	14200	15200	9370	20000	26100	6940	1560
3	3210	4200	19800	13500	23700	9840	10800	10200	16500	22300	5100	2190
4	2770	11000	32100	11600	27100	11600	8100	12300	14200	19400	5050	3160
5	2420	10600	37500	9980	21800	23700	7470	16500	14200	16700	4680	2340
6	2530	5900	33200	7490	16800	28700	7910	17300	15100	17300	3800	1360
7	2450	4110	24000	6270	15800	25700	8100	15700	15700	23800	3330	1100
8	2490	3300	16100	6500	14600	22000	8780	12200	16700	24400	3300	1400
9	3110	2790	12400	6500	12000	21400	8490	9880	15600	17900	4050	1680
10	3600	2110	11100	6330	12700	17900	6700	8680	12100	14700	3440	1580
11	2660	1590	14100	5820	12700	13700	5720	6650	9670	11600	2660	1640
12	2740	1360	19000	5170	11000	9230	5020	5680	8680	9830	2910	1010
13	2470	1050	24500	4150	8830	7290	4680	6670	8350	8970	3810	776
14	1510	907	23800	4680	7540	6550	4760	6890	8170	8940	3540	494
15	1260	712	20600	5140	6450	6350	5560	8920	8110	9190	3170	348
16	2010	1100	19500	4990	5040	6870	6890	12600	9680	8500	3610	1910
17	1950	1170	17400	4120	4540	6500	8080	18400	14900	8330	3900	2490
18	1210	766	12100	3470	4290	5080	7850	21900	12800	8050	3730	1320
19	778	959	9030	3320	4190	4810	6520	28000	10200	7610	3850	720
20	1380	1710	8460	3180	4500	6630	5140	32600	10200	7130	4470	2270
21	976	1450	7220	3120	8330	8040	4920	38100	10500	7420	3960	2820
22	1950	1170	6630	3940	36700	8510	6440	43200	10200	8360	3640	1800
23	2770	2030	5280	3750	44500	8820	8310	45400	10000	8410	3320	1450
24	2100	2770	3770	3520	39800	9050	8140	44400	9760	8170	2950	2040
25	1680	2270	3380	2700	35800	8550	7430	41800	9710	7950	3460	1870
26	2420	2320	4070	2210	32100	9790	6610	41000	8660	7270	3460	2020
27	2230	8700	5930	2280	29700	10800	7670	37900	7930	6810	2920	2300
28	1340	12900	13400	3270	24200	14700	7850	34700	6650	8060	3590	1700
29	1470	12900	25700	3300	---	18800	8520	33400	6980	8090	4700	1100
30	3140	14300	28400	4110	---	16800	8370	29400	21800	7630	3650	2360
31	3990	---	22600	4360	---	15200	---	25200	---	7650	3150	---
TOTAL	67110	124594	501470	182770	476890	395810	231330	684390	364550	388470	122270	51048
MEAN	2165	4153	16180	5896	17030	12770	7711	22080	12150	12530	3944	1702
MAX	3990	14300	37500	17900	44500	28700	15300	45400	21800	31900	8130	3160
MIN	778	712	3380	2210	4190	4810	4680	5680	6650	6810	2660	348
AC-FT	133100	247100	994700	362500	945900	785100	458800	1357000	723100	770500	242500	101300
CAL YR 1982	TOTAL	6586759	MEAN	18050	MAX	128000	MIN	462	AC-FT	13060000		
WTR YR 1983	TOTAL	3590702	MEAN	9838	MAX	45400	MIN	348	AC-FT	7122000		

## RED RIVER BASIN

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 September 1981.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1968 to current year.

WATER TEMPERATURES: January 1968 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,140 micromhos July 13, 1980; minimum daily, 132 micromhos Mar. 25, 1968.

WATER TEMPERATURES: Maximum daily, 34.0°C on several days during July and August 1969-70; minimum daily, 0.0°C Jan. 11, 1977.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,320 micromhos Sept. 5; minimum daily, 166 micromhos Mar. 11.

WATER TEMPERATURES: Maximum daily, 31.0°C July 25, Aug. 27; minimum daily, 4.0°C Feb. 7, 8.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY AS (MG/L)	HARD- NESS (MG/L AS CaCO3)	HARD- NESS, NONCAR- BONATE (MG/L CaCO3)
OCT 07...	1100	2460	938	--	--	--	--	--	--	--	--	--
NOV 17...	1225	1200	826	8.3	10.0	50	6.7	10.5	94	3.9	270	41
JAN 05...	1200	10000	232	--	--	--	--	--	--	--	--	--
FEB 15...	1430	6240	315	7.9	9.5	70	46	11.0	97	1.4	110	32
APR 06...	1415	8070	795	8.1	12.5	30	48	10.8	103	1.4	210	84
MAY 28...	1100	41600	435	7.7	22.0	50	1000	8.6	99	1.8	110	49
JUL 13...	1055	9010	1070	8.5	28.5	15	19	8.0	104	2.3	250	120
AUG 16...	1240	3680	1190	8.3	31.0	10	20	7.4	101	2.1	300	130

DATE	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)
OCT 07...	--	--	--	--	--	--	--	--	--	--	--	--
NOV 17...	77	19	67	1.8	5.2	230	77	86	.20	5.5	475	16
JAN 05...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 15...	33	6.1	20	.9	2.5	76	34	23	.10	8.0	172	41
APR 06...	61	15	74	2.3	3.9	130	99	110	.20	5.3	446	3
MAY 28...	33	7.8	37	1.6	3.1	66	51	55	.20	5.5	232	422
JUL 13...	68	20	100	2.8	4.6	130	130	170	.30	2.2	573	74
AUG 16...	81	24	120	3.1	4.9	170	140	200	.30	6.2	679	60



## RED RIVER BASIN

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07336820 RED RIVER NEAR DE KALB, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	SOLIDS, VOLATILE, SUSPENDED (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)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT. 07...	--	--	--	--	--	--	--	--	--	32	213	--
NOV. 17...	14	--	<.010	<.10	<.060	--	1.10	.080	9.2	--	--	--
JAN. 05...	--	--	--	--	--	--	--	--	--	210	5670	--
FEB. 15...	12	.27	.030	.30	.170	.63	.80	.020	6.8	234	3940	--
APR. 06...	<1	--	<.020	.20	.150	.75	.90	.080	8.6	523	11400	26
MAY 28...	152	.12	.080	.20	.140	.96	1.10	.470	10	862	96800	--
JUL. 13...	25	--	.020	<.10	.080	1.0	1.10	.060	6.6	--	--	--
AUG. 16...	22	--	<.020	<.10	.040	.86	.90	.070	5.9	--	--	--

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 15...	1430	1	65	<1	<10	2	44
AUG 16...	1240	2	170	<1	<10	1	7

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 15...	<1	11	<.1	1	<1	6
AUG 16...	<1	9	<.1	<1	<1	8

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	67110	958	534	96800	160	28900	110	19200	240
NOV.	1982	124594	603	332	112000	94	31600	61	20700	160
DEC.	1982	501470	249	134	182000	35	46900	22	29600	71
JAN.	1983	182770	549	302	149000	85	41800	55	27200	150
FEB.	1983	476890	269	145	187000	38	48500	24	30600	76
MAR.	1983	395810	471	259	277000	73	78300	48	51100	120
APR.	1983	231330	664	366	228000	100	64500	67	42100	170
MAY	1983	684390	527	289	534000	80	148200	52	96100	140
JUNE	1983	364550	1000	560	551000	170	166000	110	110900	250
JULY	1983	388470	811	452	474000	130	140400	89	93200	200
AUG.	1983	122270	1170	661	218000	200	67600	140	45600	280
SEPT	1983	51048	1110	623	85800	190	26300	130	17700	270
TOTAL		3590702	**	**	3094000	**	889000	**	584000	**
WTD. AVG.		9838	577	319	**	92	**	60	**	150

## RED RIVER BASIN

07336820 RED RIVER NEAR DE KALB, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	927	1050	259	247	780	311	679	810	940	390	1240	1140
2	882	1000	284	320	550	337	593	930	990	410	1130	1120
3	960	941	213	392	288	359	600	520	1000	440	1120	1040
4	1050	855	193	284	250	260	592	840	1080	520	1110	1210
5	1020	628	203	238	204	197	567	660	1130	710	1200	1320
6	970	497	168	287	230	257	755	530	1150	780	1150	1200
7	950	406	234	351	269	245	736	510	980	650	1140	1090
8	892	421	206	452	268	210	839	500	890	510	1130	1070
9	925	580	184	622	280	179	842	480	930	650	1110	1050
10	983	767	175	794	279	171	844	450	840	780	1200	1160
11	918	826	186	757	240	166	846	510	870	900	1120	1140
12	765	858	219	780	282	247	822	480	990	870	1120	1120
13	801	829	271	766	326	340	780	450	1110	1020	1110	1110
14	927	810	245	643	328	448	745	470	1120	1040	1150	1060
15	926	820	224	819	317	432	704	490	1140	1150	1070	1090
16	906	819	295	848	354	355	492	510	1160	1050	1130	990
17	960	830	356	790	413	327	631	380	900	1060	1170	800
18	1020	846	307	729	416	324	535	230	620	1080	1210	1190
19	997	854	341	678	435	520	550	190	830	1100	1180	1090
20	957	870	348	660	522	710	507	250	1040	1070	1210	1020
21	925	875	356	682	480	900	459	320	1150	1100	1210	950
22	967	944	364	646	282	993	515	430	1180	1190	1200	1210
23	1000	894	400	909	250	1200	660	435	1170	1200	1190	1160
24	1030	724	475	956	206	1080	790	440	1180	1220	1180	1050
25	1020	840	545	958	208	1040	920	430	1210	1240	1170	1210
26	972	860	535	911	193	1110	874	530	1150	1250	1250	1140
27	1010	450	524	840	194	1070	521	710	1090	1260	1200	1220
28	1040	289	249	757	298	951	367	800	1130	1270	1220	1140
29	961	388	263	892	---	740	568	815	960	1270	1240	1200
30	917	346	234	790	---	541	695	830	750	1250	1250	1060
31	1080	---	197	838	---	586	---	850	---	1240	1170	---
MEAN	957	737	292	666	327	536	668	541	1020	957	1170	1110

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	20.0	15.0	6.0	10.0	11.0	15.0	---	21.0	27.0	30.0	---
2	23.0	19.0	18.0	---	7.0	13.0	11.0	22.0	22.0	27.0	30.0	29.0
3	---	17.0	18.0	7.0	5.0	14.0	---	17.0	23.0	---	---	29.0
4	25.0	15.0	15.0	6.0	6.0	16.0	13.0	19.0	24.0	---	29.0	28.0
5	---	13.0	14.0	7.0	5.0	16.0	15.0	20.0	25.0	27.0	29.0	29.0
6	---	13.0	13.0	6.0	---	16.0	---	20.0	25.0	27.0	30.0	---
7	26.0	15.0	12.0	7.0	4.0	15.0	13.0	21.0	23.0	27.0	---	29.0
8	26.0	14.0	12.0	7.0	4.0	---	14.0	---	23.0	26.0	30.0	---
9	25.0	15.0	11.0	8.0	7.0	13.0	---	20.0	24.0	---	30.0	29.0
10	22.0	18.0	10.0	8.0	8.0	11.0	---	20.0	24.0	---	30.0	28.0
11	19.0	19.0	10.0	9.0	8.0	10.0	15.0	20.0	25.0	28.0	30.0	---
12	20.0	16.0	7.0	8.0	9.0	11.0	17.0	21.0	---	28.0	---	---
13	18.0	12.0	6.0	7.0	9.0	---	---	22.0	26.0	29.0	30.0	27.0
14	18.0	11.0	7.0	9.0	8.0	10.0	17.0	---	26.0	29.0	30.0	27.0
15	18.0	9.0	8.0	7.0	9.0	15.0	15.0	---	25.0	28.0	30.0	25.0
16	18.0	10.0	8.0	7.0	10.0	16.0	15.0	19.0	25.0	27.0	30.0	26.0
17	---	11.0	8.0	---	10.0	14.0	17.0	20.0	25.0	---	30.0	26.0
18	17.0	12.0	10.0	7.0	11.0	12.0	17.0	21.0	24.0	---	30.0	27.0
19	20.0	14.0	9.0	5.0	11.0	---	14.0	20.0	---	29.0	29.0	27.0
20	17.0	15.0	---	5.0	14.0	---	13.0	21.0	26.0	29.0	28.0	26.0
21	16.0	16.0	---	5.0	13.0	10.0	14.0	21.0	27.0	30.0	---	20.0
22	15.0	17.0	12.0	6.0	12.0	9.0	15.0	21.0	28.0	30.0	---	19.0
23	14.0	18.0	---	5.0	12.0	10.0	---	21.0	27.0	29.0	30.0	20.0
24	---	12.0	---	5.0	13.0	10.0	---	21.0	27.0	30.0	30.0	---
25	14.0	---	---	5.0	11.0	10.0	16.0	22.0	27.0	31.0	29.0	---
26	13.0	---	---	6.0	10.0	12.0	17.0	23.0	---	---	30.0	21.0
27	14.0	---	13.0	7.0	10.0	11.0	19.0	23.0	26.0	---	31.0	22.0
28	16.0	9.0	9.0	8.0	10.0	11.0	20.0	24.0	27.0	30.0	---	23.0
29	15.0	10.0	7.0	9.0	---	11.0	20.0	---	27.0	30.0	---	---
30	18.0	12.0	6.0	8.0	---	13.0	21.0	---	28.0	30.0	30.0	22.0
31	19.0	---	6.0	9.0	---	13.0	---	22.0	---	30.0	30.0	---
MEAN	19.0	14.0	10.5	7.0	9.0	12.5	16.0	21.0	25.0	28.5	30.0	25.5

## RED RIVER BASIN

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## 07337000 RED RIVER AT INDEX, AR

LOCATION.--Lat 33°33'07", long 94°02'28", in NW 1/4 SW 1/4 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 south of Ogden, 20.6 mi upstream from Little River, and at mile 485.3.

DRAINAGE AREA.--48,030 mi<sup>2</sup>, of which 5,936 mi<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 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 downstream at present datum.

REMARKS.--Water-discharge records good. Some regulation by Lake Texoma (station 07331500, 241 mi upstream) since Oct. 31, 1943 (capacity, 5,392,900 acre-ft), by Pat Mayse Lake (station 07335390) since Sept. 28, 1967 (capacity, 352,700 acre-ft), and by Hugo Lake in Oklahoma since Jan. 18, 1974 (capacity, 966,700 acre-ft).

AVERAGE DISCHARGE.--47 years, 11,710 ft<sup>3</sup>/s (8,484,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 297,000 ft<sup>3</sup>/s Feb. 23, 1938 (gage height, 34.25 ft); minimum, 378 ft<sup>3</sup>/s Nov. 28, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 54,000 ft<sup>3</sup>/s Dec. 4 (gage height, 16.33 ft); minimum daily, 1,360 ft<sup>3</sup>/s Sept. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2520	3530	15400	20900	6990	19300	14600	7840	22800	23100	6440	3080
2	2020	4400	13700	17900	8380	16000	14500	8290	21100	33100	6670	2760
3	1860	5040	32900	16200	10000	13000	14100	8960	19900	30500	6480	2130
4	2340	5260	52700	14100	22400	10100	11300	9030	16900	26000	5170	1900
5	3130	8370	48800	12000	24300	14800	8590	10700	14400	22000	4560	2430
6	2890	11600	42000	10500	19600	23600	7360	15400	14200	20000	4680	2780
7	2870	8170	32000	8210	16200	24900	7350	17200	14800	19700	4110	2200
8	3010	5680	22700	6570	15400	21400	7400	15700	15400	23400	3550	1720
9	2980	4440	17100	6420	14400	18900	7770	12300	16200	22700	3240	1630
10	3110	3620	14300	6410	13300	18000	7930	9590	15100	17500	3400	1820
11	3380	3090	15400	6380	12900	15900	6800	8230	11900	14500	3610	1900
12	3460	2530	20400	5990	12400	12900	5610	6380	9170	11500	2980	1900
13	2970	2140	24300	5630	10600	9450	5000	5210	7690	9420	2760	1850
14	3030	1900	25700	4870	8430	7650	4950	5140	7160	8450	3160	1570
15	2670	1710	23600	4620	6920	6620	4660	5740	6920	8050	3730	1480
16	2140	1590	20800	5120	5940	6160	4860	6330	6800	8340	3270	1380
17	2060	1490	19500	5220	4750	6300	5780	10400	7740	7890	3190	1360
18	2460	1600	17500	4740	4020	6150	6900	17300	13200	7620	3490	2110
19	2360	1660	13200	4060	3620	5350	7330	22600	12600	7330	3650	2230
20	1970	1570	9820	3670	3280	5320	6720	28500	9240	6920	3530	1740
21	1830	1630	8990	3610	3550	5730	5430	32200	8590	6490	3840	1550
22	1980	1860	7920	3390	9880	6580	4650	38300	8840	6360	4040	2260
23	1890	2100	7120	3710	32900	7280	5270	42300	8810	6970	3670	2410
24	2480	2470	6440	4010	37000	7490	7010	43900	8740	7300	3440	2020
25	2890	3000	5260	3830	33300	7810	8280	42100	8550	7180	3130	1910
26	2540	3230	4840	3510	28800	7880	8000	40200	8540	6910	3030	2120
27	2360	7170	5890	3000	25800	8340	6780	38900	7940	6560	3310	2070
28	2830	19600	9930	2810	23400	9260	6810	35800	7220	5960	3060	2190
29	2810	21900	18900	2960	---	12800	7290	35600	7240	6380	2880	2250
30	2310	17200	26900	3500	---	16500	7690	32200	8480	6950	3430	1920
31	2420	---	25700	3740	---	15800	---	26000	---	6660	3740	---
TOTAL	79570	159550	609710	207580	418460	367270	226720	638340	346170	401740	119240	60670
MEAN	2567	5318	19670	6696	14950	11850	7557	20590	11540	12960	3846	2022
MAX	3460	21900	52700	20900	37000	24900	14600	43900	22800	33100	6670	3080
MIN	1830	1490	4840	2810	3280	5320	4650	5140	6800	5960	2760	1360
AC-FT	157800	316500	1209000	411700	830000	728500	449700	1266000	686600	796900	236500	120300
WTR YR 1983	TOTAL	3635020	MEAN	9959	MAX	52700	MIN	1360	AC-FT	7210000		

## RED RIVER BASIN

07337000 RED RIVER AT INDEX, AR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD---Chemical analyses: Water years 1947-56, April 1980 to current year.

EXTREMES FOR CURRENT YEAR---

SPECIFIC CONDUCTANCE: Maximum daily, 1,670 micromhos Jan. 21; minimum daily, 224 micromhos May 14.

WATER TEMPERATURES: Maximum daily, 35.0°C on several days during July.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED CENT SATUR- ATION	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT 13...	0745	2900	969	7.9	19.0	19	7.3	79	44	130	240
DEC 01...	1015	15500	348	7.6	12.5	140	8.8	84	K3100	4500	100
FEB 16...	1115	6240	340	7.9	10.0	60	10.4	93	130	210	110
APR 13...	1100	5330	430	8.0	18.0	37	8.5	92	3	92	230
JUN 07...	1000	15100	1110	8.1	24.0	80	7.5	90	56	100	270
AUG 09...	1415	3290	1124	8.0	31.0	13	7.5	102	63	116	300

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 13...	78	67	18	100	2.9	5.2	120	130	.30	1.5
DEC 01...	23	29	6.7	31	1.4	3.5	38	41	.20	6.6
FEB 16...	24	33	6.0	28	1.2	2.3	41	27	.10	7.6
APR 13...	84	64	16	88	2.6	4.6	110	130	<.10	3.7
JUN 07...	150	74	21	120	3.3	5.0	150	190	<.10	3.6
AUG 09...	130	80	23	120	3.2	5.3	130	180	.30	5.3

DATE	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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L)	SED- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 13...	566	541	<.10	.060	1.30	.190	.090	41	321	69
DEC 01...	209	204	.56	.190	1.30	.080	.070	445	18600	82
FEB 16...	231	197	.32	.120	.30	.120	.050	135	2270	67
APR 13...	526	502	<.10	.220	.80	.120	.040	71	1020	91
JUN 07...	728	640	.26	.100	.60	.060	.040	468	19100	77
AUG 09...	654	645	<.10	.050	.50	.060	.030	41	364	76

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
DEC 01...	1015	1	370	<1	3	<3	11	180
FEB 16...	1115	1	310	1	<1	3	9	170
JUN 07...	1000	2	270	<1	<1	<3	<10	22
AUG 09...	1415	2	220	<1	<1	<3	4	26

## RED RIVER BASIN

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C7337000 RED RIVER AT INDEX, AR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 01...	1	8	.2	3	<1	<1	77
FEB 16...	2	20	.3	6	<1	<1	120
JUN 07...	<10	7	<.1	2	<1	<1	29
AUG 09...	2	34	<.1	1	<1	<1	28



## RED RIVER BASIN

07342470 SOUTH SULPHUR RIVER NEAR COMMERCE, TX

LOCATION.--Lat 33°13'11", long 95°51'45", Hunt County, Hydrologic Unit 11140301, on left bank at downstream side of bridge on State Highway 11, 0.7 mi upstream from St. Louis Southwestern Railroad bridge, 1.8 mi downstream from Dunbar Creek, and 3.0 mi southeast of Commerce.

DRAINAGE AREA.--189 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1979 to current year. Stage records collected at this site November 1956 to September 1979 are published in reports by the Corps of Engineers.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 450.00 ft 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, 27,100 ft<sup>3</sup>/s May 13, 1982 (gage height, 28.66 ft); minimum, 0.41 ft<sup>3</sup>/s Sept. 11-13, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 20, 1971, reached a stage of 27.80 ft, from records published by the Corps of Engineers.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 3	1230	3,790	20.40	Mar. 4	2015	4,540	21.82
Feb. 21	0100	*11,200	25.98	July 6	1315	3,730	20.26

Minimum discharge, 0.60 ft<sup>3</sup>/s June 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	1.7	18	22	996	16	78	1.0	9.3	40	3.8	2.3
2	1.9	51	63	20	387	14	51	2.2	6.4	261	3.3	2.0
3	1.9	27	2450	26	67	13	33	9.4	5.5	146	3.4	1.8
4	1.8	13	899	31	37	1840	23	4.4	3.8	36	3.7	1.8
5	1.8	5.9	90	19	63	3110	17	3.6	2.1	924	4.2	1.9
6	1.9	3.9	44	14	123	324	13	4.0	58	2640	2.5	2.7
7	2.0	3.8	24	12	81	73	10	3.2	132	529	2.3	3.9
8	2.5	3.1	14	9.7	47	45	9.1	1.8	44	51	1.9	4.6
9	4.2	2.7	9.6	8.7	31	30	8.3	1.5	21	26	2.1	2.8
10	2.1	2.6	24	8.2	47	22	7.2	1.8	9.6	13	2.1	2.8
11	1.5	2.8	1500	7.6	47	18	6.6	5.5	4.8	8.3	1.8	3.1
12	1.4	3.9	1060	7.4	32	14	5.8	2.6	3.2	5.8	1.9	2.8
13	1.6	3.9	113	6.6	21	12	4.9	1.7	2.3	5.4	1.8	3.0
14	1.7	3.1	57	5.7	14	11	3.8	1.2	2.3	4.4	1.5	3.1
15	1.6	2.9	35	5.0	11	10	3.3	1.4	2.1	3.5	1.8	3.0
16	1.6	2.7	22	4.8	9.6	9.2	3.4	50	1.5	10	2.1	6.1
17	1.4	2.7	16	4.5	8.8	8.4	2.6	11	1.2	11	2.1	5.8
18	1.4	2.7	11	4.1	7.9	13	2.5	2.3	1.1	9.9	2.2	2.4
19	1.4	2.9	8.2	3.9	6.7	16	2.2	3.0	.98	3.8	2.5	1.4
20	1.4	2.9	7.1	3.9	3080	20	2.6	15	1.1	2.3	2.2	1.7
21	1.6	3.0	5.8	3.9	9360	13	2.6	441	1.0	2.4	2.2	2.0
22	2.3	4.4	5.3	3.9	1920	10	2.5	356	.94	2.2	2.1	1.4
23	1.7	3.0	4.5	3.8	175	11	2.3	105	.89	2.1	2.1	1.5
24	1.4	2.9	3.6	4.3	82	14	2.5	109	.82	2.2	1.9	1.2
25	1.3	2.7	3.2	5.7	54	11	2.4	50	1.1	2.2	1.9	1.6
26	1.3	53	3.0	5.0	36	668	3.8	25	2.8	2.3	2.3	1.3
27	1.3	1820	1190	4.6	25	788	5.3	321	41	2.3	1.9	1.1
28	3.3	465	1210	4.3	20	77	3.6	70	4.1	2.3	2.0	1.2
29	4.5	72	111	3.9	---	42	2.0	33	159	2.4	2.7	1.2
30	1.7	33	52	3.4	---	489	1.1	17	123	4.2	3.5	1.1
31	1.5	---	31	17	---	278	---	16	---	4.5	3.5	---
TOTAL	58.9	2604.2	9084.3	283.9	16789.0	8019.6	315.4	1669.6	646.93	4759.5	75.3	72.6
MEAN	1.90	86.8	293	9.16	600	259	10.5	53.9	21.6	154	2.43	2.42
MAX	4.5	1820	2450	31	9360	3110	78	441	159	2640	4.2	6.1
MIN	1.3	1.7	3.0	3.4	6.7	8.4	1.1	1.0	.82	2.1	1.5	1.1
CFSM	.01	.46	1.55	.05	3.18	1.37	.06	.29	.11	.82	.01	.01
IN.	.01	.51	1.79	.06	3.30	1.58	.06	.33	.13	.94	.01	.01
AC-FT	117	5170	18020	563	33300	15910	626	3310	1280	9440	149	144
CAL YR 1982	TOTAL	72642.80	MEAN 199	MAX 20800	MIN 1.3	CFSM 1.05	IN 14.30	AC-FT 144100				
WTR YR 1983	TOTAL	44379.23	MEAN 122	MAX 9360	MIN .82	CFSM .65	IN 8.73	AC-FT 88030				

## 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 downstream from Big Creek, 1.0 mi upstream from Brushy Creek, 4.5 mi downstream from Doctors Creek, and 5.6 mi southeast of Cooper.

DRAINAGE AREA.--527 mi<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 National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1970, at datum 3.00 ft higher. May 9, 1942, to Nov. 8, 1949, nonrecording gage, and Nov. 9, 1949, to May 13, 1955, water-stage recorder at site 700 ft to right of present gage. Gage-height telemeter at station.

REMARKS.--Water-discharge records good. Small diversions upstream from station.

AVERAGE DISCHARGE.--41 years (water years 1943-83), 407 ft<sup>3</sup>/s (10.49 in/yr), 294,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,200 ft<sup>3</sup>/s May 13, 1982 (gage height, 27.21 ft, from floodmark), in gage well; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,000 ft<sup>3</sup>/s Feb. 22 at 0030 hours (gage height, 21.46 ft), no other peak above base of 8,000 ft<sup>3</sup>/s; minimum, 0.11 ft<sup>3</sup>/s Sept. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	3.6	249	142	731	64	951	12	73	254	5.5	2.0
2	.91	3.5	141	102	1350	50	345	11	55	68	5.4	1.8
3	.74	81	2650	91	1300	71	173	12	31	30	6.0	1.6
4	.66	140	4880	90	342	3750	104	16	19	297	5.9	1.6
5	.52	45	5630	85	181	4780	72	25	16	248	5.5	1.9
6	.59	20	2330	64	497	6310	54	16	15	1900	4.9	2.2
7	.74	8.8	482	48	410	4380	43	13	15	3120	5.0	2.1
8	.74	5.2	162	39	220	1370	34	12	202	3700	4.9	1.8
9	.82	3.8	88	33	193	280	27	12	76	1300	4.7	1.6
10	.97	3.5	79	28	234	132	23	11	33	234	4.4	1.5
11	1.2	2.9	1120	24	198	81	20	11	19	94	3.5	1.4
12	1.9	2.8	2070	20	156	60	17	11	16	46	3.0	1.3
13	1.4	2.7	3220	17	100	47	16	16	13	31	2.7	1.1
14	1.2	2.8	1820	15	67	39	15	15	12	24	2.3	.94
15	1.1	2.8	346	12	50	33	15	13	12	26	1.9	.93
16	1.2	3.4	153	11	38	29	14	25	11	21	1.9	1.0
17	1.1	3.9	93	11	30	26	13	100	10	19	2.0	1.0
18	1.3	3.5	62	10	25	23	13	49	11	23	2.1	.70
19	1.3	3.5	46	9.6	22	22	12	21	9.5	21	1.8	.56
20	1.3	3.4	34	9.3	249	25	12	14	9.0	18	1.8	.80
21	1.3	3.2	24	9.0	9640	30	11	246	11	16	1.6	1.0
22	1.2	3.4	22	9.0	14300	42	11	952	9.0	13	2.2	.75
23	1.2	4.1	20	9.0	7700	32	12	887	8.2	11	2.9	.44
24	1.3	3.5	15	8.8	3890	26	12	365	7.5	10	2.5	.19
25	1.7	3.5	12	8.5	1130	28	15	226	7.5	8.9	2.2	.13
26	2.1	96	10	8.0	270	590	13	115	7.8	8.2	2.0	.17
27	2.0	1010	464	8.6	137	1230	13	1250	22	7.6	1.9	.46
28	1.9	1540	1880	9.1	88	1330	12	1660	119	6.9	1.8	.82
29	2.0	2000	2800	8.7	---	618	13	1660	333	6.5	1.7	1.1
30	2.0	1460	1520	8.2	---	687	13	292	477	6.1	1.8	1.2
31	6.8	---	289	8.0	---	1130	---	109	---	5.7	2.0	---
TOTAL	44.19	6469.8	32711	955.8	43548	27315	2098	8177	1659.5	11573.9	97.8	34.09
MEAN	1.43	216	1055	30.8	1555	881	69.9	264	55.3	373	3.15	1.14
MAX	6.8	2000	5630	142	14300	6310	951	1660	477	3700	6.0	2.2
MIN	.52	2.7	10	8.0	22	22	11	11	7.5	5.7	1.6	.13
CFSM	.003	.41	2.00	.06	2.95	1.67	.13	.50	.11	.71	.006	.002
IN.	.00	.46	2.31	.07	3.07	1.93	.15	.58	.12	.82	.01	.00
AC-FT	88	12830	64880	1900	86380	54180	4160	16220	3290	22960	194	68
CAL YR 1982	TOTAL	200089.84	MEAN	548	MAX	38700	MIN	.46	CFSM	1.04	IN	14.12
WTR YR 1983	TOTAL	134684.08	MEAN	369	MAX	14300	MIN	.13	CFSM	.70	IN	9.51
										AC-FT	396900	
										AC-FT	267100	

## RED RIVER BASIN

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1958 to September 1966, October 1967 to current year. Chemical and biochemical analyses: December 1979 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1958 to September 1966, October 1967 to 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, 920 micromhos May 4; minimum daily, 110 micromhos May 27.

WATER TEMPERATURES: Maximum daily, 28.5°C July 22-27; minimum daily, 4.5°C Dec. 13, Jan. 6, 23, Feb. 6.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	
NOV 16...	1525	3.3	302	7.7	8.5	60	34	8.9	77	2.2	86	
FEB 16...	1415	37	470	8.0	11.0	60	41	9.8	90	1.7	160	
APR 05...	1330	69	340	7.8	15.5	65	50	9.8	100	2.1	130	
MAY 24...	0940	374	285	7.6	20.0	140	110	8.9	99	3.9	96	
JUL 12...	1230	45	238	7.7	25.5	45	46	5.7	70	2.1	90	
AUG 15...	1450	1.9	610	8.2	31.5	25	13	9.7	134	3.5	190	
		HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
NOV 16...	0	29	3.3	28	1.4	5.4	110	26	15	.30	9.7	
FEB 16...	20	55	5.5	33	1.2	3.7	140	51	23	.30	8.4	
APR 05...	14	46	4.6	19	.7	3.2	120	30	12	.20	8.3	
MAY 24...	16	33	3.2	15	.7	4.0	80	28	11	.20	10	
JUL 12...	0	31	3.0	10	.5	5.5	94	15	6.7	.20	13	
AUG 15...	0	65	7.4	47	1.5	5.9	220	40	32	.40	10	
		SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 16...	183	14	8	.18	.020	.20	<.060	--	1.20	.480	9.7	
FEB 16...	264	45	30	.54	.060	.60	.240	.96	1.20	.220	9.3	
APR 05...	195	80	13	--	<.020	.40	.220	.98	1.20	.190	10	
MAY 24...	153	126	6	4.1	.190	4.3	.190	2.3	2.50	.320	14	
JUL 12...	141	81	24	.13	.070	.20	.120	1.3	1.40	.300	11	
AUG 15...	340	18	<1	--	<.020	<.10	.050	1.1	1.10	.280	9.6	

## RED RIVER BASIN

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07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 16...	1415	3	74	<1	<10	3	17
MAY 24...	0940	1	51	2	<10	1	110
AUG 15...	1450	7	100	<1	10	2	9

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 16...	<1	22	<.1	1	<1	6
MAY 24...	1	5	.2	1	<1	11
AUG 15...	<1	29	<.1	1	<1	6

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	44.19	587	339	40	34	4.1	44	5.3	170
NOV.	1982	6469.8	182	105	1840	5.9	104	15	259	57
DEC.	1982	32711	169	98	8660	5.4	475	14	1230	54
JAN.	1983	955.8	379	219	565	18	46	29	76	120
FEB.	1983	43548	158	91	10700	5.0	589	13	1520	50
MAR.	1983	27315	191	110	8130	6.5	482	15	1140	60
APR.	1983	2098	308	178	1010	14	77	24	137	94
MAY	1983	8177	228	132	2910	9.1	202	18	401	71
JUNE	1983	1659.5	317	183	820	13	58	25	113	98
JULY	1983	11573.9	182	106	3300	5.9	185	15	466	58
AUG.	1983	97.8	548	317	84	30	8.0	41	11	160
SEPT	1983	34.09	664	383	35	41	3.8	49	4.5	190
TOTAL		134684.08	**	**	38100	**	2230	**	5360	**
WTD. AVG.		369	181	105	**	6.1	**	15	**	57

## RED RIVER BASIN

07342500 SOUTH SULPHUR RIVER NEAR COOPER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	502	710	196	219	333	363	215	780	250	290	470	628
2	504	666	213	242	203	393	249	800	270	270	480	630
3	505	500	137	298	220	420	282	810	300	260	490	628
4	503	310	143	314	244	117	311	920	320	220	480	630
5	504	225	163	356	259	150	334	830	340	240	500	633
6	505	319	176	375	297	170	361	810	350	140	510	640
7	498	346	178	385	269	180	388	760	360	170	525	642
8	480	329	206	396	291	198	413	720	400	180	530	647
9	490	332	225	411	311	244	442	740	300	190	545	652
10	473	307	238	442	283	280	465	730	320	210	550	657
11	475	301	188	468	329	322	488	720	330	220	570	662
12	487	299	172	490	384	356	515	730	340	230	580	670
13	512	300	163	509	395	391	544	760	350	250	590	675
14	535	301	172	530	420	419	568	780	355	260	585	680
15	556	302	189	552	447	449	589	800	360	280	580	686
16	573	305	217	560	457	476	620	790	370	290	600	687
17	584	307	232	577	466	512	636	670	380	300	590	694
18	596	309	253	580	485	538	653	620	390	330	600	698
19	604	312	268	591	507	568	666	610	400	340	605	705
20	611	314	289	609	400	585	679	650	420	360	610	715
21	618	320	301	617	148	611	691	500	410	390	620	694
22	620	325	320	635	112	653	703	250	420	400	610	696
23	622	321	330	640	138	688	712	260	440	410	580	695
24	629	322	345	662	170	702	716	280	450	420	595	690
25	639	330	360	665	202	736	726	290	460	430	600	695
26	649	321	376	669	252	450	746	310	470	440	605	698
27	660	200	500	674	292	273	750	110	425	450	610	705
28	665	155	165	673	326	222	755	150	350	460	600	713
29	644	162	161	683	---	227	764	180	300	470	610	721
30	629	172	178	689	---	261	750	200	270	480	615	727
31	633	---	197	694	---	225	---	220	---	490	620	---
MEAN	565	324	234	523	309	393	558	574	363	318	570	676

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
ONCE-DAILY

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



## 07343000 NORTH SULPHUR RIVER NEAR COOPER, TX

LOCATION.--Lat 33°28'29", long 95°35'15", Lamar County, Hydrologic Unit 11140301, on left bank at downstream side of highway embankment near left end of downstream bridge on State Highways 19 and 24, 2.3 mi upstream from Auds Creek, 5.5 mi upstream from Hickory Creek, 8.7 mi northeast of Cooper, and 15.6 mi upstream from mouth.

DRAINAGE AREA.--276 mi<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 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 upstream at datum 9.00 ft higher, and May 22, 1960, to Sept. 30, 1970, at datum 5.00 ft higher.

REMARKS.--Water-discharge records good. In 1928-29, the channel was rectified for a distance of 28 mi upstream and 18 mi downstream from this station. Gage-height telemeter at station.

AVERAGE DISCHARGE.--34 years, 238 ft<sup>3</sup>/s (11.71 in/yr), 172,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,600 ft<sup>3</sup>/s Oct. 19, 1971 (gage height, 36.16 ft, from floodmarks); no flow at times most years.  
Maximum stage since at least 1915, that of Oct. 19, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 2, 1944, reached a stage of 35.6 ft, present datum, and flood in 1932 reached about same stage, from information by Corps of Engineers and local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 20	2115	*45,200	29.37
Mar. 4	1530	21,200	19.61
July 5	1000	24,700	21.30

Minimum discharge, no flow Aug. 29 to Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	3.3	30	52	1550	47	134	12	21	22	.23	.00
2	.61	85	338	75	273	43	95	16	16	321	.38	.00
3	.58	105	2620	103	92	94	56	106	12	50	.15	.00
4	.58	29	447	55	55	7090	44	40	277	16	.10	.00
5	.57	13	163	47	82	1070	45	19	43	6520	.10	.00
6	.29	7.8	75	45	223	337	39	11	19	375	.08	.00
7	97	5.1	47	42	100	166	34	8.4	22	89	1.6	.00
8	36	3.8	37	41	62	101	31	6.1	13	38	3.3	.00
9	63	2.9	30	41	440	71	28	5.0	9.0	19	2.3	.00
10	20	2.5	161	38	405	52	27	5.6	6.8	14	1.6	.00
11	9.2	1.7	1430	32	190	43	23	12	5.0	11	1.2	.00
12	5.6	1.9	638	27	88	41	21	15	4.3	7.8	.71	.00
13	4.5	1.5	227	24	57	38	20	11	4.0	10	.55	.00
14	4.1	1.5	134	23	47	37	24	130	143	21	.69	.00
15	3.8	.99	88	22	41	34	17	317	110	9.4	.96	.00
16	2.8	.61	57	18	36	32	15	55	21	11	.71	2.7
17	2.1	.40	46	18	32	91	14	26	10	13	.35	6.5
18	1.7	.67	43	18	29	50	13	19	293	9.5	.15	3.8
19	1.5	1.1	38	20	27	34	12	17	32	6.8	.32	3.0
20	1.1	1.4	33	23	13400	48	12	15	13	5.1	.95	2.7
21	1.1	1.5	30	24	7690	38	13	391	8.0	3.8	.86	3.4
22	2.0	1.5	30	22	894	28	16	395	5.5	2.7	.38	3.7
23	2.0	113	29	21	401	26	30	188	4.6	2.1	.13	3.0
24	2.1	34	28	19	215	31	27	100	4.0	1.5	.09	2.2
25	2.1	15	26	18	126	32	18	26	4.2	1.1	.08	1.5
26	2.1	428	23	18	84	1590	14	14	4.6	.75	.06	1.1
27	1.6	1990	2090	19	64	336	11	1830	9.1	.68	.02	.64
28	2.8	390	561	19	53	104	11	217	9.7	.31	.02	.35
29	5.2	105	172	18	---	59	10	49	1260	.12	.00	.40
30	4.8	46	82	17	---	919	10	19	119	.10	.00	.27
31	4.2	---	61	20	---	280	---	18	---	.08	.00	---
TOTAL	285.83	3393.17	9814	979	26756	12962	864	4093.1	2502.8	7581.84	18.07	35.26
MEAN	9.22	113	317	31.6	956	418	28.8	132	83.4	245	.58	1.18
MAX	97	1990	2620	103	13400	7090	134	1830	1260	6520	3.3	6.5
MIN	.29	.40	23	17	27	26	10	5.0	4.0	.08	.00	.00
CFSM	.03	.41	1.15	.11	3.46	1.51	.10	.48	.30	.89	.002	.004
IN.	.04	.46	1.32	.13	3.61	1.75	.12	.55	.34	1.02	.00	.00
AC-FT	567	6730	19470	1940	53070	25710	1710	8120	4960	15040	36	70
CAL YR 1982	TOTAL	128797.75	MEAN 353	MAX 30700	MIN .00	CFSM 1.28	IN 17.36	AC-FT 255500				
WTR YR 1983	TOTAL	69285.07	MEAN 190	MAX 13400	MIN .00	CFSM .69	IN 9.34	AC-FT 137400				

## RED RIVER BASIN

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, 2,050 micromhos Sept. 28; minimum daily, 210 micromhos Feb. 20.

WATER TEMPERATURES: Maximum daily, 36.5°C July 22; minimum daily, 2.0°C Feb. 3.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L 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 16...	1310	.79	1080	8.5	300	220	97	15	110
JAN 04...	1305	54	695	3.0	270	84	97	7.5	45
MAR 31...	0830	313	385	13.0	140	32	50	4.2	21
APR 22...	0800	14	970	15.0	300	130	100	12	88
JUL 12...	1050	8.2	605	29.0	190	75	66	7.3	46

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 16...	2.9	3.5	84	340	83	.40	.5	700
JAN 04...	1.2	2.4	190	130	28	.30	7.3	431
MAR 31...	.8	2.5	110	59	12	.30	7.1	222
APR 22...	2.3	2.7	170	230	65	.30	2.1	602
JUL 12...	1.5	4.3	120	140	30	.60	9.0	375

## RED RIVER BASIN

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07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	285.83	586	356	274	33	26	120	96	190
NOV.	1982	3393.17	424	256	2340	22	203	87	801	140
DEC.	1982	9814	342	203	5370	14	382	66	1760	120
JAN.	1983	979	748	457	1210	46	122	160	430	240
FEB.	1983	26756	268	158	11400	10	758	51	3690	93
MAR.	1983	12962	474	284	9930	23	801	96	3340	160
APR.	1983	864	725	443	1030	45	105	160	368	230
MAY	1983	4093.1	441	264	2920	21	236	89	983	150
JUNE	1983	2502.8	387	230	1560	17	116	76	514	130
JULY	1983	7581.84	337	199	4080	14	281	65	1330	120
AUG.	1983	18.07	1280	813	40	110	5.5	320	16	380
SEPT	1983	35.26	1970	1310	125	240	23	580	55	510
TOTAL		69285.07	**	**	40300	**	3060	**	13400	**
WTD. AVG.		190	362	216	**	16	**	71	**	120

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1500	1210	548	622	336	757	483	1050	580	403	1050	---
2	1510	1050	380	665	374	769	562	1020	590	328	1060	---
3	1550	976	279	649	468	766	621	800	640	400	1100	---
4	1560	1020	306	676	550	450	681	760	410	488	1120	---
5	1570	1010	408	690	605	350	705	850	470	329	1150	---
6	1720	998	495	714	645	470	700	900	510	322	1170	---
7	476	994	541	736	586	530	716	920	540	386	1200	---
8	500	990	598	747	632	602	739	960	560	430	1270	---
9	495	990	639	754	424	657	755	990	600	472	1320	---
10	515	1000	540	732	410	719	764	1020	640	531	1310	---
11	560	1010	280	751	498	717	794	1010	680	567	1290	---
12	609	1030	292	753	562	734	802	1000	720	622	1280	---
13	670	1060	380	778	617	748	828	980	750	659	1280	---
14	702	1090	471	776	666	761	820	750	600	576	1290	---
15	715	1100	537	799	692	758	818	510	440	496	1250	---
16	727	1080	594	808	713	756	839	540	540	676	1280	1900
17	749	1100	640	817	720	750	873	650	580	704	1300	2020
18	757	1130	683	828	721	757	912	710	330	711	1320	1980
19	785	1210	706	826	730	764	934	740	430	750	1310	1960
20	826	1230	730	825	210	750	953	730	470	772	1320	1950
21	866	1240	758	816	239	744	960	420	480	801	1380	1920
22	894	1250	774	810	372	782	970	390	500	837	1390	1940
23	929	1060	775	838	460	800	934	490	540	853	1400	1960
24	1010	547	776	846	540	815	877	530	640	882	1430	1980
25	1040	573	743	857	607	818	888	570	680	910	1460	2000
26	1060	621	758	860	663	545	927	600	730	931	1480	2010
27	1070	281	342	863	713	377	958	340	780	950	1490	2020
28	1100	320	307	871	744	461	990	370	800	970	1500	2050
29	1120	424	399	879	---	540	1020	450	330	975	---	2040
30	1160	476	482	873	---	444	1040	510	350	996	---	2030
31	1200	---	560	860	---	385	---	530	---	1020	---	---
MEAN	966	936	539	784	553	654	829	713	564	669	1290	1980

## RED RIVER BASIN

07343000 NORTH SULPHUR RIVER NEAR COOPER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.5	20.5	17.0	4.0	10.5	12.5	16.0	23.0	22.0	28.0	28.0	---
2	22.5	18.5	19.5	5.0	4.5	15.0	10.0	23.0	23.0	25.0	29.0	---
3	28.0	14.5	14.5	5.5	2.0	17.5	10.0	14.0	25.0	---	28.0	---
4	24.0	10.0	13.0	4.0	4.0	15.5	15.0	17.0	21.0	30.0	27.0	---
5	24.5	9.0	13.5	3.5	3.0	---	14.0	18.0	30.0	23.0	27.0	---
6	25.0	10.0	10.0	4.0	5.0	18.0	12.0	25.0	24.0	25.5	30.0	---
7	24.0	---	9.5	6.5	4.0	15.0	10.0	21.0	19.0	26.0	29.0	---
8	21.5	15.5	10.5	9.0	6.0	11.5	13.0	20.0	21.0	---	27.0	---
9	23.5	14.0	9.5	8.5	10.0	11.5	11.0	18.0	30.0	26.0	36.0	---
10	16.5	17.5	8.0	8.0	11.0	15.0	19.0	17.0	30.0	31.5	27.0	---
11	23.0	18.5	8.0	7.5	10.5	8.0	15.0	18.0	---	28.5	28.0	---
12	16.0	16.0	3.0	6.5	10.0	9.5	18.0	21.0	28.0	30.5	28.0	---
13	16.0	---	---	6.0	8.5	---	16.0	23.0	27.0	28.5	27.0	---
14	16.5	10.0	5.5	9.0	11.0	18.0	12.0	24.0	25.0	25.0	31.0	---
15	---	7.0	8.5	7.0	11.0	16.0	20.0	18.0	21.0	25.5	27.0	---
16	17.0	8.0	8.0	---	11.5	18.0	16.0	17.0	24.0	26.0	29.0	23.0
17	17.0	9.0	7.0	4.5	11.0	13.5	17.0	18.0	25.0	26.5	28.0	25.0
18	15.5	10.5	10.0	7.5	17.5	9.5	18.0	21.0	20.0	27.5	27.0	26.0
19	19.5	14.0	10.0	5.0	12.5	10.5	14.0	19.0	25.0	30.0	24.0	24.0
20	16.0	15.0	8.5	4.0	14.5	---	11.0	21.0	28.0	29.0	26.0	25.0
21	14.5	16.0	14.0	4.5	11.0	9.5	12.0	20.0	26.0	30.0	27.0	15.0
22	14.0	17.5	13.5	4.0	12.5	9.0	15.0	---	27.0	36.5	27.0	15.0
23	13.5	17.0	15.5	4.0	14.0	10.0	16.0	24.0	26.0	29.0	28.0	17.0
24	12.0	7.0	17.0	4.0	14.0	9.0	17.0	20.0	29.0	33.0	29.0	18.0
25	---	8.0	13.5	4.5	11.5	10.0	15.0	23.0	25.0	28.0	28.0	19.0
26	12.0	9.0	10.5	7.5	10.0	12.0	24.0	24.0	25.0	28.5	---	23.0
27	14.0	8.5	9.0	5.0	9.5	10.5	20.0	20.0	25.0	28.5	---	21.0
28	17.0	8.0	6.5	6.0	9.0	10.0	---	23.0	25.0	27.0	---	22.0
29	16.0	14.0	4.0	8.5	---	12.5	22.0	25.0	22.0	32.5	---	21.0
30	18.0	12.5	2.5	7.5	---	11.5	21.0	25.0	27.0	28.5	---	20.0
31	21.0	---	5.0	10.0	---	13.0	---	25.0	---	32.0	---	---
MEAN	18.5	12.5	10.0	6.0	9.5	12.5	15.5	21.0	25.0	28.5	28.0	21.0

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 northwest of Talco, 3.2 mi downstream from Mustang Creek, and 162 mi upstream from mouth.

WATER-DISCHARGE RECORDS

REMARKS.--Water-discharge records good. River Crest Steam Electric Generating Plant diverts water for cooling purposes upstream from this station. 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. These structures control runoff from 23.4 mi<sup>2</sup> in the Auds and Deport Creek drainage basins. Gage height telemeter located at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 77,000 ft<sup>3</sup>/s Dec. 11, 1971 (gage height, 29.40 ft, from floodmark); no flow at times in 1957, 1964-65, 1970, and 1979-80.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 15,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	1300	21,400	23.71	Feb. 22	0500	*29,500	24.61
Dec. 4	0930	23,700	23.97	Mar. 5	1430	24,200	24.03
Dec. 12	1400	17,400	23.21	July 6	1200	15,900	22.99
Dec. 28	1100	18,400	23.34				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	9.7	4500	907	1150	319	2300	47	263	622	8.8	2.9
2	4.9	14	1230	388	3300	256	1880	47	203	388	7.1	2.7
3	4.1	293	14600	317	2230	233	948	51	165	412	5.6	2.4
4	3.8	359	22900	295	1900	6570	603	92	158	239	4.6	2.4
5	3.4	233	18100	242	708	22300	476	104	260	1080	4.1	2.3
6	3.7	147	14300	277	542	18200	396	96	144	12700	3.9	1.9
7	4.5	94	10600	323	864	14000	330	89	114	8050	3.6	1.7
8	142	64	2650	313	703	12200	278	80	94	3600	3.5	1.6
9	242	46	463	288	493	4780	236	70	139	3470	5.2	1.4
10	170	36	296	266	1130	707	200	60	132	2730	5.6	1.3
11	100	29	4460	237	955	346	172	55	101	550	5.9	1.2
12	62	26	16300	209	643	251	149	53	81	189	7.9	1.1
13	42	21	12900	185	466	206	133	52	64	131	10	1.0
14	29	17	8730	163	343	182	119	51	51	109	9.8	.86
15	22	13	5690	144	273	170	106	132	72	98	9.9	.82
16	18	11	1270	126	227	156	96	280	122	86	11	.78
17	15	9.8	399	108	192	148	86	152	87	79	13	1.0
18	12	8.8	260	89	165	169	78	131	123	114	13	1.3
19	11	8.2	203	76	144	164	69	142	249	81	12	1.4
20	9.6	8.0	167	67	247	158	62	155	130	62	11	1.1
21	9.0	8.0	144	62	15800	177	58	161	90	51	10	1.0
22	8.1	7.6	128	59	27700	188	56	1470	66	41	9.4	1.0
23	7.2	65	115	55	23000	243	55	1680	49	33	8.4	1.0
24	6.3	776	105	51	21900	314	59	1170	37	26	7.5	.95
25	6.0	429	95	48	17900	291	63	512	28	21	6.8	.91
26	5.6	291	86	45	8040	573	63	310	27	16	5.8	.82
27	5.4	8030	2310	43	1100	5170	60	1310	33	13	5.0	.70
28	6.7	20500	16700	42	439	3050	56	9480	141	10	4.2	.70
29	9.1	15100	12900	41	---	2200	52	4920	606	8.5	3.7	.66
30	8.4	9220	8290	40	---	1420	49	2250	1610	7.7	3.3	.63
31	9.4	---	4610	42	---	2640	---	567	---	6.9	3.1	---
TOTAL	985.5	55874.1	185501	5548	132554	97781	9288	25769	5439	35024.1	222.7	39.53
MEAN	31.8	1862	5984	179	4734	3154	310	831	181	1134	7.18	1.32
MAX	242	20500	22900	907	27700	22300	2300	9480	1610	12700	13	2.9
MIN	3.4	7.6	86	40	144	148	49	47	27	6.9	3.1	.63
CFSM	.02	1.36	4.38	.13	3.47	2.31	.23	.61	.13	.83	.005	.001
IN.	.03	1.52	5.06	.15	3.61	2.66	.25	.70	.15	.95	.01	.00
AC-FT	1950	110800	367900	11000	262900	193900	18420	51110	10790	69470	442	78

CAL YR 1982	TOTAL	837049.30	MEAN	2293	MAX	56600	MIN	3.4	CFSM	1.68	IN	22.81	AC-FT	1660000
WTR YR 1983	TOTAL	554025.93	MEAN	1518	MAX	27700	MIN	.63	CFSM	1.11	IN	15.10	AC-FT	1099000



## RED RIVER BASIN

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1966 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1969 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to current year.

WATER TEMPERATURES: October 1966 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,800 micromhos Feb. 17, 1976; minimum daily, 100 micromhos Sept. 11, 1974.

WATER TEMPERATURES: Maximum daily, 38.0°C Aug. 15, 1975; minimum daily, 0.0°C on several days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 970 micromhos May 9; minimum daily, 162 micromhos Feb. 23.

WATER TEMPERATURES: Maximum daily, 32.0°C July 26; minimum daily, 4.5°C Dec. 31, Feb. 6, 7.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
NOV 17...	1600	9.3	519	7.8	10.0	45	48	8.6	78	2.4	130
FEB 14...	1730	307	420	8.0	10.0	130	85	10.4	94	2.3	150
APR 05...	1730	460	342	7.8	14.5	35	100	10.0	100	2.7	130
MAY 24...	1230	1210	270	7.8	20.5	45	1000	8.8	99	3.2	93
JUL 12...	1700	171	260	7.7	27.0	35	86	5.4	69	2.1	100
AUG 17...	1300	13	550	7.8	28.0	15	16	5.7	74	1.6	190

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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 17...	0	44	4.1	57	2.3	4.9	160	57	30	.30	6.9
FEB 14...	31	53	4.5	25	.9	3.2	120	57	15	.20	7.2
APR 05...	15	48	3.5	18	.7	2.8	120	37	11	.20	5.9
MAY 24...	17	32	3.1	16	.8	3.9	76	29	11	.20	8.5
JUL 12...	5	36	2.9	10	.5	4.7	97	22	7.4	.20	11
AUG 17...	12	66	6.5	34	1.1	5.1	180	62	24	.30	9.2

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 17...	300	60	47	1.1	.060	1.2	<.060	--	1.50	.290	7.7
FEB 14...	237	135	39	.83	.070	.90	.200	1.4	1.60	.200	10
APR 05...	198	62	26	.48	<.020	.50	.230	1.6	1.80	.150	14
MAY 24...	149	186	98	2.0	.190	2.2	.180	1.6	1.80	.300	12
JUL 12...	152	163	27	.08	.120	.20	.160	1.0	1.20	.190	10
AUG 17...	315	22	21	--	<.020	<.10	.030	.67	.70	.030	7.4

## 07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 14...	1730	2	56	<1	<10	2	34
AUG 17...	1300	2	99	<1	10	1	9

DATE	TIME	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 14...		<1	20	<.1	1	<1	9
AUG 17...		<1	55	<.1	<1	<1	11

DATE	TIME	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	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)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
AUG 17...	1300	<1	<1.0	<.1	18	9.5	7.9	23

DATE	TIME	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
AUG 17...		<.1	<.1	<.1	<.1	<.1	<1.0	<.1	<10

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	985.5	414	243	647	18	47	51	135	150
NOV.	1982	55874.1	223	129	19500	6.9	1040	23	3540	84
DEC.	1982	185501	203	118	59000	5.9	2960	21	10500	77
JAN.	1983	5548	391	230	3440	17	249	48	713	140
FEB.	1983	132554	219	127	45400	6.8	2450	23	8290	83
MAR.	1983	97781	235	137	36100	7.5	1970	25	6620	89
APR.	1983	9288	354	208	5210	15	364	42	1060	130
MAY	1983	25769	302	177	12300	12	834	36	2480	110
JUNE	1983	5439	367	215	3160	15	215	43	636	130
JULY	1983	35024.1	244	141	13400	7.7	726	26	2450	92
AUG.	1983	222.7	537	317	191	26	16	70	42	190
SEPT	1983	39.53	692	413	44	40	4.3	100	11	240
TOTAL		554025.93	**	**	198000	**	10900	**	36400	**
WTD. AVG.		1518	228	133	**	7.3	**	24	**	86

## RED RIVER BASIN

07343200 SULPHUR RIVER NEAR TALCO, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	530	702	206	244	716	381	262	880	290	290	530	573
2	532	649	266	286	357	422	258	860	320	300	440	640
3	545	550	170	316	265	457	299	880	340	260	470	648
4	560	359	196	366	261	246	332	910	350	400	485	689
5	570	364	173	435	305	214	335	920	360	360	500	647
6	556	437	188	453	315	187	356	950	400	260	510	678
7	565	568	198	355	408	199	370	930	560	220	535	682
8	500	455	227	345	364	209	393	960	550	200	560	672
9	410	443	256	347	359	245	428	970	470	220	565	604
10	299	485	275	364	481	293	437	960	440	210	570	685
11	294	540	316	386	360	326	457	930	430	240	530	707
12	317	537	236	395	365	353	474	900	460	260	560	722
13	358	523	195	409	384	392	498	880	420	270	535	724
14	396	516	188	417	410	435	520	810	450	285	520	734
15	426	511	202	422	421	479	547	760	460	290	530	741
16	451	515	242	438	429	511	575	890	440	310	520	736
17	486	518	265	467	435	543	613	910	460	320	525	747
18	520	524	299	493	448	575	639	930	490	280	530	758
19	543	528	321	516	461	600	648	900	510	320	540	730
20	564	530	346	554	481	615	655	940	480	340	535	686
21	584	530	373	605	220	600	662	900	500	380	530	764
22	602	531	403	612	208	577	670	930	490	400	540	768
23	613	443	432	644	162	549	683	920	450	440	550	760
24	626	400	446	664	169	439	695	900	440	460	560	687
25	647	336	462	706	206	445	710	940	440	480	565	764
26	659	323	489	737	239	429	743	960	430	490	570	772
27	673	293	315	748	282	345	773	910	400	500	575	777
28	682	208	213	785	338	280	801	940	290	510	580	708
29	658	189	199	790	---	250	833	930	360	520	590	767
30	661	190	188	815	---	284	859	920	270	520	600	770
31	692	---	199	804	---	310	---	950	---	530	620	---
MEAN	533	457	274	513	352	393	551	654	425	350	541	711

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	20.5	14.5	5.0	9.0	14.0	15.0	22.0	22.0	25.0	30.0	29.0
2	21.5	19.0	16.0	6.0	7.0	15.0	14.0	22.0	---	26.0	30.0	30.0
3	23.0	18.0	17.0	5.0	7.0	14.0	14.0	21.0	24.0	26.0	29.0	30.0
4	24.5	15.0	14.0	5.0	5.0	15.5	19.0	22.0	23.0	29.0	29.0	31.0
5	24.5	14.5	12.5	5.0	5.0	17.0	12.0	22.0	25.0	28.0	30.0	28.0
6	24.0	14.5	13.0	5.0	4.5	16.0	12.0	23.0	24.0	28.0	28.0	30.0
7	25.0	14.5	13.0	6.0	4.5	17.0	12.0	23.0	25.0	25.5	28.0	29.0
8	25.0	15.0	12.0	6.0	5.5	16.5	14.0	22.0	26.0	25.0	28.0	28.0
9	23.0	16.0	10.5	7.0	6.0	13.5	14.0	22.0	26.0	26.0	29.0	28.0
10	21.5	17.0	10.0	7.0	9.0	13.0	16.0	20.0	26.0	27.0	29.0	25.0
11	21.5	17.0	8.0	8.0	10.0	13.0	17.0	21.0	25.0	28.0	30.0	25.0
12	21.0	16.0	6.5	7.5	10.0	11.0	18.0	23.0	26.0	28.0	30.0	29.0
13	21.0	13.5	5.0	9.0	10.0	12.5	19.0	24.0	27.0	28.0	27.0	28.0
14	20.0	11.0	6.0	9.0	11.0	15.5	17.0	20.0	27.0	27.5	28.0	28.0
15	19.5	10.5	9.0	7.5	11.0	16.5	18.0	21.0	27.0	27.5	30.0	27.0
16	18.0	9.0	8.5	8.5	12.0	15.5	17.0	22.0	27.0	27.0	29.0	27.0
17	17.0	10.5	6.5	8.5	12.5	14.5	19.0	22.0	26.0	27.0	29.0	24.0
18	19.5	12.0	8.0	8.0	13.0	15.0	20.0	21.0	24.0	27.5	29.0	26.0
19	20.5	13.5	9.0	6.5	12.0	15.0	18.0	22.0	25.0	28.5	28.0	26.0
20	18.0	15.0	9.0	6.5	13.0	13.0	15.0	21.0	27.0	30.0	27.0	23.0
21	15.0	15.0	10.0	6.5	12.0	13.5	16.0	20.0	28.0	31.0	27.0	23.0
22	16.0	17.0	12.0	6.0	13.0	13.0	17.0	20.0	28.0	31.5	30.0	22.0
23	15.0	15.0	12.5	6.5	14.0	11.0	15.0	22.0	28.0	30.0	29.0	21.0
24	12.5	13.0	13.5	7.5	15.0	12.0	17.0	22.0	28.0	29.0	29.0	17.0
25	13.5	11.0	12.0	7.0	14.0	13.0	19.0	23.0	25.0	31.5	30.0	18.0
26	13.0	10.5	10.5	7.0	11.0	13.0	21.0	24.0	26.0	32.0	30.0	23.0
27	14.0	10.0	10.0	7.0	11.0	12.0	21.0	23.0	28.0	31.5	28.0	21.0
28	16.0	8.5	8.5	7.0	12.5	14.0	22.0	23.0	30.0	31.0	28.0	22.0
29	16.0	11.5	6.0	7.5	---	13.0	21.0	23.0	25.0	30.0	30.0	23.0
30	15.0	12.5	5.0	8.5	---	14.0	21.0	22.0	27.0	28.0	30.0	23.0
31	14.0	---	4.5	9.0	---	16.0	---	22.0	---	28.0	30.0	---
MEAN	19.0	14.0	10.0	7.0	10.0	14.0	17.0	22.0	26.0	28.5	29.0	25.5

## RED RIVER BASIN

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07343460 LAKE SULPHUR SPRINGS NEAR SULPHUR SPRINGS, TX

LOCATION.--Lat 33°10'44", long 97°37'22", Hopkins County, Hydrologic Unit 1140303, below dam at outflow on Farm Road 2285 bridge over stilling basin, 0.5 mi from Sulphur Springs city limits, and 1.75 mi northwest of county courthouse.

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE AS (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...	1615	105	12.5	32	5	8.3	2 8	5.0

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 16...	.4	4.8	27	18	5.7	.20	11	72

## 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 downstream from Lewis Creek, 2.4 mi upstream from Ripley Creek, 2.7 mi south of Talco, and 38.4 mi upstream from mouth.

DRAINAGE AREA.--494 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Several small diversions above station for municipal supply. The cities of Sulphur Springs and Mount Vernon discharged sewage effluent into tributaries above this station. Gage height telemeter at station.

AVERAGE DISCHARGE.--33 years (water years 1951-83), 446 ft<sup>3</sup>/s (12.26 in/yr), 323,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft<sup>3</sup>/s Dec. 11, 1971 (gage height, 21.20 ft), from rating curve extended above 23,000 ft<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 Mar. 31, 1945, from floodmarks and from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,100 ft<sup>3</sup>/s Dec. 4 at 2000 hours (gage height, 18.55 ft), no other peak above base of 9,000 ft<sup>3</sup>/s; minimum, 0.02 ft<sup>3</sup>/s Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	2.8	2150	1860	50	382	497	24	845	668	7.8	.28
2	.80	30	2450	889	54	263	571	23	502	765	6.4	.25
3	.72	28	6420	454	49	218	650	22	252	811	5.4	.19
4	.72	71	14800	300	140	888	615	20	185	830	4.4	.17
5	.87	257	14100	241	159	1740	457	21	150	416	3.2	.17
6	3.9	334	8160	204	308	4250	276	22	128	154	2.3	.17
7	16	286	4880	169	355	6530	192	19	110	312	1.9	.17
8	5.0	132	4430	144	418	4120	155	16	99	465	2.3	.13
9	2.4	48	2150	128	402	2690	130	13	101	608	3.9	.07
10	1.9	25	1300	115	594	1680	112	12	89	740	2.9	.07
11	1.2	17	1200	103	648	811	98	16	74	475	1.3	.07
12	.80	12	1700	92	646	396	87	18	63	148	.64	.06
13	7.7	9.1	2400	81	586	262	77	15	56	94	.69	.04
14	21	5.8	3140	71	352	210	70	13	50	76	.82	.04
15	14	4.2	3050	62	192	181	64	15	44	65	1.7	.02
16	8.8	3.0	2100	55	126	160	59	17	39	59	.44	.04
17	5.1	2.4	1340	51	97	142	58	16	36	54	1.4	.04
18	2.8	1.9	726	48	79	126	51	14	35	50	1.9	.04
19	1.7	1.6	426	45	67	112	43	12	30	48	1.3	.10
20	1.2	1.4	304	43	61	102	39	13	27	50	.72	.25
21	.80	1.4	285	41	526	92	36	27	24	46	.60	.31
22	.60	1.9	197	39	1490	84	33	178	23	37	.28	1.0
23	.38	160	170	38	5250	84	30	329	20	31	.19	1.2
24	.28	86	147	37	5510	89	28	426	18	26	.13	.90
25	.25	14	129	36	3520	120	27	445	17	23	.13	.73
26	.22	60	119	34	2390	236	31	285	16	19	.13	.70
27	.19	1440	633	32	1510	458	37	184	23	16	.11	.74
28	.66	2250	1640	31	731	541	31	341	100	14	.43	.80
29	4.2	2220	2310	30	---	579	27	646	299	12	.54	.88
30	3.6	2160	3050	30	---	621	25	817	505	11	.48	.87
31	2.7	---	3640	32	---	512	---	883	---	10	.34	---
TOTAL	111.69	9665.5	89546	5535	26310	28679	4606	4902	3960	7133	54.77	10.50
MEAN	3.60	322	2889	179	940	925	154	158	132	230	1.77	.35
MAX	21	2250	14800	1860	5510	6530	650	883	845	830	7.8	1.2
MIN	.19	1.4	119	30	49	84	25	12	16	10	.11	.02
CFSM	.007	.65	5.85	.36	1.90	1.87	.31	.32	.27	.47	.004	.001
IN.	.01	.73	6.74	.42	1.98	2.16	.35	.37	.30	.54	.00	.00
AC-FT	222	19170	177600	10980	52190	56880	9140	9720	7850	14150	109	21
CAL YR 1982	TOTAL	157117.23	MEAN 430	MAX 14800	MIN .19	CFSM .87	IN 11.83	AC-FT 311600				
WTR YR 1983	TOTAL	180513.46	MEAN 495	MAX 14800	MIN .02	CFSM 1.00	IN 13.59	AC-FT 358000				



07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year. Chemical and biochemical analyses: October 1982 to September 1983.

## 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, 840 micromhos May 22; minimum daily, 44 micromhos Dec. 4.

WATER TEMPERATURES: Maximum daily, 32.0°C Aug. 30, Sept. 3; minimum daily, 4.5°C Feb. 6.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

									OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)				
NOV 17...	1700	2.0	200	7.0	10.0	60	90	6.8	61	1.8	50	
FEB 14...	1700	325	213	6.7	10.0	100	62	9.2	83	2.5	52	
APR 05...	1815	239	169	7.1	14.0	100	66	9.4	93	2.5	46	
MAY 24...	1610	437	195	7.2	21.0	130	51	8.8	100	4.8	46	
JUL 12...	1730	119	160	7.0	26.0	100	72	5.2	65	2.0	40	
AUG 17...	0950	1.2	330	7.2	27.0	50	43	5.4	69	3.3	79	
DATE		HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
NOV 17...	8	12	4.8	17	1.1	7.3	42	32	16	.20	10	
FEB 14...	23	13	4.8	16	1.0	5.4	29	41	17	.10	11	
APR 05...	17	11	4.4	14	.9	4.3	29	31	14	.10	6.8	
MAY 24...	10	11	4.6	15	1.0	6.6	36	30	16	.20	8.5	
JUL 12...	0	10	3.6	10	.7	6.0	40	22	5.0	.20	9.7	
AUG 17...	5	19	7.6	30	1.5	6.3	74	40	26	.30	8.6	
DATE		SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	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)
NOV 17...	124	27	18	.16	.040	.20	.100	1.4	1.50	.310	13	
FEB 14...	126	54	40	.35	.050	.40	.250	1.7	1.90	.290	13	
APR 05...	103	81	12	--	<.020	.20	.260	1.5	1.80	.270	13	
MAY 24...	114	120	94	.38	.120	.50	.400	1.6	2.00	.490	16	
JUL 12...	90	54	18	.32	.080	.40	.150	1.6	1.70	.160	13	
AUG 17...	183	35	25	--	.020	<.10	.040	.96	1.00	.340	8.7	

## RED RIVER BASIN

07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 14...	1700	1	51	<1	<10	3	540
MAY 24...	1610	1	42	1	<10	3	410
AUG 17...	0950	2	62	2	<10	4	97

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 14...	<1	48	<.1	1	<1	26
MAY 24...	3	53	.1	<1	<1	13
AUG 17...	<1	450	<.1	<1	<1	15

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	111.69	514	289	87	72	22	70	21	100
NOV.	1982	9665.5	84	49	1290	6.1	158	14	356	23
DEC.	1982	89546	71	42	10100	4.5	1090	12	2820	20
JAN.	1983	5535	176	102	1530	15	231	27	409	45
FEB.	1983	26310	130	76	5400	11	747	21	1470	35
MAR.	1983	28679	119	70	5400	9.1	706	19	1480	32
APR.	1983	4606	219	127	1580	20	250	34	418	55
MAY	1983	4902	219	126	1660	24	318	32	426	51
JUNE	1983	3960	171	100	1060	14	147	27	289	46
JULY	1983	7133	133	78	1500	9.9	191	21	411	36
AUG	1983	54.77	323	185	27	34	5.0	48	7.1	77
SEPT	1983	10.50	469	265	7.5	60	1.7	65	1.9	99
TOTAL		180513.46	**	**	29600	**	3870	**	8100	**
WTD. AVG.		495	104	61	**	7.9	**	17	**	28

## RED RIVER BASIN

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07343500 WHITE OAK CREEK NEAR TALCO, TX--Continued

DAY	SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	516	576	77	101	566	173	216	520	130	120	300	426
2	517	300	83	123	469	188	177	500	150	110	320	430
3	520	534	60	147	460	203	160	480	160	100	300	434
4	521	479	44	165	554	117	163	520	170	130	310	443
5	524	174	52	183	505	94	170	530	160	180	320	447
6	464	119	57	194	291	93	179	550	170	190	310	454
7	369	133	67	209	382	79	194	560	180	130	320	460
8	397	147	78	220	321	87	213	560	170	100	330	461
9	399	159	90	233	234	94	243	550	180	110	340	462
10	423	171	104	250	180	107	254	550	230	120	350	463
11	440	184	126	262	220	134	267	560	210	140	340	464
12	457	195	89	278	190	149	284	570	230	150	330	470
13	425	205	84	292	185	167	296	570	240	160	340	471
14	570	202	79	300	197	186	305	550	220	170	350	475
15	662	207	80	302	216	196	315	540	240	180	330	471
16	630	211	90	309	241	213	324	530	220	170	320	474
17	544	214	105	324	268	230	334	540	230	180	290	476
18	520	220	123	333	290	245	344	580	220	190	310	479
19	525	223	138	336	307	261	355	620	230	220	330	477
20	532	226	149	340	332	270	365	630	240	230	350	474
21	530	234	159	345	162	284	399	610	230	230	360	478
22	533	244	168	358	113	300	425	840	240	240	370	477
23	540	243	180	373	89	314	419	400	250	250	360	473
24	546	223	189	387	86	344	428	195	260	270	380	472
25	548	193	196	404	90	367	429	180	260	300	370	471
26	552	235	212	420	98	460	438	200	270	330	380	475
27	554	60	150	435	117	322	455	190	280	340	380	474
28	559	54	92	445	149	273	506	170	290	330	390	473
29	536	67	87	452	---	170	498	130	180	320	400	472
30	448	73	84	467	---	167	497	120	150	310	410	473
31	502	---	89	478	---	180	---	110	---	300	420	---
MEAN	510	217	109	305	261	209	322	457	213	203	345	465

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.5	20.0	15.0	5.0	8.5	14.0	15.0	22.0	20.0	24.0	31.0	30.0
2	22.0	17.5	17.0	7.0	7.0	15.0	15.0	22.0	22.0	28.0	31.0	30.0
3	23.0	17.0	16.5	6.5	6.5	14.0	15.0	21.0	23.0	28.0	30.0	32.0
4	24.5	14.5	14.5	5.5	5.5	15.0	18.0	22.0	22.0	28.0	29.0	30.0
5	24.5	14.0	13.0	5.5	5.0	16.0	13.0	22.0	25.0	27.5	31.0	30.0
6	24.0	14.0	13.5	6.0	4.5	16.0	13.0	23.0	23.0	28.0	27.0	29.0
7	24.0	13.0	13.0	6.0	5.0	17.0	12.0	22.0	24.0	27.0	28.0	30.0
8	25.0	15.0	12.0	7.0	5.5	15.5	13.0	21.0	24.0	27.0	30.0	30.0
9	22.5	15.0	11.0	8.0	5.5	14.0	12.0	22.0	24.0	28.0	31.0	29.0
10	21.0	16.5	9.5	8.5	9.0	13.5	15.0	20.0	25.0	28.0	30.0	26.0
11	22.0	17.5	8.5	9.0	10.0	12.5	17.0	21.0	23.0	27.0	30.0	26.0
12	20.0	17.0	6.0	8.0	10.0	11.0	18.0	22.0	25.0	27.0	31.0	28.0
13	19.5	14.0	5.0	9.0	10.0	12.0	19.0	23.0	26.0	27.0	27.0	28.0
14	18.5	12.5	7.0	9.5	11.5	15.0	18.0	21.0	25.0	26.5	29.0	28.0
15	18.0	11.0	8.5	8.0	11.0	16.5	17.0	20.0	26.0	27.0	---	27.0
16	17.0	9.5	8.5	8.0	11.5	16.0	15.0	23.0	26.0	25.5	30.0	27.0
17	16.0	10.0	9.0	7.5	12.0	15.0	18.0	23.0	---	25.5	29.0	25.0
18	19.5	10.5	9.0	7.0	13.0	15.0	19.0	22.0	24.0	28.0	29.0	26.0
19	20.0	12.5	9.5	6.0	12.0	14.0	16.0	25.0	25.0	28.0	28.0	27.0
20	18.0	14.5	10.0	6.0	13.0	12.0	14.0	22.0	28.0	29.5	27.0	24.0
21	15.0	15.0	11.0	6.0	12.0	12.0	15.0	20.0	29.0	30.0	27.0	24.0
22	17.0	15.0	12.0	5.0	13.0	11.5	16.0	20.0	28.0	30.5	31.0	23.0
23	16.0	14.0	13.0	6.0	14.0	10.5	15.0	22.0	28.0	29.5	30.0	22.0
24	13.0	13.5	14.5	7.0	15.0	12.0	18.0	22.0	27.0	28.5	30.0	19.0
25	15.0	11.5	14.0	6.0	14.0	13.0	19.0	23.0	25.0	31.0	30.0	19.0
26	14.0	10.0	12.0	6.0	12.5	13.5	20.0	23.0	25.0	31.5	30.0	20.0
27	15.0	9.5	10.5	7.0	12.0	13.0	20.0	23.0	27.0	31.5	28.0	22.0
28	15.0	9.0	9.0	7.0	12.0	14.0	23.0	23.0	28.0	31.0	28.0	22.0
29	15.0	11.5	7.0	8.0	---	13.5	21.0	24.0	26.0	30.0	31.0	22.0
30	17.0	12.5	6.0	9.0	---	14.0	21.0	22.0	26.0	30.0	32.0	23.0
31	16.0	---	5.0	9.0	---	15.0	---	21.0	---	28.0	30.0	---
MEAN	19.0	13.5	10.5	7.0	10.0	14.0	16.5	22.0	25.0	28.5	29.5	26.0

## 07344200 WRIGHT PATMAN LAKE NEAR TEXARKANA, TX

LOCATION.--Lat 33°18'16", long 94°09'38", Bowie-Cass County line, Hydrologic Unit 11140302, in intake structure of Wright Patman Dam on the Sulphur River, 0.5 mi upstream from U.S. Highway 59, 10 mi southwest of Texarkana, and 44.5 mi upstream from mouth.

DRAINAGE AREA.--3,443 mi<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 upstream at datum 200 ft higher.

REMARKS.--The lake is formed by a rolled earthfill dam 18,500 ft long, including a 200-foot uncontrolled spillway and a 1-mile long dike. Temporary impoundment of water began July 2, 1953, and deliberate impoundment began June 27, 1956. The dam was completed in December 1957. The flood-control outlet works consist of two 20.0-foot-diameter conduits controlled by four 10.0- by 20.0-foot electrically driven broome-type gates. Flow is affected at times by discharge from the flood-detention pools of 25 floodwater-retarding structures with a combined detention capacity of 13,450 acre-ft. These structures control runoff from 40.0 mi<sup>2</sup> in the Sulphur River and Langford Creek drainage basins. Outflow discharging over the spillway passes into an outlet channel and then to the Sulphur River. The lake was built for flood control and for conservation. An unknown amount of water is diverted for industrial and municipal uses. The capacity table is based on a 1948 survey. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	286.0	-
Crest of spillway.....	259.5	2,654,300
Top of conservation pool.....	220.0	145,300
Lowest gated outlet (invert).....	200.0	2,600

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,912,100 acre-ft May 9, 1966 (elevation, 252.64 ft); minimum since first appreciable storage and after deliberate impoundment began, 137,500 acre-ft Sept. 5, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 689,400 acre-ft Dec. 15 at 0700 hours (elevation, 235.67 ft); minimum daily, 163,600 acre-ft Jan. 31 (elevation, 220.87 ft).

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

220.0	145,300	226.0	298,500	232.0	518,400
222.0	189,300	228.0	364,100	234.0	607,900
224.0	240,200	230.0	437,200	236.0	706,200

CONTENT, IN ACRE FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	260100	205100	217200	541300	189100	309400	207000	218200	277900	320300	320300	278800
2	258100	205100	236900	538700	199400	326700	207500	218200	282700	324100	318300	278200
3	256300	202100	298500	539600	207500	335000	207300	221600	284500	327100	316400	276700
4	254600	198200	372800	537400	212600	344300	210800	220800	287800	328700	315100	276400
5	253200	195000	423900	533000	224700	344000	213600	220300	290800	332300	313500	274000
6	253000	192600	471600	523600	235600	340300	215900	220000	293900	333600	312600	272000
7	252100	189800	527000	512900	239900	335900	216400	218700	294800	334600	312300	270600
8	253800	186900	567500	497000	251300	332600	216900	217400	295700	337300	310100	270500
9	252700	185100	601800	480900	263800	341300	212600	217400	295700	340900	307800	269300
10	250400	183200	631200	462800	271400	358200	209600	217700	294500	343500	306300	268400
11	248200	182000	661400	443400	277900	372500	207000	218700	293600	347000	305300	266700
12	248500	179500	674300	424200	286900	382700	205100	219000	293000	351000	303800	265500
13	246800	176500	684300	404800	293300	387700	208800	219200	292700	356200	303800	264700
14	246000	174700	688400	386700	297000	388100	209800	220000	293000	361700	301600	263500
15	244000	172000	686300	367600	301000	381700	211600	220500	292300	363700	299400	262600
16	242400	170200	681800	350400	302200	373200	213600	219200	292300	364100	298500	261300
17	240700	168700	679300	328700	301300	362700	214600	219200	295400	361700	296000	260900
18	239600	166400	679800	315500	294500	346300	212600	222600	295700	362400	294500	260900
19	239400	166000	675800	298500	286900	329000	213800	222100	295400	359600	293900	260600
20	237500	165100	670300	280900	279400	313900	215400	227600	295100	355800	293900	260600
21	234800	164000	658900	261500	279400	294800	215400	232900	295100	352700	293000	258900
22	233400	163600	647100	242100	278800	278800	217200	237200	295100	349700	290800	258100
23	231800	166000	637900	225500	274000	261800	217700	239400	295400	347300	290200	256100
24	230800	166000	624500	208800	259500	246500	217700	241000	297600	344600	289000	255500
25	228400	168200	609800	192200	249600	231000	217700	244900	297600	341300	288400	254600
26	224900	170700	594800	183700	245100	201400	217900	248700	300400	337900	286600	254100
27	221000	186500	590200	176300	258900	205600	217900	252700	300400	334300	285100	253200
28	219000	193100	578800	171500	283300	202800	218200	256600	300000	331300	284500	252100
29	215100	202600	568400	168900	---	196500	218200	260600	312900	328100	282400	251500
30	211600	210300	559400	165800	---	197700	218200	264700	317400	325100	281500	251300
31	208500	---	551400	175200	---	198900	---	268400	---	322900	279400	---
MAX	260100	210300	688400	541300	302200	388100	218200	268400	317400	364100	320300	278800
MIN	208500	163600	217200	165800	189100	196500	205100	217400	277900	320300	279400	251300
(†)	222.79	222.86	232.76	221.39	225.50	222.40	223.17	225.00	226.60	226.77	225.37	224.40
(‡)	-53600	-1800	+341100	-376200	+108100	-84400	+19300	+50200	+49000	+5500	-43500	-28100

CAL YR 1982 MAX 903600 MIN 158400 † +392800  
WTR YR 1983 MAX 688400 MIN 163600 ‡ -10800

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## 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 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
25...	1100	1.00	171	7.1	5.0	.30	10.7	84	K6	K24
25...	1102	10.0	171	7.1	5.0	--	10.6	83	--	--
25...	1104	22.0	171	7.0	5.0	--	10.6	83	--	--
MAY										
18...	1025	1.00	225	7.5	21.5	.80	7.7	88	<1	K1
18...	1027	10.0	225	7.4	21.0	--	7.1	80	--	--
18...	1028	20.0	225	7.2	20.5	--	6.3	71	--	--
18...	1029	25.0	225	7.2	20.5	--	6.0	67	--	--
AUG										
09...	1030	1.00	243	7.7	30.5	.80	5.1	68	<1	<1
09...	1032	10.0	243	7.3	29.5	--	3.2	42	--	--
09...	1033	20.0	243	7.3	29.5	--	3.1	41	--	--
09...	1034	28.0	244	7.2	29.5	--	2.6	34	--	--

DATE	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)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN										
25...	59	12	20	2.3	9.2	.5	3.2	48	25	9.4
25...	--	--	--	--	--	--	--	--	--	--
25...	59	12	20	2.3	9.1	.5	3.2	48	23	9.3
MAY										
18...	74	13	25	2.9	13	.7	3.1	61	27	13
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	74	13	25	2.9	13	.7	3.1	61	28	13
AUG										
09...	84	7	28	3.3	16	.8	3.4	77	17	15
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	84	7	28	3.4	16	.8	3.6	77	19	15

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	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									
25...	.10	8.7	107	<.10	.90	--	.130	210	25
25...	--	--	--	.10	1.20	1.3	.130	130	20
25...	--	8.7	105	.10	1.20	1.3	.120	150	21
MAY									
18...	.10	2.4	123	<.10	1.60	--	.070	25	3
18...	--	--	--	<.10	1.00	--	.050	40	20
18...	--	--	--	--	--	--	--	--	--
18...	--	3.1	125	<.10	1.40	--	.080	35	48
AUG									
09...	.20	7.8	137	<.10	1.40	--	.150	20	20
09...	--	--	--	<.10	1.30	--	.130	20	30
09...	--	--	--	<.10	1.40	--	.140	20	110
09...	--	8.3	140	<.10	1.40	--	.160	350	400



## RED RIVER BASIN

## WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331903094100201 WRIGHT PATMAN LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
25...	1130	1.00	135	7.2	6.0	10.7	86
25...	1131	5.00	136	7.2	6.0	10.7	86
25...	1132	10.0	154	7.2	5.5	10.6	85
25...	1133	12.0	162	7.2	5.5	10.6	85
MAY							
18...	1045	1.00	225	7.6	21.5	8.0	92
18...	1046	11.0	219	7.4	21.5	7.1	81
AUG							
09...	1106	1.00	240	8.1	30.5	6.2	83
09...	1107	10.0	243	7.4	30.0	3.6	48
09...	1108	15.0	243	7.3	30.0	3.0	40

332142094115001 WRIGHT PATMAN LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
25...	1200	1.00	117	7.2	6.0	.70	11.2
25...	1201	5.00	117	7.2	6.0	--	11.2
25...	1202	10.0	117	7.2	6.0	--	11.2
MAY							
18...	1055	1.00	200	7.7	22.0	.60	8.0
18...	1056	12.0	202	7.6	22.0	--	7.8
AUG							
09...	1125	1.00	226	8.7	31.0	.90	8.6
09...	1126	5.00	230	8.4	30.5	--	5.8
09...	1127	10.0	238	7.1	30.0	--	.2
09...	1128	13.0	240	7.1	29.5	--	.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)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN						
25...	90	<.10	1.10	.080	170	10
25...	90	--	--	--	--	--
25...	90	<.10	1.20	.070	180	10
MAY						
18...	92	<.10	1.60	.050	40	<10
18...	90	<.10	1.10	.050	40	10
AUG						
09...	116	<.10	1.40	.110	20	70
09...	78	--	--	--	--	--
09...	3	--	--	--	--	--
09...	3	<.10	1.80	.280	120	840

331935094112901 WRIGHT PATMAN LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
26...	1215	1.00	94	6.8	6.0	.80	10.4
26...	1216	10.0	94	6.8	6.0	--	10.4
26...	1217	17.0	96	6.8	6.0	--	10.4
MAY							
18...	1105	1.00	196	7.5	22.5	.80	7.7
18...	1106	10.0	206	7.5	22.0	--	7.5
18...	1107	16.0	206	7.4	22.0	--	7.1
AUG							
09...	1157	1.00	227	8.8	31.5	.80	9.3
09...	1158	5.00	227	8.8	31.0	--	8.2
09...	1159	10.0	227	8.2	30.5	--	5.8
09...	1200	15.0	232	7.5	30.0	--	2.1
09...	1201	20.0	244	7.0	29.5	--	.2

## WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331935094112901 WRIGHT PATMAN LAKE SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN						
26...	84	<.10	1.40	.090	190	10
26...	84	--	--	--	--	--
26...	84	<.10	1.30	.090	180	10
MAY						
18...	90	<.10	.90	.050	30	<10
18...	87	--	--	--	--	--
18...	82	<.10	1.00	.070	30	30
AUG						
09...	127	<.10	1.40	.100	20	40
09...	111	--	--	--	--	--
09...	78	<.10	1.40	.100	10	150
09...	28	--	--	--	--	--
09...	3	<.10	2.00	.390	840	1300

331628094121901 WRIGHT PATMAN LAKE SITE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
25...	1310	1.00	202	7.2	5.0	11.0	87
25...	1311	7.00	198	7.2	5.0	10.9	86
MAY							
18...	1220	1.00	230	7.7	22.5	7.9	92
18...	1221	8.00	230	7.7	22.5	7.8	91
AUG							
09...	1250	1.00	248	8.8	31.0	10.8	146
09...	1251	5.00	251	8.2	30.0	6.8	90
09...	1252	11.0	256	7.2	29.5	1.5	20

331706094130501 WRIGHT PATMAN LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
25...	1300	1.00	167	7.2	5.5	10.4	83
25...	1301	10.0	167	7.1	5.5	10.4	83
25...	1302	20.0	167	7.1	5.5	10.3	82
25...	1303	28.0	167	7.1	5.5	10.3	82
MAY							
18...	1210	1.00	231	7.7	22.5	7.8	91
18...	1211	10.0	231	7.7	22.0	7.7	89
18...	1212	20.0	233	7.6	22.0	7.5	87
18...	1213	28.0	235	7.4	21.5	6.2	71
AUG							
09...	1235	1.00	246	8.8	30.5	10.3	138
09...	1236	5.00	249	8.2	30.0	6.1	81
09...	1237	10.0	250	7.9	30.0	4.9	65
09...	1238	20.0	257	7.2	29.5	1.3	17
09...	1239	32.0	278	7.2	29.5	.2	3

RED RIVER BASIN  
WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331519094141101 WRIGHT PATMAN LAKE SITE EC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	
DATE	TIME									
JAN										
25...	1330	1.00	212	7.2	5.0	.30	11.1	87	K16	
25...	1331	10.0	212	7.2	5.0	--	11.0	87	--	
25...	1332	20.0	212	7.2	5.0	--	11.0	87	--	
25...	1333	23.0	212	7.2	5.0	--	11.0	87	--	
MAY										
18...	1140	1.00	240	7.7	22.0	.60	7.8	90	<1	
18...	1141	10.0	240	7.7	22.0	--	7.7	89	--	
18...	1142	20.0	240	7.6	22.0	--	7.5	87	--	
18...	1143	25.0	240	7.5	22.0	--	6.9	80	--	
AUG										
09...	1316	1.00	248	8.8	33.0	.80	9.8	137	<1	
09...	1317	5.00	248	8.4	30.0	--	7.8	104	--	
09...	1318	10.0	253	7.7	30.0	--	4.1	54	--	
09...	1319	20.0	256	7.1	29.5	--	1.3	17	--	
09...	1320	28.0	262	7.1	29.5	--	.2	3	--	
		STREP- TOCOCCHI 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)	ALKA- LITY FIELD (MG/L AS CACO3)
DATE										
JAN										
25...	K14	70	20	23	3.0	13	.7	3.2	50	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	70	21	23	3.0	13	.7	3.3	49	--
MAY										
18...	<1	78	13	26	3.1	14	.7	3.2	65	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	80	14	27	3.1	14	.7	3.2	66	--
AUG										
09...	<1	86	7	29	3.4	16	.8	3.4	80	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	89	1	30	3.5	16	.8	3.2	88	--
		SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DATE										
JAN										
25...	29	13	9.0	123	<.10	1.40	.110	110	25	30
25...	--	--	--	--	--	1.20	.110	110	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	29	13	8.7	123	<.10	1.20	.120	140	28	28
MAY										
18...	31	14	2.3	133	<.10	1.90	.070	17	3	20
18...	--	--	--	--	--	1.60	.060	30	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	30	14	2.6	134	<.10	1.60	.110	31	51	51
AUG										
09...	21	16	8.2	145	<.10	1.40	.170	6	8	60
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	1.50	.160	30	60	130
09...	--	--	--	--	--	1.40	.190	30	130	570
09...	19	16	9.6	151	<.10	1.80	.200	41	570	570

## RED RIVER BASIN

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WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

31533094210901 WRIGHT PATMAN LAKE SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
25...	1630	1.00	255	7.1	6.0	.30	10.6	85	K26	K24
25...	1632	10.0	255	7.1	5.5	--	10.5	84	--	--
25...	1634	16.0	255	7.1	5.5	--	11.0	88	--	--
MAY										
18...	1350	1.00	382	7.9	23.5	--	8.0	95	K2	36
18...	1352	17.0	472	7.4	22.5	--	4.6	54	--	--
AUG										
09...	1452	1.00	242	7.1	31.0	.70	6.3	85	K12	K6
09...	1454	5.00	242	6.8	29.5	--	2.5	33	--	--
09...	1455	10.0	242	6.8	28.5	--	.2	3	--	--
09...	1456	15.0	246	6.8	28.5	--	.2	3	--	--
09...	1457	19.0	248	6.8	28.0	--	.2	3	--	--

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
25...	84	27	27	4.0	17	.8	3.0	57	35
25...	--	--	--	--	--	--	--	--	--
25...	83	29	27	3.9	17	.8	3.0	55	35
MAY									
18...	120	33	40	5.5	27	1.1	3.5	90	52
18...	140	35	47	6.7	35	1.3	3.5	110	66
AUG									
09...	96	3	33	3.4	12	.6	3.6	94	17
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	97	0	33	3.5	11	.5	4.3	100	11

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									
25...	18	11	149	<.10	1.40	--	.100	170	59
25...	--	--	--	--	--	--	--	--	--
25...	17	11	147	.10	1.00	1.1	.100	150	57
MAY									
18...	32	4.9	219	<.10	1.70	--	.090	15	5
18...	39	5.8	269	<.10	1.20	--	.080	37	73
AUG									
09...	12	9.4	147	<.10	1.20	--	.110	35	28
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	<.10	1.00	--	.140	260	440
09...	--	--	--	--	--	--	--	--	--
09...	10	10	145	<.10	1.70	--	.460	1500	990

## RED RIVER BASIN

WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331838094095901 WRIGHT PATMAN LAKE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE TIME	JAN 25,83 1101	MAY 18,83 1026	AUG 9,83 1031
TOTAL CELLS/ML	650	23000	280000
DIVERSITY: DIVISION	1.0	1.6	0.4
..CLASS	1.0	1.6	0.4
...ORDER	1.2	2.0	1.3
....FAMILY	1.6	2.5	1.4
.....GENUS	2.4	2.9	1.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..ACHNANTHALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	*	0
..BACILLARIALES						
...NITZSCHIA	--	-	560	2	3700	1
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	220#	33	3700#	16	4600	2
....MELOSIRA	190#	29	3900#	17	--	-
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	--	-	--	-	*	0
....TETRAEDRON	--	-	140	1	--	-
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	57	9	2600	11	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	43	7	630	3	3700	1
....KIRCHNERIELLA	--	-	350	1	--	-
....TREUBARIA	--	-	*	0	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	57	9	2500	11	*	0
....TETRASTRUM	57	9	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	29	4	140	1	*	0
...PHACOTACEAE						
....PTEROMONAS	--	-	*	0	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	12000	4
....ANACYSTIS	--	-	7300#	31	38000	14
..NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	-	5000	2
...NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	8300	3
..OSCILLATORIALES						
...OSCILLATORIA	--	-	1400	6	200000#	72
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	140	1	--	-

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

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



## WRIGHT PATMAN LAKE NEAR TEXARKANA, TX--Continued

331533094210901 WRIGHT PATMAN LAKE GC

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE	JAN 25,83	MAY 18,83	AUG 9,83			
TIME	1631	1351	0000			
TOTAL CELLS/ML	3200	41000	34000			
DIVERSITY: DIVISION	1.0	1.5	1.5			
..CLASS	1.0	1.5	1.5			
..ORDER	1.4	2.1	2.6			
...FAMILY	1.5	2.4	2.8			
....GENUS	1.7	3.2	3.4			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
...NITZSCHIAEAE						
....NITZSCHIA	91	3	980	2	420	1
...EUPODISCALES						
...COSCINODISCAEAE						
....CYCLOTELLA	2200#	67	2000	5	560	2
....MELOSIRA	120	4	--	-	710	2
...FRAGILARIALES						
...FRAGILARIAEAE						
....FRAGILARIA	--	-	--	-	420	1
....SYNEDRA	91	3	280	1	*	0
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON	--	-	--	-	420	1
...MICRACTINIAEAE						
....GOLENKINIA	--	-	*	0	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	450	14	2000	5	990	3
....CHODATELLA	--	-	--	-	*	0
....FRANCEIA	--	-	560	1	--	-
....KIRCHNERIELLA	--	-	*	0	280	1
....OOCYSTIS	--	-	*	0	--	-
....SELENASTRUM	--	-	1100	3	1400	4
....TREUBARIA	--	-	*	0	280	1
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	1100	3	560	2
....GLOEOACTINIUM	--	-	280	1	--	-
....SCENEDESMUS	--	-	5600	14	1400	4
....TETRASTRUM	120	4	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	2000	5	3400	10
CHRYSTOPHYTA						
..CHRYSTOPHYCEAE						
...OCHROMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	*	0	--	-
..XANTHOPHYCEAE						
...MISCHOCOCCALES						
...SCIADACEAE						
....CENTRITRACTUS	--	-	--	-	560	2
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	12000#	30	4500	13
....ANACYSTIS	--	-	7700#	19	9300#	27
...NOSTOCALES						
...NOSTOCACEAE						
....CYLINDROSPERMUM	--	-	--	-	1400	4
...OSCILLATORIALES						
...OSCILLATORIAEAE						
....OSCILLATORIA	--	-	3500	8	5900#	17
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	*	0	280	1
....TRACHELOMONAS	30	1	1300	3	990	3
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...DINOKONTAE						
...PERIDINIAEAE						
....PERIDINIUM	150	5	--	-	--	-

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

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

## RED RIVER BASIN

07344210 SULPHUR RIVER NEAR TEXARKANA, TX

LOCATION.--Lat 33°18'20", long 94°09'03", Bowie County, Hydrologic Unit 11140302, on downstream side of highway embankment near left end of downstream (northbound) bridge on U.S. Highway 59, 0.4 mi downstream from Texarkana Dam, 1.4 mi upstream from Elliott Creek, 11.7 mi southwest of Texarkana, and at mile 44.1.

DRAINAGE AREA.--3,443 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to current year. August 1937 to July 1953 and October 1953 to September 1979 (daily gage heights); January to December 1933, January 1937 to December 1942, and January 1945 to September 1979 (discharge measurements); January to December 1939 and January 1945 to September 1979 (daily discharges) published by Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair above 50 ft<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).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft<sup>3</sup>/s June 16 to July 5, 1981; maximum gage height, 32.57 ft June 15, 1981 at 1000 hours; no flow June 25, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 94,000 ft<sup>3</sup>/s Apr. 4, 1945; maximum stage, 47.23 ft Apr. 14, 1945; no flow on various occasions.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,000 ft<sup>3</sup>/s Jan. 5-10; maximum gage height, 32.67 ft Dec. 23 at 1300 hours; minimum daily discharge, 6.1 ft<sup>3</sup>/s May 11 to June 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	575	1570	2270	9740	295	7960	2390	106	6.1	96	755	281
2	575	1570	2580	9560	206	7960	2390	106	6.1	96	524	281
3	575	1570	3030	9560	206	7960	2390	106	6.1	96	524	281
4	575	1570	5230	10500	206	7960	2390	106	6.1	96	362	281
5	575	1570	8650	11000	128	7960	2390	106	6.1	96	281	281
6	575	1570	9910	11000	35	7960	2390	106	6.1	163	281	281
7	575	1570	9740	11000	10	7960	2390	106	6.1	200	281	281
8	575	1570	10100	11000	10	7960	2390	106	6.1	200	281	281
9	575	1230	10100	11000	10	7960	2390	106	6.1	200	281	281
10	575	764	10000	11000	10	7960	2390	44	66	419	281	281
11	575	764	9950	9610	10	7960	1860	6.1	96	785	281	281
12	575	764	9920	10100	10	7960	1540	6.1	96	785	281	281
13	575	764	10000	9630	133	7960	1200	6.1	39	785	281	194
14	575	764	10100	9640	429	7960	662	6.1	10	1020	281	150
15	575	764	10100	9640	996	7960	359	6.1	10	1140	281	150
16	575	764	10100	9640	1520	7960	137	6.1	10	1140	281	150
17	575	764	10100	9640	2230	7960	106	6.1	10	1140	281	150
18	575	764	10100	9640	3360	7960	106	6.1	10	1140	281	150
19	575	581	10100	9640	4540	7960	106	6.1	10	1140	281	150
20	575	462	10000	9640	4920	7960	106	6.1	10	1140	281	150
21	575	462	10000	8960	4920	7960	106	6.1	10	1140	281	150
22	575	294	10000	8570	4920	7960	106	6.1	10	1140	281	150
23	575	202	10000	8570	5530	7960	106	6.1	10	1140	281	150
24	575	202	10000	8570	7250	7960	106	6.1	10	1140	281	150
25	846	202	10000	8570	7960	7960	106	6.1	10	1140	281	150
26	1370	202	10000	6550	7960	7960	106	6.1	10	1140	281	150
27	1570	202	10000	4240	7960	7960	106	6.1	10	1140	281	150
28	1570	385	10000	2930	7960	6160	106	6.1	10	1140	281	150
29	1570	788	10000	1960	---	5080	106	6.1	10	1140	281	150
30	1570	1420	10000	1200	---	3400	106	6.1	67	1140	281	150
31	1570	---	10000	663	---	2390	---	6.1	---	1140	281	---
TOTAL	23866	26068	282080	262963	73724	231950	31142	1126.1	578.9	24417	9752	6116
MEAN	770	869	9099	8483	2633	7482	1038	36.3	19.3	788	315	204
MAX	1570	1570	10100	11000	7960	7960	2390	106	96	1140	755	281
MIN	575	202	2270	663	10	2390	106	6.1	6.1	96	281	150
AC-FT	47340	51710	559500	521600	146200	460100	61770	2230	1150	48430	19340	12130
CAL YR 1983	TOTAL	1164544.0	MEAN	3191	MAX	10200	MIN	32	AC-FT	2310000		
WTR YR 1983	TOTAL	973783.0	MEAN	2668	MAX	11000	MIN	6.1	AC-FT	1931000		

## RED RIVER BASIN

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07344210 SULPHUR RIVER NEAR TEXARKANA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January to September 1983.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
JAN 25...	0740	11000	156	6.7	5.0	75	36	12.4	97	2.1	54
MAY 18...	0930	6.2	250	6.9	22.5	20	19	4.5	53	2.7	81
AUG 09...	0930	200	247	7.5	29.5	15	4.0	6.2	82	2.9	84

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)	ALKA- LILITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
JAN 25...	0	18	2.1	8.3	.5	3.2	44	21	8.5	.10	8.1
MAY 18...	17	27	3.3	15	.8	3.1	64	30	17	.20	3.6
AUG 09...	7	28	3.3	16	.8	4.2	77	20	17	.20	8.1

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)
JAN 25...	96	18	12	.07	.030	.10	.090	1.5	1.60	.120	8.6
MAY 18...	138	51	25	--	.050	<.10	.740	.96	1.70	.140	6.6
AUG 09...	143	11	10	--	<.020	<.10	.140	1.2	1.30	.170	7.1

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 25...	0740	1	34	<1	<10	2	130
MAY 18...	0930	1	49	<1	<10	1	36
AUG 09...	0930	8	21	<1	<10	<1	<3

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 25...	<1	15	<.1	<1	<1	7
MAY 18...	3	74	<.1	<1	<1	13
AUG 09...	<1	2	.3	<1	<1	<3

## 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 downstream from Glade Branch, 1.8 mi upstream from Little Cypress Creek, 4.7 mi north of Winnsboro, and 146.5 mi upstream from mouth.

DRAINAGE AREA.--27.2 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 375.83 ft 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.--9 years (water years 1975-83), 20.5 ft<sup>3</sup>/s (10.23 in/yr), 14,850 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,320 ft<sup>3</sup>/s Nov. 24, 1974 (gage height, 12.39 ft); no flow at times in water years 1974, 1978-80, and 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 27	1130	951	10.56	Feb. 21	1000	1,000	10.61
Dec. 3	0215	*3,070	11.89	Mar. 4	2115	1,060	10.66
Dec. 11	0945	1,050	10.65	May 27	1015	1,550	11.02
Dec. 27	1600	1,040	10.64				

Minimum observed discharge, no flow Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.23	2.3	5.0	12	12	8.7	17	3.9	9.1	3.8	.82	.47
2	.22	8.4	163	12	7.7	8.4	14	3.4	6.9	2.3	.68	.41
3	.26	3.4	1540	11	5.0	10	10	3.4	5.9	1.8	.55	.35
4	.31	1.5	119	9.3	4.3	418	8.6	3.1	4.5	1.3	.71	.38
5	.36	1.1	56	8.8	44	287	8.3	3.0	4.0	73	.92	.54
6	.56	1.3	24	8.5	39	33	7.4	3.2	15	23	.73	.54
7	1.1	1.4	12	8.3	17	17	6.9	3.0	10	4.5	.63	.48
8	1.3	1.2	8.0	8.5	12	12	6.9	2.0	5.6	2.5	.71	.40
9	2.5	1.5	6.2	8.6	49	10	6.5	2.0	4.2	1.8	.68	.43
10	1.1	2.0	30	7.7	123	8.4	5.9	2.3	3.5	1.5	.61	.44
11	.56	2.1	928	6.8	35	7.5	5.9	4.5	3.0	1.3	.59	.41
12	.65	2.6	255	6.0	21	7.3	5.6	4.3	3.0	1.1	.58	.32
13	.76	2.0	42	6.2	15	7.5	6.4	3.4	2.8	1.1	.45	.21
14	.58	1.9	23	5.9	13	7.2	6.3	3.8	2.7	1.2	.38	.10
15	.58	1.7	16	5.4	11	7.1	4.8	5.1	2.9	1.2	.36	.01
16	.59	1.9	12	5.5	10	6.6	4.5	3.6	3.1	1.4	.37	.09
17	.57	2.4	9.9	5.6	9.1	6.2	4.6	3.0	2.6	2.1	.31	.02
18	.64	2.6	9.8	5.4	8.5	5.7	4.0	3.3	2.4	15	.27	.15
19	.70	2.6	6.9	5.4	8.4	5.7	3.8	3.0	2.3	15	2.0	.47
20	.70	2.7	6.3	5.6	9.9	10	3.7	11	2.2	2.5	2.2	.77
21	.73	2.2	6.4	6.0	626	8.0	4.2	66	2.1	1.5	1.1	.93
22	1.1	2.3	6.8	5.8	97	6.5	4.7	36	1.9	1.2	.83	.71
23	.89	2.4	6.7	5.3	33	41	5.9	9.5	1.9	1.0	.72	.66
24	.76	1.5	7.8	5.1	21	33	4.8	5.4	2.1	.90	.62	.65
25	.78	1.4	6.9	5.1	14	16	4.1	4.0	2.8	.79	.57	.64
26	.96	13	7.8	5.6	11	105	3.9	3.4	3.6	.70	.52	.62
27	1.3	424	548	6.0	9.6	43	3.6	734	10	.58	.52	.65
28	2.0	38	150	5.9	9.0	15	3.7	68	4.6	.52	.57	.66
29	3.0	8.8	32	6.0	---	11	3.6	13	232	.60	.59	.66
30	2.2	5.2	17	4.9	---	36	4.2	7.6	15	1.6	.56	.66
31	2.3	---	13	5.0	---	27	---	9.8	---	1.1	.51	---
TOTAL	30.29	545.4	4074.5	213.2	1274.5	1224.8	183.8	1031.0	371.7	167.89	21.66	13.83
MEAN	.98	18.2	131	6.88	45.5	39.5	6.13	33.3	12.4	5.42	.70	.46
MAX	3.0	424	1540	12	626	418	17	734	232	73	2.2	.93
MIN	.22	1.1	5.0	4.9	4.3	5.7	3.6	2.0	1.9	.52	.27	.01
CFSM	.04	.67	4.82	.25	1.67	1.45	.23	1.22	.46	.20	.03	.02
IN.	.04	.75	5.57	.29	1.74	1.68	.25	1.41	.51	.23	.03	.02
AC-FT	60	1080	8080	423	2530	2430	365	2040	737	333	43	27

CAL YR 1982	TOTAL	7917.77	MEAN	21.7	MAX	1540	MIN	.00	CFSM	.80	IN	10.83	AC-FT	15700
WTR YR 1983	TOTAL	9152.57	MEAN	25.1	MAX	1540	MIN	.01	CFSM	.92	IN	12.52	AC-FT	18150

## 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 upstream from Andy's Creek, 2.6 mi downstream from Panther Creek, and 10.3 mi southeast of Mount Vernon.

DRAINAGE AREA.--75.0 mi<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 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 wide located to the left of left end of dam. The service spillway is a rectangular 23- by 23-foot drop inlet located near the right end of dam. The low-flow outlet works consist of an 18-inch-diameter concrete pipe that has duplicate valve controls and discharges into the service spillway conduit. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	397.0	-
Crest of spillway.....	385.0	100,400
Crest of spillway.....	378.0	72,850
Lowest gated outlet (invert).....	317.75	0

COOPERATION.--The capacity table, furnished by the Franklin County Water District, was based on data prepared by Wisenbaker, Fix, and Associates, Consulting Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 83,770 acre-ft Feb. 2, 1975 (elevation, 381.00 ft); minimum, 59,440 acre-ft Nov. 12-14, 1978 (elevation, 373.79 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 80,350 acre-ft Dec. 3 at 1700 hours (elevation, 380.10 ft); minimum, 69,030 acre-ft Oct. 26, 27 (elevation, 376.86 ft).

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	381.0	83,770

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69650	69160	71800	75070	73400	74370	74440	73470	74440	74300	72680	71320
2	69620	69590	76340	74960	73260	74330	74370	73500	74330	74160	72610	71260
3	69620	69590	80350	74750	73300	74470	74260	73430	74260	74160	72510	71190
4	69560	69590	79570	74720	73300	76340	74160	73430	74160	73880	72510	71050
5	69490	69490	78650	74540	73610	76660	74120	73360	74090	74330	72470	70990
6	69490	69490	77810	74400	73740	76300	74060	73300	74120	74330	72440	70990
7	69490	69490	77160	74370	73740	75880	73920	73300	74060	74160	72440	70920
8	69490	69460	76590	74230	73740	75560	73880	73190	73990	74020	72410	70820
9	69790	69420	76020	73990	74060	75170	73780	73160	73570	73920	72410	70750
10	69720	69420	76340	73780	74230	74930	73710	73160	73470	73780	72340	70720
11	69620	69420	77780	73640	74260	74750	73710	73260	73330	73670	72270	70650
12	69520	69390	77780	73610	74260	74580	73640	73260	73300	73570	72170	70650
13	69520	69390	77200	73540	74260	74440	73780	73260	73260	73540	72100	70590
14	69520	69290	76950	73540	74230	74370	73670	73400	73230	73430	72070	70490
15	69520	69260	76200	73500	74160	74230	73640	73330	73190	73400	72070	70420
16	69460	69260	75880	73470	74120	74160	73610	73330	73160	73400	72030	70390
17	69420	69260	75520	73470	74060	74060	73540	73260	73050	73400	71960	70250
18	69390	69260	75310	73430	73990	73950	73430	73330	73020	73360	71830	70250
19	69390	69260	75070	73400	73920	73990	73330	73260	72990	73360	71930	70290
20	69220	69220	74890	73400	74020	73850	73330	73640	72990	73330	71930	70150
21	69160	69260	74750	73400	75170	73810	73430	74260	72850	73260	71900	70050
22	69160	69260	74610	73360	75350	73740	73470	74330	72850	73190	71830	69990
23	69160	69290	74540	73360	75350	74060	73500	74300	72850	73120	71830	69990
24	69130	69260	74470	73360	75140	74120	73470	74230	72850	73050	71760	69850
25	69130	69220	74330	73360	74890	74060	73430	74090	73190	72990	71730	69820
26	69030	69950	74400	73360	74720	74580	73430	74020	73190	72920	71690	69820
27	69030	71420	75770	73330	74580	74580	73430	74930	73300	72850	71560	69820
28	69160	71560	75840	73330	74470	74470	73470	75030	73260	72810	71560	69750
29	69160	71690	75700	73330	---	74330	73470	74890	74580	72750	71560	69720
30	69160	71690	75450	73330	---	74440	73430	74680	74510	72750	71490	69690
31	69160	---	75210	73430	---	74510	---	74610	---	72680	71360	---
MAX	69790	71690	80350	75070	75350	76660	74440	75030	74580	74330	72680	71320
MIN	69030	69160	71800	73330	73260	73740	73330	73160	72850	72680	71360	69690
(†)	376.90	377.66	378.68	378.17	378.47	378.48	378.17	378.51	378.48	377.95	377.56	377.06
(‡)	-460	+2530	+3520	-1780	+1040	+40	-1080	+1180	-100	-1,830	-1320	-1670

CAL YR 1982 MAX 80350 MIN 69030 ± +2300

WTR YR 1983 MAX 80350 MIN 69030 ± +70

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.



## 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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JAN 17...	1125	158	10.5	40	8.4	4.7	12

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 17...	.8	4.0	20	17	.10	4.3

## RED RIVER BASIN

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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 north of Scroggins, 0.3 mi downstream from Briary Creek, 2.5 mi upstream from South Brushy Creek, and 9.5 mi upstream from mouth.

DRAINAGE AREA.--23.4 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 343.90 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years (water years 1979-83), 17.4 ft<sup>3</sup>/s (10.10 in/yr), 12,610 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,140 ft<sup>3</sup>/s Sept. 20, 1979 (gage height, 13.46 ft); 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, 7,520 ft<sup>3</sup>/s Dec. 2 at 2230 hours (gage height, 14.39 ft), no other peak above base of 800 ft<sup>3</sup>/s; minimum, 0.21 ft<sup>3</sup>/s Aug. 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.4	12	16	18	13	20	6.0	6.0	5.1	.39	.27
2	1.5	11	903	17	13	12	22	5.8	5.0	3.7	.32	.26
3	1.5	3.4	991	16	11	14	15	5.8	4.4	3.1	.29	.26
4	1.3	1.0	119	14	10	263	13	5.4	4.1	2.6	.28	.30
5	1.3	.70	116	14	45	174	13	4.6	3.7	62	.33	.35
6	1.3	.66	53	13	36	42	12	4.3	13	53	.35	.38
7	1.1	.70	22	13	16	22	12	4.1	9.0	3.5	.34	.35
8	1.0	.66	18	13	13	18	11	3.8	5.0	1.5	.52	.35
9	6.0	.66	16	13	61	15	10	3.7	3.6	1.0	.53	.38
10	1.1	.66	29	13	124	14	9.7	4.2	3.0	.83	.48	.45
11	.58	.62	241	12	28	13	9.2	5.9	2.7	.65	.40	.54
12	.47	.78	137	11	18	12	8.7	5.4	2.7	.55	.34	.57
13	.44	.78	40	11	16	12	15	4.4	2.5	.52	.34	.57
14	.47	.62	25	11	14	12	23	4.7	2.5	.62	.30	.51
15	.44	.58	21	10	14	12	12	6.1	3.0	.78	.31	.42
16	.42	.58	17	10	13	11	10	4.7	2.9	1.1	.33	.28
17	.47	.70	16	10	12	11	8.7	4.2	2.3	1.3	.27	.31
18	.62	.86	15	9.7	12	10	8.2	4.5	2.4	4.5	.22	.38
19	.78	.91	14	9.4	12	10	7.7	4.2	2.3	14	.98	.61
20	1.2	.96	13	9.4	13	21	7.5	6.4	2.1	2.1	1.3	.84
21	1.4	.91	13	10	134	15	7.6	57	1.9	1.2	.70	.95
22	1.6	.82	13	10	70	12	7.8	31	1.9	.78	.56	.84
23	1.6	1.1	13	9.7	27	36	8.3	9.0	2.0	.62	.51	.74
24	1.6	1.1	14	9.2	20	36	8.2	5.5	2.0	.58	.42	.74
25	1.5	.74	14	8.9	17	18	6.8	4.7	3.8	.47	.39	.70
26	1.6	15	15	9.2	15	58	6.2	4.3	5.6	.37	.36	.66
27	1.4	381	138	10	14	44	5.9	620	11	.28	.34	.66
28	1.4	127	103	10	13	18	5.8	58	7.0	.26	.34	.62
29	2.2	23	26	10	---	14	5.8	7.1	25	.27	.35	.64
30	1.7	15	19	9.2	---	29	6.2	5.6	12	.32	.30	.62
31	1.4	---	17	9.7	---	24	---	7.3	---	.39	.25	---
TOTAL	40.69	593.90	3203	351.4	809	1015	316.3	907.7	154.4	167.99	13.14	15.55
MEAN	1.31	19.8	103	11.3	28.9	32.7	10.5	29.3	5.15	5.42	.42	.52
MAX	6.0	381	991	17	134	263	23	620	25	62	1.3	.95
MIN	.42	.58	12	8.9	10	10	5.8	3.7	1.9	.26	.22	.26
CFSM	.06	.85	4.40	.48	1.24	1.40	.45	1.25	.22	.23	.02	.02
IN	.06	.94	5.09	.56	1.29	1.61	.50	1.44	.25	.27	.02	.02
AC-FT	81	1180	6350	697	1600	2010	627	1800	306	333	26	31
CAL YR 1982	TOTAL	6962.22	MEAN 19.1	MAX 991	MIN .24	CFSM .82	IN 11.07	AC-FT 13810				
WTR YR 1983	TOTAL	7588.07	MEAN 20.8	MAX 991	MIN .22	CFSM .89	IN 12.06	AC-FT 15050				

## 07344489 LAKE BOB SANDLIN NEAR MOUNT PLEASANT, TX

LOCATION.--Lat 33°04'48", long 95°00'07", Titus County, Hydrologic Unit 11140305, in control room in left abutment of service spillway at left end of Fort Sherman Dam on Big Cypress Creek, 1.7 mi upstream from Tankersley Creek, 3.5 mi upstream from bridge on U.S. Highway 271, 5.7 mi southwest of the county courthouse in Mount Pleasant, and 129.2 mi upstream from mouth.

DRAINAGE AREA.--239 mi<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 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 wide, located to the left of the left end of the dam. The service spillway is 289.5 ft wide with 160 ft of net flow width controlled by four 40- by 22.5-foot tainter gates. The dam was built, 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> above this station is controlled by Lake Cypress Springs on Big Cypress Creek and from 36.0 mi<sup>2</sup> above this station is controlled by Montecello Reservoir on Blundell Creek, a tributary to Big Cypress Creek. Stage telemeter located at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	349.0	
Crest of uncontrolled spillway.....	341.3	251,000
Crest of gated spillway.....	316.5	64,790
Lowest gated outlet (invert).....	294.5	3,300

COOPERATION.--Area and capacity tables were compiled by Forest and Cotton, Inc., Consulting Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 215,400 acre-ft Mar. 4, 1983 (elevation, 337.72 ft); minimum, 516 acre-ft Aug. 8-17, 1977 (elevation, 290.00 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 215,400 acre-ft Mar. 4 at 1630 hours (elevation, 337.72 ft); minimum observed, 133,100 acre-ft Nov. 25 (elevation, 327.92 ft).

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

327.0	126,500	332.0	164,700
328.0	133,700	334.0	181,600
330.0	148,700	336.0	199,400
		338.0	218,100

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137200	134100	140100	202200	206900	213000	213600	212600	212900	213900	206900	201000
2	137100	135200	148600	202400	207000	213100	212800	212700	212800	213400	206600	200500
3	136900	135100	167000	202700	206600	213300	212800	212600	212600	213100	206300	200300
4	136600	134900	171000	203000	206700	214600	212900	212600	212500	213000	206100	200200
5	136400	134900	173500	203300	207900	213200	212500	212500	212300	213400	205900	199800
6	136400	134800	174800	203500	208300	213100	212600	212500	212600	213100	205600	199500
7	136400	134700	175800	203700	208500	213100	212500	212300	212500	213000	206100	199000
8	136400	134600	176500	204200	208700	213100	212600	212000	212500	212900	206000	198600
9	136600	134600	177100	204200	210200	212900	212500	211800	212400	213000	205900	198200
10	136400	134600	179400	204400	211400	212800	212600	211700	212100	212900	205600	198000
11	136200	134700	185600	204400	211900	213000	212600	212000	212000	212600	205800	197700
12	136200	134600	187700	204500	212200	213200	212700	211900	211700	212400	205300	197300
13	136100	134500	189000	204700	212500	213100	213300	211900	211600	212100	205200	197000
14	136100	134400	189800	204700	212700	213000	212700	212100	211500	211800	205100	196500
15	136000	134200	190400	204700	212900	212800	212600	211700	211200	211400	205100	196100
16	135800	134100	190800	204700	212800	212900	212500	211600	211000	211400	204800	196000
17	135700	134200	191200	204700	213000	212800	212600	211400	210900	211100	204700	195700
18	135700	134200	191700	204700	213300	212700	212500	211700	210700	210800	204300	195800
19	135600	134200	191800	204700	213100	213000	212300	211700	210700	211000	204600	195700
20	135400	134200	192200	204700	213100	213100	212500	212700	210600	210200	204300	195500
21	135400	134100	192500	204800	213200	212800	212600	213200	210200	210000	204100	195200
22	135300	134000	192700	205000	213100	212900	212800	213100	210200	209700	203700	194900
23	135400	133800	193100	204900	213100	213500	212500	212500	210000	209300	203500	194600
24	135000	133300	193500	204900	213100	213500	212500	212200	210000	208800	203200	194400
25	134800	133100	193600	205000	213100	213500	212400	212200	210400	208300	202900	194300
26	134600	135300	194500	205300	213200	212600	212400	212200	210400	208300	202800	194200
27	134400	138200	198800	205200	213200	212600	212400	212500	210800	207900	202500	193700
28	134600	138900	200400	205200	213100	212600	212500	212700	210700	207600	202400	193800
29	134500	139400	200900	205400	---	212800	212500	212800	213500	207400	202100	194000
30	134400	139700	201300	205400	---	213200	212600	213000	213500	207200	201800	193500
31	134300	---	201800	206300	---	213100	---	213200	---	207000	201200	---
MAX	137200	139700	201800	206300	213300	214600	213600	213200	213500	213900	206900	201000
MIN	134300	133100	140100	202200	206600	212600	212300	211400	210000	207000	201200	193500
(†)	328.08	328.81	336.26	336.75	337.47	337.47	337.42	337.48	337.52	336.82	336.20	335.35
(‡)	-3400	+5400	+62100	+4500	+6800	0	-500	+600	+300	-6500	-5800	-7700
CAL YR 1982	MAX	201800	MIN	133100	‡	+37700						
WTR YR 1983	MAX	214600	MIN	133100	‡	+55800						

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## 07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX

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

DRAINAGE AREA.--366 mi<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 National Geodetic Vertical Datum of 1929. Prior to Nov. 12, 1954, water-stage recorder at site 1,900 ft 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. Sewage effluent was returned to a tributary above the station by the city of Mount Pleasant, and sewage effluent was returned to a tributary below the gage by the city of Pittsburg. Gage-height telemeter located at 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 (12.13 in/yr), 236,900 acre-ft/yr; 11 years (water years 1973-83) regulated, 258 ft<sup>3</sup>/s (186,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,500 ft<sup>3</sup>/s Mar. 30, 1945 (gage height, 28.3 ft, from floodmark, and adjusted to present site on basis of record for flood of Apr. 27, 1958), from rating curve extended above 20,000 ft<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, present site, adjusted as explained above, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,990 ft<sup>3</sup>/s May 5 at 1100 hours (gage height, 16.97 ft); minimum, 3.0 ft<sup>3</sup>/s Oct. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	7.0	103	87	125	275	519	19	49	323	7.8	3.4
2	7.4	8.4	67	67	190	199	534	18	116	74	9.6	12
3	9.5	31	897	56	89	107	497	18	52	124	9.6	9.4
4	5.0	26	4560	49	45	920	306	18	16	97	11	5.0
5	3.7	14	1910	44	150	7450	216	18	12	25	10	4.8
6	4.0	11	990	41	428	3430	338	16	13	159	8.3	40
7	5.5	9.5	619	38	397	1130	225	15	17	237	9.2	17
8	6.2	8.7	159	40	137	868	119	14	15	69	13	14
9	10	8.0	69	39	130	593	147	13	13	15	8.0	14
10	11	6.6	64	35	438	452	40	13	11	11	5.8	14
11	11	9.1	635	30	488	274	34	16	10	9.3	5.2	14
12	8.4	10	1650	28	235	72	31	17	9.9	8.2	5.2	14
13	6.6	9.2	1430	27	95	91	120	16	9.6	8.9	5.3	14
14	8.7	7.7	817	26	60	181	452	14	9.4	12	17	14
15	8.0	7.3	272	24	47	240	444	16	9.3	12	10	14
16	6.8	7.2	104	22	116	190	235	17	9.5	10	6.0	13
17	6.9	6.4	68	21	128	104	54	15	9.6	9.4	5.3	13
18	5.6	6.2	55	19	45	213	36	38	9.4	10	4.8	13
19	4.8	7.1	49	19	69	54	30	181	9.1	11	4.6	13
20	3.9	7.7	46	19	159	77	30	78	9.1	8.4	5.1	15
21	3.1	7.5	39	20	441	259	28	224	8.9	8.6	5.8	14
22	3.1	7.8	34	20	1400	189	28	523	8.4	8.1	5.0	15
23	3.4	7.8	33	19	1350	137	56	483	8.3	7.2	4.5	14
24	4.0	6.8	35	18	1050	496	148	374	11	6.7	15	14
25	4.0	7.2	48	17	663	555	34	180	10	6.4	9.9	14
26	4.0	8.7	63	18	355	595	24	31	12	6.5	5.3	14
27	3.9	146	447	20	159	906	22	23	13	7.4	4.1	14
28	4.4	420	1610	20	219	904	21	23	16	10	3.7	13
29	6.0	747	1360	20	---	341	21	19	61	9.0	3.6	13
30	7.0	604	688	19	---	162	20	14	283	8.6	3.6	12
31	7.4	---	196	22	---	430	---	13	---	8.1	3.3	---
TOTAL	187.2	2170.9	19117	944	9208	21894	4809	2477	840.5	1319.8	224.6	407.6
MEAN	6.04	72.4	617	30.5	329	706	160	79.9	28.0	42.6	7.25	13.6
MAX	11	747	4560	87	1400	7450	534	523	283	323	17	40
MIN	3.1	6.2	33	17	45	54	20	13	8.3	6.4	3.3	3.4
AC-FT	371	4310	37920	1870	18260	43430	9540	4910	1670	2620	445	808
CAL YR 1982	TOTAL	91849.7	MEAN 252	MAX 4560	MIN 3.1	AC-FT 182200						
WTR YR 1983	TOTAL	63599.6	MEAN 174	MAX 7450	MIN 3.1	AC-FT 126100						

## RED RIVER BASIN

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year. Chemical and biochemical analyses: January to September 1983.

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, 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, 0.0°C Jan. 13, 14, 1982.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 781 micromhos Oct. 4; minimum daily, 88 micromhos Dec. 4.

WATER TEMPERATURES: Maximum daily, 30.0°C July 25, 26, 28; minimum daily, 5.0°C on several days during winter months.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
NOV 18...	1300	6.2	471	7.5	9.5	35	24	6.8	60	2.4	77
FEB 15...	1600	47	320	7.2	10.0	40	21	10.0	90	1.8	74
APR 07...	0945	225	223	7.2	11.5	25	12	9.5	88	1.6	58
MAY 24...	1805	374	220	6.9	21.0	5	6.0	8.7	99	.7	54
JUL 13...	1235	8.9	308	7.1	25.0	15	25	4.2	51	2.2	76
AUG 16...	1655	6.0	550	7.4	27.0	45	33	3.9	50	3.9	81

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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 18...	15	19	7.1	53	2.7	11	62	52	63	.30	12
FEB 15...	48	17	7.7	29	1.5	3.9	26	58	38	.10	12
APR 07...	26	13	6.2	19	1.1	4.1	32	34	27	.20	4.7
MAY 24...	24	12	5.8	17	1.0	4.5	30	29	23	.20	3.2
JUL 13...	24	18	7.5	27	1.4	6.1	52	37	35	.30	9.9
AUG 16...	20	20	7.6	66	3.3	13	61	55	79	.40	11

DATE	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, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 18...	255	27	4	3.6	.040	3.6	.160	1.3	1.50	1.30	9.8
FEB 15...	182	22	12	.68	.020	.70	.180	1.0	1.20	.220	7.5
APR 07...	127	24	6	--	<.020	.40	.180	.72	.90	.090	8.2
MAY 24...	113	37	<1	--	<.020	.30	.090	.81	.90	.150	7.3
JUL 13...	172	41	18	.66	.040	.70	.140	1.3	1.40	.250	11
AUG 16...	289	<1	<1	.00	.200	.20	.450	2.4	2.80	1.10	10



## RED RIVER BASIN

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07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 15...	1600	<1	58	<1	<10	1	53
MAY 24...	1805	1	48	<1	<10	1	100
AUG 16...	1655	3	51	<1	10	5	110

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 15...	<1	220	.1	1	<1	10
MAY 24...	3	68	<.1	1	<1	7
AUG 16...	<1	450	.2	<1	<1	12

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	187.2	541	283	143	82	42	57	29	83
NOV.	1982	2170.9	214	120	705	27	157	30	174	50
DEC.	1982	19117	125	72	3740	14	742	19	982	33
JAN.	1983	944	356	195	497	48	122	45	115	73
FEB.	1983	9208	236	133	3320	29	729	33	826	56
MAR.	1983	21894	196	112	6600	23	1390	28	1680	48
APR.	1983	4809	245	138	1800	30	396	34	446	58
MAY	1983	2477	249	140	938	31	209	35	231	58
JUNE	1983	840.5	307	170	385	41	92	40	91	65
JULY	1983	1319.8	246	138	492	31	111	34	121	56
AUG.	1983	224.6	494	262	159	73	44	55	33	83
SEPT	1983	407.6	333	184	202	44	49	43	48	70
TOTAL		63599.6	**	**	19000	**	4080	**	4780	**
WTD. AVG.		174	195	110	**	24	**	28	**	47

## RED RIVER BASIN

07344500 BIG CYPRESS CREEK NEAR PITTSBURG, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	679	469	255	248	277	243	230	360	400	197	520	406
2	669	465	275	272	250	259	217	365	230	295	525	450
3	665	455	120	286	359	258	232	370	240	219	530	694
4	781	452	88	288	348	184	231	380	250	216	560	400
5	540	523	92	320	356	173	238	400	260	224	600	376
6	462	410	130	344	375	160	233	405	270	205	610	337
7	396	376	157	331	250	185	241	410	290	218	600	342
8	385	386	200	334	253	215	307	400	340	225	500	356
9	400	391	229	353	286	221	248	395	360	239	260	358
10	615	419	250	338	226	225	281	390	380	253	460	301
11	758	424	141	339	200	227	328	380	390	270	560	297
12	765	448	124	358	246	283	335	360	400	290	550	294
13	613	472	100	380	273	291	252	410	420	305	470	316
14	513	483	129	429	293	240	236	420	430	337	450	317
15	477	476	182	401	313	235	242	390	440	372	480	310
16	460	481	228	378	259	242	238	370	430	405	510	298
17	450	489	245	408	285	297	284	380	420	449	540	300
18	438	477	260	394	327	228	299	310	430	455	570	292
19	514	453	285	408	345	261	315	190	440	429	575	299
20	520	422	307	416	256	290	331	230	450	423	580	315
21	510	426	310	413	198	246	339	270	470	422	510	335
22	501	430	304	421	195	248	335	210	480	416	580	324
23	491	434	302	445	205	253	340	230	500	424	550	338
24	482	446	336	460	215	214	240	220	510	442	440	325
25	469	460	337	440	230	242	282	250	520	487	420	313
26	471	502	363	431	237	226	334	280	500	515	390	315
27	481	256	200	440	311	210	357	320	560	517	380	314
28	479	241	140	450	249	220	360	340	510	522	360	305
29	456	136	114	460	---	230	361	330	320	532	350	301
30	464	181	152	467	---	263	366	340	230	535	360	311
31	470	---	208	466	---	234	---	320	---	537	370	---
MEAN	528	416	212	384	272	236	288	336	396	367	489	341

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	18.0	16.0	6.0	10.0	13.0	16.0	21.0	20.0	27.0	29.0	26.0
2	20.0	18.0	17.0	7.0	7.0	13.0	13.0	22.0	22.0	27.0	29.0	25.0
3	20.0	16.0	17.0	6.0	6.0	14.0	14.0	21.0	23.0	27.0	28.0	25.0
4	20.0	14.0	15.0	5.0	5.0	16.0	13.0	21.0	23.0	27.0	28.0	25.0
5	21.0	11.0	12.0	5.0	5.0	14.0	15.0	20.0	23.0	27.0	29.0	25.0
6	22.0	12.0	12.0	5.0	5.0	14.0	13.0	21.0	23.0	26.0	27.0	25.0
7	23.0	14.0	10.0	7.0	5.0	15.0	12.0	21.0	24.0	25.0	27.0	25.0
8	23.0	14.0	11.0	9.0	5.0	14.0	13.0	19.0	24.0	25.0	27.0	25.0
9	23.0	13.0	10.0	10.0	8.0	13.0	14.0	19.0	24.0	23.0	28.0	25.0
10	21.0	15.0	10.0	10.0	9.0	13.0	13.0	19.0	24.0	25.0	28.0	25.0
11	18.0	15.0	10.0	9.0	9.0	10.0	17.0	20.0	23.0	27.0	28.0	25.0
12	18.0	15.0	6.0	9.0	9.0	12.0	18.0	22.0	22.0	27.0	---	24.0
13	17.0	12.0	5.0	9.0	9.0	11.0	19.0	23.0	25.0	26.0	29.0	24.0
14	16.0	10.0	5.0	9.0	8.0	13.0	16.0	23.0	25.0	25.0	26.0	23.0
15	15.0	9.0	8.0	8.0	9.0	15.0	15.0	20.0	24.0	26.0	27.0	22.0
16	15.0	8.0	7.0	6.0	10.0	15.0	14.0	20.0	25.0	25.0	27.0	23.0
17	15.0	9.0	9.0	6.0	11.0	15.0	15.0	21.0	25.0	25.0	27.0	24.0
18	15.0	10.0	9.0	7.0	10.0	12.0	17.0	21.0	23.0	27.0	27.0	24.0
19	17.0	12.0	10.0	6.0	12.0	12.0	15.0	22.0	23.0	28.0	26.0	24.0
20	16.0	13.0	9.0	5.0	12.0	12.0	13.0	21.0	23.0	28.0	25.0	24.0
21	15.0	15.0	9.0	5.0	12.0	10.0	14.0	20.0	26.0	29.0	26.0	20.0
22	12.0	15.0	11.0	5.0	12.0	10.0	15.0	20.0	26.0	29.0	26.0	16.0
23	12.0	17.0	13.0	5.0	14.0	10.0	16.0	22.0	26.0	27.0	26.0	16.0
24	11.0	12.0	16.0	6.0	13.0	10.0	15.0	22.0	25.0	27.0	27.0	16.0
25	10.0	10.0	15.0	5.0	11.0	11.0	17.0	22.0	24.0	30.0	28.0	17.0
26	10.0	10.0	13.0	6.0	11.0	13.0	19.0	23.0	25.0	30.0	27.0	18.0
27	11.0	10.0	11.0	6.0	10.0	13.0	19.0	24.0	27.0	29.0	28.0	18.0
28	13.0	9.0	9.0	7.0	10.0	11.0	---	24.0	27.0	30.0	28.0	20.0
29	14.0	11.0	6.0	8.0	---	13.0	21.0	22.0	25.0	29.0	27.0	20.0
30	15.0	13.0	5.0	8.0	---	13.0	21.0	25.0	27.0	27.0	27.0	18.0
31	17.0	---	5.0	9.0	---	15.0	---	20.0	---	27.0	27.0	---
MEAN	16.5	12.5	10.5	7.0	9.0	12.5	15.5	21.5	24.0	27.0	27.5	22.0

## 07345500 ELLISON CREEK RESERVOIR NEAR LONE STAR, TX

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

DRAINAGE AREA.--37.0 mi<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 lower.

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

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

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

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

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 26,900 acre-ft Dec. 3 (elevation, 269.55 ft); minimum daily, 21,960 acre-ft Oct. 6 (elevation, 266.30 ft).

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
		270.0	27,620

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22110	22630	24860	24900	25450	24920	24950	24490	24560	25030	23770	24190
2	22110	22970	24970	24870	25290	24890	24900	24490	24400	24940	23800	24190
3	22060	23000	26520	24840	25170	25030	24890	24460	24280	24840	23810	24130
4	22000	23030	25690	24830	25180	25540	24900	24400	24260	24660	23830	24050
5	21970	23080	25350	24800	25620	25460	24900	24320	24260	24830	23840	23980
6	22020	23140	25140	24780	25460	25250	24860	24250	24340	24800	23860	23870
7	22170	23180	25040	24780	25460	25120	24800	24190	24320	24630	24070	23780
8	22250	23230	24900	24760	25170	25040	24760	24130	24290	24500	24110	23710
9	22370	23270	24830	24730	25650	24950	24730	24050	24260	24170	24130	23660
10	22350	23350	25140	24750	25490	24890	24730	23990	24220	24040	24110	23600
11	22340	23350	25510	24840	25310	24890	24720	24110	24140	24140	24110	23560
12	22440	23380	25350	24940	25200	24890	24700	24050	24050	24100	24110	23510
13	22440	23360	25140	25000	25140	24890	24500	23980	23980	24080	24110	23500
14	22450	23350	25040	25040	25110	24900	24520	24040	23840	24130	24190	23440
15	22450	23320	24950	25060	25040	24900	24550	24020	23770	24170	24220	23360
16	22440	23300	24890	25200	25010	24900	24560	23950	23710	24260	24220	23300
17	22420	23350	24840	25260	24970	24860	24630	23890	23650	24340	24200	23240
18	22410	23390	24810	25310	24940	24830	24640	24220	23540	24410	24220	23290
19	22480	23380	24800	25370	24920	24890	24690	24640	23680	24310	24230	23230
20	22450	23330	24760	25420	25010	24900	24720	25030	23780	24110	24230	23210
21	22390	23320	24730	25430	25320	24860	24730	25210	23840	23890	24230	21690
22	22350	23260	24720	25430	25280	24830	24700	25320	23870	23740	24230	21710
23	22350	23710	25000	25430	25180	25110	24690	25200	23900	23690	24230	21720
24	22350	23990	25070	25450	25090	25090	24690	25070	23930	23660	24220	23210
25	22350	23990	25040	25490	25030	25010	24640	25000	23950	23620	24230	23240
26	22340	24610	24920	25480	24980	25150	24610	24920	24040	23630	24260	23230
27	22340	25320	25490	25490	24950	25070	24560	24870	24310	23630	24260	23230
28	22480	25200	25350	25520	24940	25010	24530	24780	24460	23650	24260	23210
29	22540	25040	25150	25510	---	25000	24500	24720	24920	23660	24230	23200
30	22580	24800	25040	25510	---	25010	24490	24720	25110	23710	24220	23200
31	22600	---	24970	24800	---	24970	---	24640	---	23750	24200	---
MAX	22600	25320	26520	25520	25650	25540	24950	25320	25110	25030	24260	24190
MIN	21970	22630	24720	24730	24920	24830	24490	23890	23540	23620	23770	21690
(†)	266.75	268.21	268.32	268.21	268.30	268.32	268.01	268.11	268.41	267.52	267.82	267.15
(‡)	+440	+2200	+170	-170	+140	+30	-480	+150	+470	-1360	+450	-1000
CAL YR 1982	MAX	26520	MIN	21970	±	+1560						
WTR YR 1983	MAX	26520	MIN	21690	±	+1040						

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

## 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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JAN 07...	1112	379	11.0	110	80	36	5.7	23

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JAN 07...	1.0	8.8	34	82	41	1.0	5.6	223

## 07345900 LAKE O' THE PINES NEAR JEFFERSON, TX

LOCATION.--Lat 32°45'04", long 94°29'59", Marion County, Hydrologic Unit 11140305, on left bank 1,500 ft upstream from left end of Ferrell's Bridge Dam on Big Cypress Creek, on Farm Road 726, 9.0 mi west of Jefferson, and 80.1 mi upstream from mouth.

DRAINAGE AREA.--850 mi<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, non-recording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 10,600 ft long, including a 200-foot-wide concrete spillway. Impoundment of water began Aug. 21, 1957, and the dam was completed June 25, 1958. Official operation began Dec. 11, 1959. The flood-control outlet works consist of two 10.0-foot-diameter conduits that are controlled by two 8.0- by 12.5-foot electrically driven broome-type gates. The low-flow outlet works consist of a controlled 14-inch pipe. Flow over the spillway is discharged into a 2,000-foot-long rectified channel and then into Cypress Creek. The capacity table is based on a survey made in 1950. The lake was built for flood control, conservation, and water supply. During the current year, an unknown amount of water was diverted from the lake for municipal and industrial uses. Figures given herein represent total contents. Data regarding the dam and lake are given in the following:

	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 May 5, 1966 (elevation, 245.41 ft); minimum since December 1959, 219,700 acre-ft Nov. 16, 1963 (elevation, 226.54 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 337,500 acre-ft Jan. 2 at 0200 hours (elevation, 232.59 ft); minimum daily, 253,400 acre-ft Oct. 28 (elevation, 228.42 ft).

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 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261400	257500	263900	335300	268500	278800	264300	263300	288300	290300	279500	267300
2	261200	259500	264800	337300	267700	279200	260300	263500	288100	291100	278600	266600
3	259900	259700	271900	336800	266400	278800	259000	263700	288300	291900	278200	265400
4	259000	259200	275600	336200	265400	284100	259400	263100	288500	292500	278000	264800
5	259000	257700	280900	335800	267500	288500	259700	262200	288900	294500	277800	264100
6	259000	257700	287300	335300	268100	300600	259700	261600	290000	294300	277800	263700
7	260300	257100	291700	334900	267300	312100	257800	262800	290000	293900	277800	263700
8	262000	257800	295300	334000	266800	315500	258600	261800	290000	293700	277200	262900
9	262000	258200	296300	332900	269100	317100	257500	261600	290000	293900	276800	263100
10	261200	257800	298700	332900	271400	317800	257300	261200	290000	293300	276400	262600
11	260700	258000	302000	330800	271600	317800	256500	262800	289400	292500	276200	261800
12	260500	257800	303600	326700	271200	316900	256900	262900	289400	292100	275600	261200
13	259900	256500	305500	323700	270000	316500	259400	263100	289400	291300	274900	261800
14	259400	256700	310000	320500	268300	316100	259000	267100	289800	290300	274300	261100
15	258800	256900	314200	316900	266800	314800	259700	266400	289200	289200	273900	260500
16	257300	257700	316300	314000	263900	313000	260900	265600	289000	288500	274500	259700
17	256500	258000	317600	310200	262600	310700	262000	265000	288700	287100	273700	259000
18	256000	256900	318400	306300	261400	306700	262200	266900	287900	286100	271800	258600
19	256200	257700	319000	303400	259200	304700	262200	267900	287700	285300	271400	259200
20	256200	257700	318000	300800	260100	303400	262600	271000	287300	285100	271400	259700
21	256300	257500	317100	297500	263900	298100	262800	278000	286900	285100	271000	259000
22	255600	257700	316700	294300	266200	293100	263700	280700	287300	284900	270600	258400
23	255600	258600	316500	290700	267900	290700	263700	283100	287300	284700	270400	258000
24	255600	258200	316900	297300	270800	286900	263500	285100	287100	284300	270200	257300
25	255600	257800	317400	283900	273700	280500	263100	285700	287300	283900	270000	256700
26	255400	259500	316300	280700	276000	277600	263500	286100	287300	283300	269800	256700
27	255000	264300	318400	277200	275800	274900	263300	287100	287700	282700	268900	256000
28	256300	264300	321600	273900	278600	270600	263100	287700	286700	282100	268500	255800
29	256700	264500	326700	271000	---	268900	262900	287900	289200	281100	268100	255600
30	256700	264300	329500	268100	---	266400	262800	287900	289800	280700	267900	255200
31	256700	---	332300	269100	---	264500	---	288300	---	280300	267500	---
MAX	262000	264500	332300	337300	278600	317800	264300	288300	290000	294500	279500	267300
MIN	255000	256500	263900	268100	259200	264500	256500	261200	286700	280300	267500	255200
(†)	228.60	229.00	232.35	229.25	229.74	229.01	228.92	230.23	230.31	229.83	229.17	228.52
(‡)	-4900	+7600	+68000	-63400	+9500	-14000	-1700	+25500	+1500	-9500	-12800	-12300
CAL YR 1982	MAX	332300	MIN	255000	†	+69900						
WTR YR 1983	MAX	337300	MIN	255000	‡	-6400						

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



## 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 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
26...	0945	1.00	145	6.5	7.5	10.7	91
26...	0946	10.0	145	6.5	7.5	10.7	91
26...	0947	20.0	145	6.5	7.5	10.7	91
26...	0948	32.0	145	6.4	7.5	10.7	91
MAY							
17...	1450	1.00	150	7.0	22.0	8.0	92
17...	1451	10.0	150	6.8	21.0	7.7	87
17...	1452	20.0	150	6.8	21.0	7.7	87
17...	1453	30.0	150	6.8	21.0	7.7	87
AUG							
10...	0901	1.00	150	7.2	30.0	6.9	92
10...	0902	10.0	150	6.6	29.0	6.2	81
10...	0903	20.0	150	6.1	28.0	1.6	21
10...	0904	30.0	168	6.5	23.0	.2	2
10...	0905	40.0	175	6.5	22.0	.2	2

324518094300801 LAKE O'THE PINES SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI KF AGAR (COLS. PER 100 ML)
JAN										
26...	0915	1.00	145	6.5	7.5	2.00	10.7	91	K1	K3
26...	0917	10.0	145	6.5	7.5	--	10.7	91	--	--
26...	0918	20.0	145	6.5	7.5	--	10.7	91	--	--
26...	0919	30.0	145	6.4	7.5	--	10.7	91	--	--
26...	0920	40.0	145	6.4	7.5	--	10.7	91	--	--
26...	0921	47.0	145	6.4	7.5	--	10.7	91	--	--
MAY										
17...	1430	1.00	149	7.0	22.0	1.80	8.0	92	K3	<1
17...	1432	10.0	149	6.8	21.0	--	7.9	90	--	--
17...	1433	20.0	149	6.8	21.0	--	7.9	90	--	--
17...	1434	30.0	149	6.7	21.0	--	7.7	87	--	--
17...	1435	40.0	150	6.2	19.5	--	5.2	57	--	--
17...	1436	46.0	154	6.2	19.0	--	3.6	39	--	--
AUG										
10...	0845	1.00	150	7.1	30.0	2.70	6.8	90	K3	K2
10...	0847	10.0	150	6.6	29.0	--	6.1	80	--	--
10...	0848	20.0	150	6.1	28.0	--	1.5	19	--	--
10...	0849	25.0	164	6.2	24.5	--	.2	2	--	--
10...	0850	30.0	168	6.5	23.0	--	.2	2	--	--
10...	0851	40.0	172	6.5	22.5	--	.2	2	--	--
10...	0852	50.0	175	6.5	22.0	--	.2	2	--	--

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN										
26...	26	16	4.1	3.9	14	1.2	4.5	10	25	17
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
26...	26	15	4.0	3.9	14	1.2	4.5	11	24	17
MAY										
17...	33	21	7.4	3.6	13	1.0	4.0	12	30	16
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	34	20	7.6	3.6	12	.9	4.0	14	29	17
AUG										
10...	32	19	6.7	3.7	13	1.0	4.0	13	26	16
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--
10...	37	0	8.5	3.8	13	1.0	4.1	43	11	16

## 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 1982 TO SEPTEMBER 1983

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									
26...	.20	10	85	<.10	1.00	--	.020	70	14
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	<.10	1.30	--	.020	60	10
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	10	84	<.10	1.00	--	.020	67	13
MAY									
17...	.20	7.5	89	<.10	.50	--	.010	120	4
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	<.10	.56	--	.010	140	20
17...	--	--	--	.10	.90	1.0	.010	160	50
17...	--	9.6	92	.10	.80	.90	.010	150	420
AUG									
10...	.20	7.5	85	<.10	.70	--	.050	11	160
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	<.10	.90	--	.020	310	850
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	<.10	1.00	--	.070	2200	4400
10...	--	--	--	--	--	--	--	--	--
10...	--	12	103	<.10	1.60	--	.170	3900	5200

324613094323001 LAKE O'THE PINES SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
26...	1000	1.00	145	6.7	7.5	1.80	10.9
26...	1001	10.0	145	6.6	7.5	--	10.8
26...	1002	20.0	145	6.6	7.5	--	10.8
26...	1003	30.0	145	6.6	7.5	--	10.8
26...	1004	40.0	145	6.6	7.5	--	10.8
26...	1005	47.0	145	6.6	7.5	--	10.8
MAY							
17...	1520	1.00	150	7.0	22.0	1.50	8.0
17...	1521	10.0	150	6.9	21.5	--	8.0
17...	1522	20.0	152	6.9	21.0	--	7.8
17...	1523	30.0	152	6.7	21.0	--	7.4
17...	1524	35.0	153	6.5	20.5	--	6.8
17...	1525	40.0	155	6.3	19.5	--	3.8
17...	1526	44.0	156	6.2	19.5	--	2.9
AUG							
10...	0920	1.00	150	7.2	30.0	2.70	6.8
10...	0921	10.0	150	6.9	30.0	--	6.6
10...	0922	15.0	150	6.7	29.5	--	6.1
10...	0923	20.0	152	6.2	27.0	--	.2
10...	0924	30.0	169	6.5	23.5	--	.2
10...	0925	43.0	174	6.5	22.0	--	.2

## RED RIVER BASIN

## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

## 324613094323001 LAKE O'THE PINES SITE BC--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN						
26...	92	<.10	1.10	.020	100	10
26...	92	--	--	--	--	--
26...	92	--	--	--	--	--
26...	92	<.10	1.10	.030	60	10
26...	92	--	--	--	--	--
26...	92	<.10	1.80	.020	110	10
MAY						
17...	92	<.10	.60	.010	140	30
17...	92	--	--	--	--	--
17...	88	--	--	--	--	--
17...	84	<.10	1.00	.020	150	120
17...	76	--	--	--	--	--
17...	42	<.10	1.20	.020	170	440
17...	32	<.10	1.00	.020	190	580
AUG						
10...	90	<.10	.70	.020	60	200
10...	88	<.10	.70	.010	90	370
10...	80	--	--	--	--	--
10...	3	<.10	.70	.050	560	1600
10...	2	--	--	--	--	--
10...	2	<.10	1.70	.140	4900	4200

## 324738094325101 LAKE O'THE PINES SITE CC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
26...	1130	1.00	139	6.4	7.5	10.4	88
26...	1131	10.0	139	6.4	7.5	10.3	87
26...	1132	15.0	139	6.4	7.5	9.9	84
26...	1133	22.0	139	6.4	7.0	9.8	82
MAY							
17...	1640	1.00	154	7.0	24.0	7.8	94
17...	1641	10.0	154	6.7	22.5	7.6	89
17...	1642	20.0	154	6.6	21.5	6.6	76
AUG							
10...	1033	1.00	150	7.0	31.0	6.7	91
10...	1034	10.0	150	6.8	30.0	6.3	84
10...	1035	15.0	150	6.1	29.5	2.5	33
10...	1036	20.0	169	6.4	29.0	.2	3
10...	1037	23.0	170	6.4	27.5	.2	3

## 324806094350001 LAKE O'THE PINES SITE DC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
26...	1110	1.00	128	6.5	7.0	10.8	90
26...	1111	10.0	128	6.5	7.0	10.8	90
26...	1112	20.0	128	6.5	7.0	10.8	90
26...	1113	24.0	128	6.5	7.0	10.8	90
MAY							
17...	1615	1.00	145	7.0	25.0	7.7	94
17...	1616	10.0	128	6.8	22.0	8.0	92
17...	1617	20.0	133	6.6	22.0	7.2	83
17...	1618	23.0	133	6.6	22.0	7.2	83
AUG							
10...	1010	1.00	145	6.9	30.5	6.5	87
10...	1011	10.0	145	6.6	30.0	6.2	82
10...	1012	20.0	148	6.2	29.5	2.5	33
10...	1013	26.0	148	6.2	29.5	2.2	29

## RED RIVER BASIN

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## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324726094363801 LAKE O'THE PINES SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TRANSPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
26...	1040	1.00	153	6.7	7.0	1.90	10.9	91	<1	K16
26...	1041	10.0	153	6.7	7.0	--	10.9	91	--	--
26...	1042	20.0	153	6.7	7.0	--	10.9	91	--	--
26...	1043	31.0	153	6.7	7.0	--	10.9	91	--	--
MAY										
17...	1548	1.00	152	7.0	23.0	1.50	8.0	94	K6	K5
17...	1549	10.0	152	6.9	22.5	--	7.9	92	--	--
17...	1550	20.0	156	6.9	22.0	--	7.5	87	--	--
17...	1551	30.0	156	6.8	22.0	--	7.4	86	--	--
AUG										
10...	0945	1.00	150	7.0	30.0	2.10	6.8	90	K2	<1
10...	0946	10.0	150	6.4	29.5	--	5.4	71	--	--
10...	0947	15.0	150	6.3	29.0	--	4.3	56	--	--
10...	0948	20.0	152	6.2	28.5	--	.2	3	--	--
10...	0949	31.0	192	6.7	23.5	--	.2	2	--	--

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY FIELD (MG/L CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
26...	33	21	7.1	3.6	13	1.0	4.6	12	31
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	33	21	7.1	3.6	13	1.0	4.6	12	29
MAY									
17...	34	21	7.5	3.8	13	1.0	3.9	13	30
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	36	23	7.9	3.9	13	1.0	3.8	13	31
AUG									
10...	32	19	6.4	3.8	14	1.1	4.0	13	27
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	46	0	11	4.6	14	.9	4.1	57	18

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									
26...	16	10	93	.10	1.20	1.3	.050	200	26
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	15	10	90	<.10	1.00	--	.040	190	25
MAY									
17...	16	6.9	89	<.10	.90	--	.010	150	4
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	17	6.7	91	<.10	1.30	--	.020	150	9
AUG									
10...	18	8.5	90	<.10	.90	--	.040	15	75
10...	--	--	--	<.10	.80	--	.040	80	220
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	<.10	.90	--	.030	500	1600
10...	16	13	128	<.10	2.00	--	.180	6900	6000

## RED RIVER BASIN

LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

325100094420301 LAKE O'THE PINES SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
JAN									
26...	1530	1.00	207	6.8	6.5	1.50	11.1	92	K2
26...	1532	10.0	215	6.8	6.5	--	11.0	91	--
26...	1534	22.0	228	6.8	6.5	--	11.0	91	--
MAY									
17...	1830	1.00	201	7.3	22.5	1.20	8.8	103	K9
17...	1832	10.0	207	7.0	21.5	--	8.3	95	--
17...	1833	21.0	207	6.9	21.5	--	7.9	90	--
AUG									
10...	1150	1.00	150	6.5	31.0	1.20	6.0	81	K5
10...	1152	5.00	155	6.2	29.0	--	2.4	31	--
10...	1153	10.0	165	6.2	29.0	--	.2	3	--
10...	1154	15.0	167	6.2	29.0	--	.2	3	--
10...	1155	20.0	167	6.2	29.0	--	.2	3	--
10...	1156	23.0	167	6.2	29.0	--	.2	3	--

DATE	STREP- TOCOCCHI 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)	ALKA- LINITY FIELD (MG/L AS CACO3)
JAN									
26...	K9	52	29	14	4.2	17	1.1	4.3	23
26...	--	--	--	--	--	--	--	--	--
26...	--	56	35	15	4.5	18	1.1	4.3	21
MAY									
17...	K13	47	27	11	4.8	18	1.2	3.9	20
17...	--	--	--	--	--	--	--	--	--
17...	--	46	25	11	4.5	18	1.2	3.8	21
AUG									
10...	K19	29	13	5.2	4.0	15	1.2	4.0	16
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	39	10	8.5	4.2	15	1.1	3.7	29

DATE	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
26...	40	18	12	123	<.10	1.40	.060	52	32
26...	--	--	--	--	--	--	--	--	--
26...	46	21	13	135	<.10	.90	.050	200	33
MAY									
17...	39	22	5.8	117	<.10	1.30	.040	92	51
17...	--	--	--	--	--	--	--	--	--
17...	40	22	6.0	118	<.10	2.40	.050	84	58
AUG									
10...	23	18	11	90	<.10	1.10	.070	38	67
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	<.10	1.10	.060	100	340
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	21	18	9.6	98	<.10	1.00	.070	160	430



## LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

324518094300801 LAKE O'THE PINES SITE AC

## PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE TIME	JAN 26,83 0916	MAY 17,83 1431	AUG 10,83 0846
TOTAL CELLS/ML	160	150000	59000
DIVERSITY: DIVISION	1.0	0.2	0.4
..CLASS	1.0	0.2	0.4
...ORDER	1.0	0.7	1.7
...FAMILY	1.0	0.7	1.9
....GENUS	2.0	0.7	2.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..BACILLARIALES						
...NITZSCHIAEAE						
....NITZSCHIA	--	-	* 0	--	-	
..EUPODISCALES						
...COSCINODISCAEAE						
....CYCLOTELLA	43# 27		* 0	350	1	
....MELOSIRA	43# 27		3500 2	--	-	
..FRAGILARIALES						
...FRAGILARIAEAE						
....ASTERIONELLA	--	-	* 0	--	-	
....SYNEDRA	--	-	--	530	1	
..NAVICULALES						
...CYMBELLACEAE						
....CYMBELLA	--	-	--	*	0	
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	29# 18		* 0	--	-	
....KIRCHNERIELLA	--	-	--	*	0	
....OOCYSTIS	43# 27		--	--	-	
....TREUBARIA	--	-	--	*	0	
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	* 0	350	1	
....SCENEDESMUS	--	-	* 0	*	0	
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	* 0	1100	2	
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	440	1	
....STAUSTRUM	--	-	--	*	0	
CHRYSOPHYTA						
.CHRYSOPHYCEAE						
..OCHROMONADALES						
...SYNURACEAE						
....MALLOMONAS	--	-	--	*	0	
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	130000# 86	3600	6	
...NOSTOCALES						
....HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	4300	7	
...NOSTOCACEAE						
....APHANIZOMENON	--	-	16000 10	4400	7	
....CYLINDROSPERMUM	--	-	--	12000# 21		
...OSCILLATORIALES						
...OSCILLATORIAEAE						
....LYNGBYA	--	-	--	21000# 36		
....OSCILLATORIA	--	-	--	9700# 16		
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	--	*	0	
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..DINOKONTAE						
...CERATIAEAE						
....CERATIUM	--	-	*	0	--	-

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

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

## RED RIVER BASIN

LAKE O' THE PINES NEAR JEFFERSON, TX--Continued

325100094420301 LAKE O'THE PINES SITE FC

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE TIME	JAN 26,83 1531	MAY 17,83 1831	AUG 10,83 1151			
TOTAL CELLS/ML	680	45000	19000			
DIVERSITY: DIVISION	0.9	1.3	1.5			
..CLASS	0.9	1.3	1.5			
...ORDER	1.7	1.3	1.9			
...FAMILY	1.7	1.8	2.2			
....GENUS	2.2	2.4	2.5			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
....NITZSCHIAEAE						
.....NITZSCHIA	--	-	--	-	130	1
...EUPODISCALES						
...COSCINODISCAEAE						
....CYCLOTELLA	140#	21	1800	4	500	3
....MELOSIRA	--	-	420	1	--	-
...FRAGILARIALES						
...FRAGILARIAEAE						
....ASTERIONELLA	130#	19	--	-	--	-
....SYNEDRA	230#	34	--	-	--	-
...NAVICULALES						
...NAVICULACEAE						
....NAVICULA	14	2	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....POLYEDRIOPSIS	--	-	--	-	130	1
....SCHROEDERIA	--	-	*	0	--	-
....TETRAEDRON	--	-	--	-	380	2
...DICTYOSPHAERIAEAE						
....DICTYOSPHAERIUM	--	-	3400	7	1400	7
...OOCYSTACEAE						
....ANKISTRODESMUS	130#	19	1500	3	1100	6
....FRANCEIA	--	-	--	-	250	1
....TREUBARIA	--	-	*	0	--	-
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	--	-	500	3
...SCENEDESMACEAE						
....COELASTRUM	--	-	4500	10	--	-
....CRUCIGENIA	--	-	8400#	19	--	-
...SCENEDESMUS	--	-	5300	12	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	--	-	1100	6
CHRYSOPHYTA						
..CHRYSOPHYCEAE						
...CHROMULINALES						
...CHRYSOCOCCACEAE						
....CHRYSOCOCCUS	--	-	--	-	1600	8
...OCHROMONADALES						
....SYNURACEAE						
....MALLOMONAS	29	4	--	-	--	-
...XANTHOPHYCEAE						
...MISCHOCOCCALES						
...SCIADACEAE						
....CENTRITRACTUS	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	1000	5
....ANACYSTIS	--	-	19000#	43	10000#	54
...OSCILLATORIALES						
...OSCILLATORIAEAE						
....PHORMIDIUM	--	-	--	-	500	3
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	130	1
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...DINOKONTAE						
...PERIDINIAEAE						
....PERIDINIUM	--	-	--	-	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

173

07346000 BIG CYPRESS CREEK NEAR JEFFERSON, TX

LOCATION.--Lat 32°44'58", long 94°29'55", Marion County, Hydrologic Unit 11140306, on left bank 950 ft downstream from Ferrell's Bridge Dam, 7.6 mi upstream from French Creek, and 8.5 mi west of Jefferson.

DRAINAGE AREA.--850 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to September 1959 (published as Cypress Creek), October 1979 to current year. Records of stage and discharge for the period October 1959 to September 1979 published by the Corps of Engineers, New Orleans District.

GAGE.--Water-stage recorder. Datum of gage is 180.00 ft 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 upstream at datum 3.70 ft higher. After Dec. 9, 1955, at site about 550 ft downstream or at present site at datum 180.00 ft lower. Gage-height telemeter installed at station on Aug. 19, 1982.

REMARKS.--Water-discharge records good. Flow regulated by Lake O' the Pines (station 07345900) since August 1957.

AVERAGE DISCHARGE.--33 years (water years 1925-57), prior to completion of Ferrells Bridge Dam, 660 ft<sup>3</sup>/s (478,200 acre-ft/yr); 6 years (water years 1958-59, 1980-83) regulated, 717 ft<sup>3</sup>/s (519,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 57,100 ft<sup>3</sup>/s Apr. 1, 1945 (gage height, 28.78 ft, site and datum then in use), from rating curve extended above 29,000 ft<sup>3</sup>/s; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,720 ft<sup>3</sup>/s Mar. 23 at 1415 hours (gage height, 19.28 ft); minimum daily, 21 ft<sup>3</sup>/s Nov. 12-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	172	22	685	502	1720	490	2200	162	65	68	54	44
2	172	22	981	504	1710	491	1730	162	59	61	54	44
3	171	22	1020	504	1690	490	1390	161	59	61	54	45
4	170	22	1010	504	1700	700	1030	160	58	61	53	47
5	171	22	996	508	1750	968	947	160	60	109	53	48
6	170	22	878	511	1750	975	921	116	67	158	52	46
7	169	22	540	502	1730	972	912	67	59	153	52	44
8	169	22	486	502	1720	972	723	67	58	155	53	44
9	169	22	484	496	1720	972	494	67	57	153	50	44
10	169	22	484	703	1740	970	473	67	58	154	50	44
11	169	22	484	1240	1730	969	347	68	58	305	49	44
12	169	21	486	1700	1720	968	170	67	59	479	49	44
13	169	21	490	1760	1720	970	167	73	59	487	48	44
14	169	21	490	1780	1720	972	164	66	59	489	50	45
15	169	21	485	1770	1710	972	164	76	59	490	48	47
16	169	21	484	1770	1700	1270	164	77	59	492	47	45
17	169	23	484	1770	1470	1660	165	77	59	492	47	44
18	169	24	484	1760	1050	1700	165	75	59	491	46	44
19	124	84	484	1750	959	1710	165	67	60	337	46	44
20	25	137	484	1750	756	1720	164	73	60	95	46	44
21	23	137	484	1740	561	2140	164	93	60	34	45	44
22	22	137	484	1730	547	2620	167	95	60	34	45	43
23	22	137	594	1730	521	2690	194	62	61	34	45	43
24	22	137	926	1720	499	2680	184	59	61	34	45	43
25	22	137	975	1720	487	2660	174	58	62	34	45	43
26	22	137	1010	1720	496	2660	162	58	64	44	45	43
27	22	137	1050	1720	497	2650	162	60	65	61	46	43
28	22	308	848	1710	495	2630	162	67	62	88	47	43
29	22	465	577	1700	---	2620	162	68	65	68	47	43
30	22	495	511	1700	---	2620	162	68	64	54	44	43
31	22	---	502	1710	---	2610	---	68	---	54	44	---
TOTAL	3446	2842	20380	41186	35868	49491	14348	2664	1815	5829	1499	1326
MEAN	111	94.7	657	1329	1281	1596	478	85.9	60.5	188	48.4	44.2
MAX	172	495	1050	1780	1750	2690	2200	162	67	492	54	48
MIN	22	21	484	496	487	490	162	58	57	34	44	43
AC-FT	6840	5640	40420	81690	71140	98170	28460	5280	3600	11560	2970	2630
CAL YR 1982	TOTAL	129873.9	MEAN	356	MAX	1660	MIN	1.5	AC-FT	257600		
WTR YR 1983	TOTAL	180694.0	MEAN	495	MAX	2690	MIN	21	AC-FT	358400		

## RED RIVER BASIN

07346000 BIG CYPRESS CREEK NEAR JEFFERSON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: January to September 1983.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
JAN 26...	0800	1720	150	6.4	7.5	<1	4.2	12.6	106	.7	26
MAY 17...	1710	77	147	7.3	21.0	10	3.6	9.5	108	1.2	34
AUG 10...	0630	50	160	6.6	25.0	10	3.2	5.8	71	1.7	35

DATE	TIME	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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 26...	15		4.1	3.9	14	1.2	4.6	11	25	18	.20	10
MAY 17...	22		7.5	3.6	13	1.0	3.9	12	30	17	.20	7.4
AUG 10...	16		7.7	3.7	13	1.0	4.5	19	24	17	.20	9.1

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLATILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 26...	87	6	<1	<.020	<.10	<.060	--	.90	.020	5.4
MAY 17...	90	<1	15	.030	<.10	.330	.27	.60	.020	5.8
AUG 10...	94	18	15	<.020	<.10	.110	1.1	1.20	.040	5.5

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JAN 26...	0800	1	46	<1	<10	<1	66
MAY 17...	1710	<1	56	<1	<10	1	130
AUG 10...	0630	1	120	<1	<10	2	120

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 26...	1	9	.1	<1	<1	10
MAY 17...	3	2	<.1	<1	<1	4
AUG 10...	1	2900	<.1	<1	<1	<3

## RED RIVER BASIN

175

07346045 BLACK CYPRESS EAYOU AT JEFFERSON, TX

LOCATION.--Lat 32°46'40", long 94°21'26", Marion County, Hydrologic Unit 11140306, near center of channel at downstream side of bridge on U.S. Highway 59, 1.1 mi north of Jefferson, 2.0 mi upstream from Texas and Pacific Railway Co. bridge, and 5.2 mi upstream from mouth.

DRAINAGE AREA.--365 mi<sup>2</sup>.

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.  
Water-quality records.--Chemical analyses: October 1967 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 171.47 ft National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. No known regulation or diversion in vicinity of gage. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--15 years (water years 1969-83), 331 ft<sup>3</sup>/s (12.32 in/yr), 239,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,120 ft<sup>3</sup>/s Apr. 25, 1974 (gage height, 17.69 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1938, 22.42 ft Apr. 29, 1958, from records of Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,960 ft<sup>3</sup>/s Dec. 8 at 1300 hours (gage height, 14.21 ft), no peak above base of 4,000 ft<sup>3</sup>/s; no flow Oct. 1-3, 26, and 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	.13	397	1250	314	830	614	171	261	241	10	.57		
2	.00	2.1	511	1190	378	716	573	161	210	268	7.3	.38		
3	.00	.05	728	1060	413	608	539	152	183	329	5.5	.21		
4	.01	8.4	877	899	523	549	500	142	169	387	5.0	.17		
5	.01	6.5	1070	764	849	654	462	132	155	450	4.6	.11		
6	.01	2.0	1560	646	1350	693	428	123	147	481	5.3	.08		
7	.03	1.0	1740	553	1530	664	399	115	146	434	5.0	.08		
8	.04	1.3	1920	481	1530	724	374	106	134	323	4.5	.05		
9	.06	1.4	1720	431	1490	793	355	96	114	215	5.1	.05		
10	.07	1.5	1390	393	1550	828	335	88	105	147	6.4	.07		
11	.09	.85	1230	360	1620	840	312	92	99	115	69	.05		
12	.11	.41	1150	334	1690	778	290	107	90	96	90	.06		
13	.13	.51	1050	314	1590	667	272	106	79	85	70	.04		
14	.09	.98	1180	299	1390	553	258	111	70	80	46	.03		
15	.07	.84	1300	283	1210	458	260	185	62	74	33	.02		
16	.04	.74	1250	268	1020	386	270	260	55	63	23	.02		
17	.03	1.3	1220	255	873	341	284	241	47	57	17	.02		
18	.02	1.9	1130	241	745	312	308	237	44	54	14	.01		
19	.01	11	966	229	637	291	326	236	44	53	14	.02		
20	.03	6.9	814	222	551	287	341	273	38	55	12	.03		
21	.02	8.6	684	219	618	290	343	424	34	55	8.8	.02		
22	.02	9.2	575	216	759	283	327	713	43	52	6.6	.01		
23	.01	12	488	212	783	323	314	769	65	49	5.1	.01		
24	.01	20	430	210	774	416	277	954	85	46	4.0	.01		
25	.01	29	453	208	877	440	246	1140	95	46	4.7	.01		
26	.00	59	508	205	980	467	219	1060	111	43	4.1	.01		
27	.00	179	644	206	991	555	205	914	141	36	2.5	.01		
28	.01	247	815	206	934	613	198	781	159	30	1.8	.01		
29	.11	294	933	205	---	627	190	641	195	25	1.5	.01		
30	.09	320	1180	205	---	647	181	496	231	19	1.1	.01		
31	.05	---	1300	213	---	645	---	359	---	14	.76	---		
TOTAL	1.18	1227.61	31213	12777	27969	17278	10000	11385	3411	4422	487.66	2.18		
MEAN	.038	40.9	1007	412	999	557	333	367	114	143	15.7	.073		
MAX	.13	320	1920	1250	1690	840	614	1140	261	481	90	.57		
MIN	.00	.05	397	205	314	283	181	88	34	14	.76	.01		
CFSM	.0000	.11	2.76	1.13	2.74	1.53	.91	1.01	.31	.39	.04	.000		
IN.	.00	.13	3.18	1.30	2.85	1.76	1.02	1.16	.35	.45	.05	.00		
AC-FT	2.3	2430	61910	25340	55480	34270	19830	22580	6770	8770	967	4.3		
CAL YR 1982	TOTAL	88036.21	MEAN	241	MAX	1920	MIN	.00	CFSM	.66	IN	8.97	AC-FT	174600
WTR YR 1983	TOTAL	120173.63	MEAN	329	MAX	1920	MIN	.00	CFSM	.90	IN	12.25	AC-FT	238400



## RED RIVER BASIN

07346050 LITTLE CYPRESS CREEK NEAR ORE CITY, TX

LOCATION.--Lat 32°40'21", long 94°45'03", Upshur County, Hydrologic Unit 11140307, on right bank at downstream side of bridge on U.S. Highway 259, 4 mi downstream from Clear Creek, 9 mi south of Ore City, and 12 mi north of Longview.

DRAINAGE AREA.--383 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 232.67 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversion above station. During the year, the city of Gilmer discharged a small amount of sewage effluent into a tributary above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years (water years 1964-83), 271 ft<sup>3</sup>/s (9.61 in/yr), 196,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,500 ft<sup>3</sup>/s Apr. 24, 1966 (gage height, 20.20 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1902 occurred in March 1945; maximum stage since 1945, that of Apr. 24, 1966. The flood in April 1958 reached a stage of 19.4 ft, or 1.3 ft lower than the flood of March 1945 at a point 6 mi upstream, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,600 ft<sup>3</sup>/s Mar. 7 at 0930 hours (gage height, 11.32 ft), no other peak above base of 2,000 ft<sup>3</sup>/s; no flow Oct. 1-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	13	166	898	489	659	729	98	126	96	3.5	1.0
2	.00	11	169	824	759	523	615	95	110	122	3.2	.95
3	.00	32	264	727	751	404	545	92	106	131	2.7	.90
4	.00	46	466	614	620	397	500	87	101	92	2.9	.80
5	.00	27	494	502	704	981	451	82	87	79	3.2	.74
6	.00	26	420	399	988	1810	396	77	82	63	3.2	.83
7	.00	19	404	306	1020	2540	341	69	88	49	5.4	1.0
8	.00	11	500	237	900	2300	295	61	92	53	15	.72
9	.00	6.6	655	197	998	1760	256	56	125	53	15	.56
10	.00	3.8	760	175	1320	1370	229	50	150	42	9.4	.47
11	.00	2.8	839	160	1370	1070	207	54	124	34	11	.44
12	.00	3.2	882	148	1360	845	190	85	83	24	12	.42
13	.00	4.3	824	136	1400	674	181	100	60	20	9.1	.28
14	.00	5.8	732	124	1190	536	224	100	47	17	7.1	.18
15	.00	7.2	743	114	960	426	248	174	42	15	22	.09
16	.00	7.5	823	106	793	339	256	201	37	14	35	.06
17	.00	8.4	802	101	671	282	305	137	34	14	16	.20
18	.00	10	730	96	553	247	373	117	32	15	8.5	3.1
19	.00	12	630	92	448	227	398	118	29	18	6.4	3.0
20	.00	13	520	94	353	237	359	273	25	23	5.3	2.4
21	.00	17	412	94	438	269	284	511	22	20	7.0	2.0
22	.00	15	309	92	666	262	208	698	20	16	7.7	1.5
23	.00	13	225	91	797	320	165	746	19	14	8.4	1.3
24	.00	16	183	90	985	500	147	791	18	11	8.8	1.2
25	.00	23	190	88	1240	558	138	912	19	9.7	6.8	1.0
26	.00	20	218	86	1110	616	131	891	21	9.1	4.9	.79
27	.00	109	319	86	949	774	125	743	30	8.1	3.7	.65
28	.00	226	576	86	798	847	119	564	39	6.7	2.9	.51
29	1.9	238	697	87	---	799	110	390	54	5.5	2.3	.32
30	34	184	701	87	---	798	103	218	103	4.6	1.8	.22
31	22	---	811	112	---	810	---	143	---	4.1	1.4	---
TOTAL	57.90	1130.6	16464	7049	24630	24180	8628	8733	1925	1082.8	251.6	27.63
MEAN	1.87	37.7	531	227	880	780	288	282	64.2	34.9	8.12	.92
MAX	34	238	882	898	1400	2540	729	912	150	131	35	3.1
MIN	.00	2.8	166	86	353	227	103	50	18	4.1	1.4	.06
CFSM	.005	.10	1.39	.59	2.30	2.04	.75	.74	.17	.09	.02	.002
IN.	.01	.11	1.60	.68	2.39	2.35	.84	.85	.19	.11	.02	.00
AC-FT	115	2240	32660	13980	48850	47960	17110	17320	3820	2150	499	55
CAL YR 1982	TOTAL	46614.93	MEAN 128	MAX 882	MIN .00	CFSM .33	IN 4.53	AC-FT 92460				
WTR YR 1983	TOTAL	94159.53	MEAN 258	MAX 2540	MIN .00	CFSM .67	IN 9.15	AC-FT 186800				

## RED RIVER BASIN

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07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX

LOCATION.--Lat 32°42'50", long 94°20'44", Marion County, Hydrologic Unit 11140307, on downstream side of highway embankment near left end of bridge on U.S. Highway 59, 0.3 mi downstream from Texas and Pacific Railway Co. bridge, 3.3 mi downstream from Grays Creek, 3.5 mi south of Jefferson, and 6.8 mi upstream from mouth.

DRAINAGE AREA.--675 mi<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 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. No known diversion above station, but some sewage effluents are discharge to tributaries above station. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--37 years (water years 1947-83), 520 ft<sup>3</sup>/s (10.46 in/yr), 376,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,500 ft<sup>3</sup>/s Apr. 26, 1966 (gage height, 22.28 ft); no flow at times.  
Maximum stage since May 1944, that of Apr. 26, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1944 reached a stage of 21.1 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,840 ft<sup>3</sup>/s Mar. 12 at 1330 hours (gage height, 11.93 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	196	874	509	1150	928	208	754	110	4.2	.16
2	.00	.08	239	838	684	1250	951	194	662	140	3.3	.20
3	.00	2.4	855	832	609	1280	945	188	507	180	2.4	.14
4	.00	1.3	1460	832	596	1270	923	179	330	190	1.7	.12
5	.00	.56	1190	864	825	1490	905	168	221	220	1.2	.13
6	.00	.46	901	892	1390	1520	862	156	192	240	1.3	.07
7	.00	6.5	746	902	1630	1440	801	142	193	240	3.1	.08
8	.00	6.5	687	874	1680	1460	733	129	181	200	2.4	.07
9	.00	6.3	639	819	1760	1490	665	120	164	150	1.3	.06
10	.00	4.7	631	743	2060	1770	600	112	151	110	.65	.06
11	.00	3.3	737	664	2170	2480	542	117	142	85	.41	.06
12	.00	2.6	916	567	2060	2790	491	134	139	62	1.3	.06
13	.00	2.7	910	491	1970	2510	439	138	200	54	5.9	.06
14	.00	3.0	920	421	1870	2030	391	138	280	47	6.0	.06
15	.00	2.3	959	366	1780	1640	346	145	260	40	5.1	.06
16	.00	1.8	1000	325	1710	1370	311	157	220	35	3.5	.05
17	.00	2.0	995	299	1660	1140	294	165	160	32	2.7	.04
18	.00	2.0	954	278	1600	952	295	196	120	30	2.5	.02
19	.00	15	888	261	1470	793	301	261	100	27	7.9	.02
20	.00	80	835	252	1310	687	311	348	90	26	9.1	.04
21	.00	64	809	245	1410	594	329	537	85	25	5.8	.03
22	.00	34	803	240	1730	511	378	857	80	23	3.1	.04
23	.00	27	787	236	1710	503	707	1020	75	22	1.5	.01
24	.00	24	777	232	1480	640	632	1070	70	21	.86	.00
25	.00	20	939	225	1280	639	575	1080	66	19	.61	.00
26	.00	18	1260	221	1160	645	483	1010	64	15	.42	.00
27	.00	71	1620	222	1100	720	367	892	70	12	.31	.00
28	.00	227	1890	222	1080	752	286	803	75	10	.23	.00
29	.01	234	1560	222	---	777	250	761	80	7.9	.16	.02
30	.01	198	1200	217	---	819	222	758	90	6.3	.12	.03
31	.00	---	977	228	---	875	---	771	---	5.0	.15	---
TOTAL	.02	1060.50	29280	14904	40293	37987	16263	12954	5821	2384.2	79.22	1.69
MEAN	.001	35.4	945	481	1439	1225	542	418	194	76.9	2.56	.056
MAX	.01	234	1890	902	2170	2790	951	1080	754	240	9.1	.20
MIN	.00	.00	196	217	509	503	222	112	64	5.0	.12	.00
CFSM	.000	.05	1.40	.71	2.13	1.82	.80	.62	.29	.11	.004	.000
IN.	.00	.06	1.61	.82	2.22	2.09	.90	.71	.32	.13	.00	.00
AC-FT	.04	2100	58080	29560	79920	75350	32260	25690	11550	4730	157	3.4

CAL YR 1982 TOTAL 82012.83 MEAN 225 MAX 1890 MIN .00 CFSM .33 IN 4.52 AC-FT 162700  
WTR YR 1983 TOTAL 161027.63 MEAN 441 MAX 2790 MIN .00 CFSM .65 IN 8.87 AC-FT 319400

NOTE.--No gage-height record June 11 to July 11.

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to current year.

WATER TEMPERATURES: October 1967 to current year.

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

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,350 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, 0.5°C Jan. 14, 15, 17, 1982.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 425 micromhos Nov. 19; minimum daily, 79 micromhos May 23.

WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 30; minimum daily, 5.0°C Jan. 23-25, Feb. 8.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
NOV 16...	1435	1.9	404	6.1	10.0	40	5.6	6.2	55	1.2	49
FEB 15...	1435	2560	104	5.9	10.0	75	15	9.0	80	1.1	19
APR 05...	1605	908	129	6.3	15.0	60	20	7.6	77	1.4	25
MAY 25...	1145	1070	110	6.2	20.0	100	18	5.8	64	1.6	19
JUL 12...	1610	61	225	6.6	26.0	130	25	5.0	62	2.5	35
AUG 23...	1535	1.4	181	6.9	28.0	100	17	5.2	67	.9	31

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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 16...	42	12	4.6	52	3.3	7.0	7.0	45	88	<.10	15
FEB 15...	16	4.4	1.9	10	1.0	2.8	3.0	22	14	<.10	14
APR 05...	18	5.9	2.5	13	1.2	2.6	7.0	24	18	<.10	12
MAY 25...	12	4.6	1.9	11	1.1	2.8	7.0	18	17	<.10	14
JUL 12...	22	8.5	3.3	27	2.1	4.0	13	22	46	<.10	19
AUG 23...	10	7.4	3.1	19	1.5	4.6	21	22	26	.10	18

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	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)
NOV 16...	228	3	7	--	<.100	<.10	<.060	--	.70	.090	6.6
FEB 15...	71	3	1	--	<.020	<.10	.140	.96	1.10	.050	9.7
APR 05...	82	8	4	--	<.020	<.10	.180	.62	.80	.050	13
MAY 25...	73	25	<1	--	<.020	.10	.120	.98	1.10	.110	12
JUL 12...	138	31	1	.28	.020	.30	.120	.88	1.00	1.10	10
AUG 23...	115	3	<1	--	<.020	.20	.070	.83	.90	.070	7.7

## RED RIVER BASIN

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07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 to SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 15...	1435	<1	50	<1	<10	1	460
AUG 23...	1535	<1	60	1	<10	3	1700

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 15...	<1	37	<.1	<1	<1	30
AUG 23...	2	220	.1	<1	<1	20

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	0.02	142	85	0.00	24	0.00	14	0.00	22
NOV.	1982	1060.50	206	122	349	38	108	19	54	31
DEC.	1982	29280	134	80	6360	23	1820	13	1060	21
JAN.	1983	14904	157	94	3780	28	1110	15	614	24
FEB.	1983	40293	106	64	6990	18	1950	11	1190	17
MAR.	1983	37987	112	68	6940	19	1950	11	1180	18
APR.	1983	16263	138	83	3650	24	1050	14	605	22
MAY	1983	12954	124	74	2600	21	742	12	436	20
JUNE	1983	5821	160	96	1510	28	445	15	243	25
JULY	1983	2384.2	180	107	686	33	211	16	106	27
AUG.	1983	79.22	181	108	23	32	6.9	17	3.7	28
SEPT	1983	1.69	172	103	0.5	31	0.1	16	0.08	27
TOTAL		161027.63	**	**	32900	**	9390	**	5490	**
WTD. AVG.		441	126	76	**	22	**	13	**	20

## RED RIVER BASIN

07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	---	189	---	138	138	
2	---	---	---	149	141	144	---	183	---	140	140	
3	---	---	---	195	142	164	---	139	---	140	140	
4	---	---	---	235	198	220	---	122	---	140	140	
5	---	---	---	271	234	255	---	128	---	139	139	
6	---	---	---	291	271	278	---	137	134	133	133	
7	---	---	---	304	205	270	---	144	137	133	135	
8	---	---	---	228	201	216	---	147	138	135	136	
9	---	---	---	222	195	203	---	149	142	138	140	
10	---	---	---	217	208	214	---	149	150	143	146	
11	---	---	---	211	189	197	---	144	157	150	154	
12	---	---	---	256	189	211	---	137	163	157	160	
13	---	---	---	318	258	286	---	137	172	164	168	
14	---	---	---	372	320	355	---	137	177	172	175	
15	---	---	---	397	372	389	---	135	180	177	179	
16	---	---	---	400	398	399	---	134	182	179	181	
17	---	---	---	398	392	394	---	134	186	182	185	
18	---	---	---	422	394	408	---	136	186	185	186	
19	---	---	---	425	332	403	---	138	188	186	188	
20	---	---	---	---	---	218	---	140	198	188	191	
21	---	---	---	---	---	225	---	141	193	191	192	
22	---	---	---	---	---	242	---	141	193	192	192	
23	---	---	---	---	---	248	---	142	194	192	193	
24	---	---	---	---	---	251	---	142	205	195	200	
25	---	---	---	---	---	255	---	136	207	204	206	
26	---	---	---	---	---	257	---	127	213	201	205	
27	---	---	---	---	---	222	---	118	203	197	199	
28	---	---	---	---	---	184	---	114	198	193	195	
29	143	140	142	---	---	183	---	120	200	191	193	
30	143	139	141	---	---	189	---	128	199	193	195	
31	---	---	---	---	---	---	---	135	196	179	193	
MONTH	143	139	142	425	141	258	---	139	213	133	172	

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	174	114	132	116	113	114	126	124	125	162	157	159
2	126	119	124	114	112	113	141	126	130	169	162	165
3	129	124	127	117	114	116	138	126	128	177	166	173
4	154	129	144	119	116	118	135	127	129	183	172	175
5	154	110	136	115	107	109	133	129	131	180	171	175
6	108	93	98	110	108	109	146	128	132	186	171	177
7	99	95	97	112	109	111	135	130	132	183	171	175
8	99	98	98	112	108	110	139	134	137	183	169	177
9	103	99	101	113	107	111	143	139	141	181	167	173
10	103	94	98	106	94	101	146	141	143	181	167	173
11	98	94	96	94	89	91	149	144	145	180	165	172
12	98	96	97	90	89	89	150	147	148	176	159	168
13	99	96	97	93	90	92	154	148	150	181	155	164
14	102	99	101	96	93	95	158	151	154	159	147	151
15	104	101	102	103	97	100	161	157	158	169	129	155
16	106	103	104	111	102	106	168	159	163	172	139	154
17	107	106	106	123	111	117	169	164	167	178	150	163
18	108	106	107	134	123	129	166	156	161	196	157	173
19	110	107	109	144	135	140	157	154	155	185	146	161
20	114	110	112	146	143	145	158	150	154	144	116	131
21	113	101	109	149	146	147	149	145	147	132	92	112
22	101	98	99	154	148	150	149	121	143	103	82	93
23	104	99	101	154	138	149	126	102	116	100	79	90
24	113	104	109	139	135	138	142	119	126	108	89	99
25	125	114	121	144	135	137	142	120	129	110	93	102
26	125	122	124	142	131	136	145	137	142	118	98	110
27	121	117	119	135	130	133	152	145	148	121	105	119
28	121	116	118	146	134	141	155	149	152	123	120	122
29	---	---	---	140	128	131	156	151	154	125	122	123
30	---	---	---	129	126	127	160	155	158	125	124	125
31	---	---	---	129	125	127	---	---	---	126	124	125
MONTH	174	93	110	154	89	120	169	102	143	196	79	146



## 07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	131	127	128	123	86	109	219	182	191	192	163	169
2	137	131	134	205	119	139	188	184	186	194	164	172
3	145	137	140	261	203	233	190	186	188	188	166	171
4	165	146	155	396	241	345	193	188	190	196	167	175
5	169	164	166	351	224	278	197	191	193	195	168	176
6	170	167	169	222	154	189	198	194	196	198	168	175
7	206	167	177	151	109	123	198	194	196	186	169	174
8	169	156	162	109	91	101	198	194	196	190	169	174
9	161	156	160	107	98	100	198	194	196	197	168	176
10	185	159	168	141	108	122	196	192	194	195	168	175
11	250	188	220	187	142	164	195	192	194	189	167	174
12	255	250	254	214	172	197	214	193	198	192	168	174
13	249	184	212	223	190	215	214	194	201	202	168	176
14	202	143	166	209	192	201	211	179	191	190	168	175
15	155	129	146	190	174	182	191	175	181	197	167	175
16	170	155	163	178	171	173	191	171	177	194	164	171
17	186	168	174	178	164	173	189	165	175	188	164	169
18	180	157	170	166	157	161	185	161	168	---	---	168
19	190	165	179	157	152	154	182	162	165	---	---	168
20	194	167	179	235	143	177	194	158	172	---	---	165
21	201	171	185	170	137	145	177	157	163	---	---	166
22	205	179	187	171	138	154	184	167	173	---	---	165
23	203	180	186	169	145	152	193	174	181	---	---	170
24	205	184	197	178	149	156	193	172	175	---	---	---
25	207	177	192	180	148	154	194	167	177	---	---	---
26	201	181	195	186	152	159	186	165	169	---	---	---
27	186	149	169	161	156	158	182	162	168	---	---	---
28	209	158	177	204	161	172	187	161	169	---	---	---
29	168	142	158	224	177	183	179	161	165	---	---	168
30	128	84	102	225	175	194	188	161	166	---	---	165
31	---	---	---	222	179	184	185	162	169	---	---	---
MONTH	255	84	172	396	86	172	219	157	181	202	163	171

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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

## 07346070 LITTLE CYPRESS CREEK NEAR JEFFERSON, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

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

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

## RED RIVER BASIN

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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 upstream from Mill Pond, 1.1 mi downstream from Gum Slough (Haggerty Creek flows into Gum Slough), and 2.2 mi north of Karnack.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--October 1979 to current year. Records for the period Nov. 1, 1975, to Sept. 30, 1979, published by the Corps of Engineers, New Orleans District, as "Cypress Creek (Cypress Bayou) near Karnack, Tex."

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

REMARKS.--Elevation records fair except those for Oct. 5 to Nov. 16 and Apr. 5 to May 25, which are poor. 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 above the dam.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 172.65 ft June 6, 1981; minimum, 167.07 ft Oct. 16, 17, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation, 174.20 ft May 9, 1979; minimum, 166.72 ft Oct. 23, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 171.80 ft Feb. 10 at 1900 hours; minimum, 167.69 ft Oct. 1.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167.69	168.24	169.32	170.81	170.55	170.46	170.00	169.61	169.78	169.04	168.45	168.10
2	167.70	168.28	170.01	170.67	170.45	170.37	170.94	169.52	169.69	169.03	168.43	168.08
3	167.70	168.29	170.93	170.56	170.39	170.33	170.85	169.43	169.58	169.00	168.42	168.05
4	167.71	168.30	170.87	170.41	170.40	170.48	170.72	169.33	169.48	168.98	168.42	168.02
5	167.70	168.30	170.81	170.30	170.97	170.63	170.63	169.22	169.36	168.98	168.39	168.01
6	167.70	168.30	170.78	170.20	171.17	170.64	170.50	169.11	169.30	169.06	168.36	168.02
7	167.71	168.27	170.78	170.13	171.26	170.60	170.37	169.02	169.22	169.12	168.55	167.99
8	167.72	168.25	170.74	170.05	171.30	170.54	170.23	168.92	169.14	169.14	168.33	167.97
9	167.99	168.25	170.68	169.98	171.57	170.51	170.09	168.83	169.06	169.10	168.36	167.98
10	167.95	168.26	170.75	169.90	171.79	170.51	169.96	168.81	169.00	169.05	168.35	167.96
11	168.00	168.25	170.92	169.86	171.76	170.59	169.85	168.81	168.96	169.00	168.32	167.95
12	168.02	168.33	170.91	169.90	171.72	170.74	169.75	168.80	168.94	168.95	168.31	167.95
13	168.00	168.30	170.76	169.95	171.65	170.81	169.65	168.78	168.92	168.97	168.30	167.92
14	168.00	168.27	170.65	169.97	171.57	170.77	169.54	168.80	168.90	169.00	168.36	167.89
15	168.02	168.23	170.59	169.98	171.45	170.67	169.44	168.82	168.88	169.00	168.36	167.87
16	168.01	168.25	170.56	169.98	171.33	170.55	169.40	168.83	168.84	169.00	168.36	167.86
17	168.01	168.31	170.50	169.97	171.21	170.44	169.40	168.84	168.80	168.99	168.34	167.84
18	168.01	168.32	170.44	169.99	171.09	170.41	169.41	168.85	168.77	168.97	168.33	167.89
19	168.07	168.64	170.36	169.99	170.91	170.39	169.45	169.15	168.74	168.94	168.34	167.90
20	168.04	168.70	170.26	169.97	170.76	170.36	169.49	169.46	168.70	168.85	168.33	167.86
21	168.00	168.69	170.16	169.94	171.14	170.30	169.62	169.77	168.67	168.79	168.30	167.86
22	168.00	168.67	170.07	169.90	171.25	170.30	170.02	170.07	168.66	168.76	168.28	167.84
23	168.00	168.66	170.02	169.89	171.15	170.57	170.17	170.04	168.66	168.73	168.27	167.88
24	168.00	168.71	170.25	169.88	170.98	170.75	170.12	170.03	168.69	168.69	168.22	167.87
25	167.99	168.67	170.52	169.88	170.86	170.83	170.05	170.06	168.68	168.64	168.20	167.80
26	167.98	168.73	170.93	169.87	170.77	170.92	170.00	170.11	168.80	168.59	168.18	167.79
27	167.96	169.20	171.52	169.86	170.66	170.92	169.93	170.11	168.85	168.57	168.18	167.78
28	167.95	169.29	171.45	169.87	170.55	170.95	169.87	170.05	168.85	168.53	168.15	167.77
29	168.20	169.29	171.26	169.84	---	170.97	169.78	170.00	168.94	168.50	168.14	167.75
30	168.19	169.30	171.08	169.84	---	170.00	169.69	169.92	169.04	168.50	168.11	167.74
31	168.20	---	170.95	170.19	---	171.02	---	169.89	---	168.48	168.11	---
MEAN	167.94	168.52	170.64	170.05	171.10	170.59	169.96	169.39	169.00	168.87	168.30	167.91
MAX	168.20	169.30	171.52	170.81	171.79	171.02	170.94	170.11	169.78	169.14	168.45	168.10
MIN	167.69	168.23	169.32	169.84	170.39	170.00	169.40	168.78	168.66	168.48	168.11	167.74

WTR YR 1983 MEAN 169.35 MAX 171.79 MIN 167.69

## 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 upstream from Colley Creek, 3.7 mi upstream from Johns Creek, and 5.3 mi north-east of Linden.

DRAINAGE AREA.--48.0 mi<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 National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bridge plans).

REMARKS.--Records good except those for September, which are fair. No known diversion. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years (water years 1966-83), 41.8 ft<sup>3</sup>/s (11.83 in/yr), 30,280 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,010 ft<sup>3</sup>/s Apr. 22, 1974 (gage height, 12.51); no flow at times for most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1945, 15.6 ft Apr. 26, 27, 1958, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 3	2100	*2,950	10.97
Feb. 22	1030	741	8.86

Minimum discharge, no flow Oct. 1 to Nov. 11, Nov. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	.00	2.4	57	231	62	61	28	30	143	1.2	.08		
2	.00	.00	6.0	52	204	59	72	28	24	61	.82	.06		
3	.00	.00	935	48	85	57	55	25	19	48	1.0	.05		
4	.00	.00	997	43	54	97	50	20	16	36	4.2	.04		
5	.00	.00	237	41	156	251	54	17	44	38	5.1	.04		
6	.00	.00	133	39	275	184	53	15	196	46	2.9	.04		
7	.00	.00	75	38	171	95	49	13	138	32	2.0	.03		
8	.00	.00	53	38	94	73	47	13	51	21	3.8	.03		
9	.00	.00	42	36	126	63	44	11	35	16	2.8	.02		
10	.00	.00	56	34	265	58	41	11	26	14	1.8	.01		
11	.00	.00	194	31	217	55	40	23	21	12	1.2	.01		
12	.00	.01	350	26	112	53	38	40	18	9.0	1.1	.06		
13	.00	.03	193	23	82	53	48	24	16	8.7	1.1	.05		
14	.00	.06	108	23	70	52	95	22	13	12	.76	.04		
15	.00	.11	76	21	64	51	60	34	12	20	.82	.04		
16	.00	.28	58	18	58	49	45	36	11	18	.70	.03		
17	.00	.51	49	18	53	49	40	22	9.4	24	.55	.03		
18	.00	2.8	45	16	50	46	37	39	30	20	.42	3.6		
19	.00	2.1	42	15	48	44	35	146	28	28	1.1	1.1		
20	.00	3.6	35	16	49	57	36	151	15	15	1.9	.38		
21	.00	.14	32	16	165	59	34	256	15	8.4	1.1	.88		
22	.00	.00	31	14	613	47	36	346	14	6.5	.65	.34		
23	.00	.60	51	12	338	72	63	165	26	5.5	.38	.26		
24	.00	7.9	143	12	156	125	66	73	68	4.7	.28	.22		
25	.00	.05	134	11	102	79	41	52	84	3.7	.21	.16		
26	.00	.02	137	12	79	77	35	42	82	3.1	.16	.12		
27	.00	75	214	14	69	106	32	35	75	2.6	.14	.10		
28	.00	130	320	14	65	65	30	32	50	2.1	.11	.09		
29	.00	73	173	14	---	55	30	30	245	1.8	.09	.08		
30	.00	9.0	93	11	---	59	30	25	451	1.6	.16	.06		
31	.00	---	67	59	---	68	---	25	---	1.6	.11	---		
TOTAL	.00	305.21	5081.4	822	4051	2320	1397	1799	1862.4	663.3	38.66	8.05		
MEAN	.000	10.2	164	26.5	145	74.8	46.6	58.0	62.1	21.4	1.25	.27		
MAX	.00	130	997	59	613	251	95	346	451	143	5.1	3.6		
MIN	.00	.00	2.4	11	48	44	30	11	9.4	1.6	.09	.01		
CFSM	.000	.21	3.42	.55	3.02	1.56	.97	1.21	1.29	.45	.03	.006		
IN.	.00	.24	3.94	.64	3.14	1.80	1.08	1.39	1.44	.51	.03	.01		
AC-FT	.00	605	10080	1630	8040	4600	2770	3570	3690	1320	77	16		
CAL YR 1982	TOTAL	11504.86	MEAN	31.5	MAX	997	MIN	.00	CFSM	.66	IN	8.92	AC-FT	22820
WTR YR 1983	TOTAL	18348.02	MEAN	50.3	MAX	997	MIN	.00	CFSM	1.05	IN	14.22	AC-FT	36390

## WESTERN GULF OF MEXICO BASINS

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## 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 downstream from centerline of downstream bridge on Interstate Highway 30 (U.S. Highway 67), 0.3 mi downstream from Horse Creek, 0.9 mi downstream from Louisiana and Arkansas Railroad Co. bridge, 1.8 mi east of Greenville, and at mile 558.3.

DRAINAGE AREA.--77.7 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. The city of Greenville diverted water from city lakes upstream from the gage and from Lake Tawakoni for municipal use; sewage effluent is returned to a tributary downstream from gage. Extreme low flow is largely sustained by return water from water treatment plant upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years (water years 1960-83), 62.1 ft<sup>3</sup>/s (10.85 in/yr), 44,990 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,300 ft<sup>3</sup>/s May 13, 1982 (gage height, 18.47 ft); no flow in 1964, 1969-70, 1972-73, and 1977-83.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1895, 22 ft in May 1935, from information by local resident and city engineer of Greenville. Flood of July 3, 1913, reached a stage of 20 ft, from information by local resident.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 21	0400	*5,020	16.69
Mar. 5	0045	3,520	16.25

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.23	9.5	9.0	1030	4.1	102	.45	3.2	10	.00	.00
2	.00	32	82	10	145	3.5	46	1.6	2.2	151	.00	.00
3	.00	1.8	290	16	31	15	15	3.7	1.9	30	.00	.00
4	.00	2.7	150	15	14	1630	7.3	1.4	1.5	6.6	.17	.00
5	.00	1.6	43	9.9	51	1490	5.6	.75	1.2	384	.06	.00
6	.26	.55	15	8.0	131	111	5.2	.53	12	458	.03	.00
7	.17	.29	6.9	4.4	46	47	4.8	.36	19	16	.00	.00
8	1.3	.18	4.3	3.8	21	27	4.5	.26	5.5	5.3	.14	.00
9	4.8	.11	2.4	3.1	14	19	5.1	.18	2.6	2.7	.08	.00
10	.63	.08	18	2.2	11	12	5.1	1.3	1.4	1.6	.05	.00
11	.15	.06	214	1.5	9.0	10	4.5	2.5	1.1	.98	.04	.00
12	.47	1.1	157	1.1	6.9	9.4	4.5	3.6	.74	.74	.03	.00
13	.36	.28	57	.93	5.3	8.4	5.2	1.4	.56	.70	.01	.00
14	.19	.19	22	.80	3.9	7.3	4.4	.69	.47	.61	.00	.00
15	.10	.13	11	.73	3.0	6.2	2.7	.87	.33	.62	.02	.00
16	.82	.04	6.6	.57	2.4	5.3	2.1	.47	.24	19	.00	.00
17	.29	.02	3.9	.53	1.8	4.1	1.8	.30	.17	8.5	.00	.00
18	.11	.03	2.7	.47	1.6	3.5	1.6	.87	.11	2.1	.00	.00
19	.08	.03	1.9	.43	1.2	5.6	1.4	1.0	.10	.89	.75	.00
20	.06	.04	1.4	.44	1160	23	1.3	16	.06	.41	.19	.12
21	1.7	.05	1.2	.41	3290	9.2	1.4	630	.03	.25	.06	.16
22	.88	.22	.98	.37	289	5.7	2.1	322	.03	.19	.02	.06
23	.40	.10	.77	.37	101	6.5	2.6	87	.05	.15	.00	.02
24	.20	.05	.59	.35	36	9.1	1.6	51	.05	.11	.00	.00
25	.13	.06	.43	.33	16	7.3	1.3	11	.06	.09	.00	.00
26	.12	37	.98	.33	9.1	554	1.1	5.4	.33	.07	.00	.00
27	.09	259	189	.32	6.6	185	.89	287	.23	.07	.00	.00
28	4.0	148	177	.32	5.2	28	.74	64	.29	.06	.00	.00
29	3.0	38	53	.32	---	12	.70	10	631	.04	.00	.00
30	.59	19	20	.32	---	226	.61	5.3	52	.01	.00	.00
31	.31	---	12	19	---	120	---	5.1	---	.00	.00	---
TOTAL	21.21	542.94	1554.55	111.34	6442.0	4604.2	243.14	1516.03	738.45	1100.79	1.65	.36
MEAN	.68	18.1	50.1	3.59	230	149	8.10	48.9	24.6	35.5	.053	.012
MAX	4.8	259	290	19	3290	1630	102	630	631	458	.75	.16
MIN	.00	.02	.43	.32	1.2	3.5	.61	.18	.03	.00	.00	.00
CFSM	.009	.23	.65	.05	2.96	1.92	.10	.63	.32	.46	.001	.000
IN.	.01	.26	.74	.05	3.08	2.20	.12	.73	.35	.53	.00	.00
AC-FT	42	1080	3080	221	12780	9130	482	3010	1460	2180	3.3	.7
CAL YR 1982	TOTAL	25708.65	MEAN	70.4	MAX	9730	MIN	.00	CFSM	.91	IN	12.31
WTR YR 1983	TOTAL	16876.66	MEAN	46.2	MAX	3290	MIN	.00	CFSM	.60	IN	8.08
									AC-FT	50990	AC-FT	33470



## 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 upstream from Dry Creek, 6.2 mi upstream from Bearpen Creek, 7 mi southwest of Quinlan, and 25 mi upstream from mouth.

DRAINAGE AREA.--78.7 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. The city of Royse City discharges sewage effluent into the river above this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--24 years (water years 1960-83), 77.4 ft<sup>3</sup>/s (13.36 in/yr), 56,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft<sup>3</sup>/s June 16, 1981, (gage height, 18.24 ft); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1890, 21 ft July 29, 1902, from information by local resident. Flood of Apr. 27, 1957, reached a stage of 17.76 ft, from floodmarks.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 20	1845	*20,100	17.86
Mar. 4	1915	7,940	16.25
May 21	2400	3,010	15.44

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	5.0	8.7	698	2.7	30	.18	9.6	1.6	.00	.00
2	.00	.03	166	14	78	2.3	15	.16	2.6	.38	.00	.00
3	.00	.21	1070	16	20	5.9	7.2	.25	1.1	.14	.00	.00
4	.00	.03	263	8.0	11	2910	4.2	.25	.60	.10	.00	.00
5	.00	.00	24	5.4	13	2590	3.3	.09	.49	.66	.00	.00
6	.00	.00	18	3.9	34	79	2.2	.06	612	125	.00	.00
7	.00	.00	5.2	3.1	17	27	1.5	.05	409	8.5	.59	.00
8	.00	.00	3.1	3.0	10	15	1.1	.03	24	1.2	.18	.00
9	.00	.00	2.1	2.7	15	8.8	1.0	.02	6.0	.41	.10	.00
10	.00	.00	6.6	2.5	25	5.1	.69	.12	1.7	.27	.03	.00
11	.00	.00	1090	1.8	14	2.5	.51	13	.56	.18	.01	.00
12	.00	.00	884	1.5	9.1	1.8	.42	9.5	.27	.15	.00	.00
13	.00	.00	38	1.2	6.5	1.3	.35	2.4	.18	.11	.00	.00
14	.00	.00	18	.78	4.9	.89	.30	.73	.15	.08	.00	.00
15	.00	.00	11	.73	3.9	.95	.18	.64	.12	.06	.00	.00
16	.00	.00	6.8	.69	3.0	2.3	.11	.49	.11	.04	.00	.00
17	.00	.00	4.0	.73	2.3	11	.09	.38	.09	.02	.00	.00
18	.00	.00	2.7	.69	2.0	4.9	.08	.56	.08	.27	.00	.00
19	.00	.00	1.8	.53	1.9	2.1	.07	1.2	.07	.41	.00	.00
20	.00	.00	1.5	.57	7500	5.7	.10	103	.06	.20	.10	.00
21	.00	.00	1.3	.63	6710	5.8	.11	1220	.05	.15	.01	.00
22	.00	.00	1.1	1.0	226	2.9	.12	1530	.03	.11	.00	.00
23	.00	.00	.98	.58	79	12	.30	1780	.02	.05	.00	.00
24	.00	.00	.88	.45	35	28	.93	443	.01	.03	.00	.00
25	.00	.00	.83	.43	18	9.2	.53	31	.00	.00	.00	.00
26	.00	1.5	.78	.51	10	1160	.20	12	.00	.00	.00	.00
27	.00	727	909	.46	6.6	216	.12	4.9	.00	.00	.00	.00
28	.00	213	312	.38	4.3	27	.15	2.0	6.3	.00	.00	.00
29	.00	27	35	.39	---	12	.43	1.2	5.1	.00	.00	.00
30	.00	10	15	.49	---	378	.20	.88	15	.00	.00	.00
31	.00	---	9.3	9.0	---	110	---	6.6	---	.00	.00	---
TOTAL	.00	978.77	4906.97	90.84	15557.5	7640.14	71.49	5164.69	1095.29	205.46	77.25	.00
MEAN	.000	32.6	158	2.93	556	246	2.38	167	36.5	6.63	2.49	.000
MAX	.00	727	1090	16	7500	2910	30	1780	612	125	59	.00
MIN	.00	.00	.78	.38	1.9	.89	.07	.02	.00	.00	.00	.00
CFSM	.000	.41	2.01	.04	7.07	3.13	.03	2.12	.46	.08	.03	.000
IN.	.00	.46	2.32	.04	7.35	3.61	.03	2.44	.52	.10	.04	.00
AC-FT	.00	1940	9730	180	30860	15150	142	10240	2170	408	153	.00
CAL YR 1982	TOTAL	30229.40	MEAN 82.8	MAX 8990	MIN .00	CFSM 1.05	IN 14.29	AC-FT 59960				
WTR YR 1983	TOTAL	35788.40	MEAN 98.1	MAX 7500	MIN .00	CFSM 1.25	IN 16.92	AC-FT 70990				

## SABINE RIVER BASIN

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## 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 upstream from bridge on Farm Road 47, 3 mi upstream from McBee Creek, 9.0 mi northeast of Wills Point, and at mile 514.5.

DRAINAGE AREA.--756 mi<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 long, including a 480-foot uncontrolled concrete ogee spillway. Outlet works consist of two 4- by 6-foot sluice gates and two 20-inch steel pipes controlled by service valves. Closure of earthen dam began July 1, 1960, and deliberate impoundment of water began Oct. 7, 1960. Capacity table is based on a 1956 survey. Diversions are made for municipal use by the city of Dallas and various other users in the Sabine River basin. The lake was built for water conservation. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	454.0	-
Design flood.....	446.2	1,290,000
Crest of spillway.....	437.5	936,200
Lowest intake to wet well (invert).....	416.5	342,700
Lowest gated outlet (invert).....	378.0	0

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,130,000 acre-ft May 1, 1966 (elevation, 442.58 ft); minimum since lake first filled in May 1965, 802,700 acre-ft Oct. 21, 1972 (elevation, 433.65 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,020,000 acre-ft Feb. 22 at 1600 hours (elevation, 439.57 ft); minimum, 859,900 acre-ft Nov. 25 (elevation, 435.34 ft).

## 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	440.0	1,029,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	881700	868200	880400	947100	930800	973900	960600	927200	944600	947100	930800	916400
2	881400	875500	888100	944600	936200	970900	953200	929000	943500	946000	929400	915300
3	881100	875200	902600	942400	933400	977200	949600	926500	943500	943800	928700	914600
4	880400	873400	910000	941700	931900	997300	950700	925400	942400	944200	927600	913200
5	880000	871700	911800	940900	934100	1013000	950700	924000	943500	946700	927200	912500
6	879700	871400	911100	940200	934400	1012000	947800	922500	947100	947100	926100	911100
7	879300	870700	911100	939900	933000	1005000	946000	924300	946400	946000	932600	910700
8	879300	870000	912500	939500	933400	998800	945300	921400	945300	944900	932300	946000
9	881700	870000	910400	939100	934400	986400	942800	921400	944200	943500	931500	909300
10	881100	870000	914300	938400	934400	980900	942000	921800	943500	942400	930500	908300
11	879000	868600	922500	939100	934800	975700	940900	923600	942400	941300	929700	907900
12	880000	870000	927200	936600	933400	972000	939500	923600	941300	940600	928700	907600
13	878600	867200	929000	936200	932600	968700	942000	922900	940600	939900	927900	907200
14	877900	868900	931200	938100	932600	966100	938400	927600	940600	938800	927200	905100
15	877600	865100	930800	934800	932300	963900	936600	924300	938800	938800	926500	904000
16	875900	864400	930500	933700	931900	964300	935500	922900	938100	942000	925400	905800
17	874800	864400	929000	933400	931500	959100	934400	921800	937700	942400	924300	904700
18	874100	863800	930800	931900	931200	955800	934100	922900	936600	941300	924000	907900
19	878600	863400	929400	932600	930800	956200	931900	925000	936200	941300	924300	907900
20	874100	863400	929000	931900	947100	953600	930800	927600	935200	940600	924000	910400
21	874800	863100	928700	931900	1011000	948900	931200	937700	934400	939900	923600	905800
22	873400	862700	928300	930800	1020000	947800	932600	944900	933700	939100	922900	904700
23	872400	865800	927900	929400	1012000	948900	931500	949600	933000	938100	922500	903300
24	871400	861300	929000	929000	1006000	948200	930100	950300	932300	936600	922100	902200
25	870700	859900	929400	928300	996900	943500	928300	950700	932600	935900	921400	902200
26	869600	864400	929000	930100	987900	955800	927200	950000	932300	935200	921100	901500
27	868200	873400	936200	925800	982800	956900	928700	948900	932600	932300	920700	901200
28	870700	879300	946700	925400	978300	955100	926800	949300	932300	933700	919600	900800
29	870000	881100	947500	925800	---	953600	926800	948500	947100	933000	918900	900500
30	869600	881400	946400	925000	---	956200	925800	947800	948900	932600	918200	899800
31	868900	---	945600	927900	---	956500	---	946400	---	931500	917100	---
MAX	881700	881400	947500	947100	1020000	1013000	960600	950700	948900	947100	932600	946000
MIN	868200	859900	880400	925000	930800	943500	925800	921400	932300	931500	917100	899800
(+)	435.60	435.96	437.76	437.27	438.65	438.06	437.21	437.78	437.85	437.37	436.97	436.48
(+)	-13500	+12500	+64200	-17700	+50400	-21800	-30700	+20600	+2500	-17400	-14400	17300

CAL YR 1982 MAX 1012000 MIN 859900 ‡ +18,800  
WTR YR 1983 MAX 1020000 MIN 859900 ‡ +17,400

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

## 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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (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)
SEP 13...	0940	197	27.0	71	0	24	2.8	11
DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
SEP 13...	.6	3.8	74	11	6.9	.30	2.6	107

## 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 downstream from Iron Bridge Dam that forms Lake Tawakoni, 3.0 upstream from McBee Creek, 9.0 mi northeast of Wills Point, and at mile 514.3.

DRAINAGE AREA.--756 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow regulated by Lake Tawakoni (see station 08017400). Several observations of water temperatures were obtained during the year.

AVERAGE DISCHARGE.--13 years, 409 ft<sup>3</sup>/s (296,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft<sup>3</sup>/s Dec. 11, 1971 (gage height, 18.5 ft, from graph based on gage readings); no flow most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since construction of Iron Bridge Dam in 1960, about 21,000 ft<sup>3</sup>/s May 1, 1966, from theoretical rating curve of flow over dam 750 ft upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,800 ft<sup>3</sup>/s Feb. 22 at 1200 hours (gage height, 16.59 ft); minimum daily, 0.29 ft<sup>3</sup>/s Oct. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	1.4	4.6	454	121	2170	1230	12	468	586	18	30
2	3.0	2.2	3.4	511	457	1880	990	113	407	409	26	25
3	2.9	21	611	406	294	1600	572	177	381	362	39	25
4	2.7	.81	311	274	47	3050	482	18	383	324	22	25
5	12	3.9	4.4	280	42	4450	672	12	359	398	18	23
6	3.2	.70	16	221	231	5190	604	12	574	417	19	21
7	3.0	.70	5.7	218	54	4570	453	58	552	413	75	18
8	2.9	.86	66	214	9.1	3960	420	94	404	372	29	21
9	2.7	1.1	32	162	20	3580	319	14	355	334	29	18
10	2.7	5.1	6.2	238	28	3110	232	21	310	299	27	17
11	2.5	.73	318	249	44	2470	191	17	274	263	32	16
12	12	26	248	175	106	1930	161	17	247	230	27	18
13	3.0	2.2	7.5	64	7.4	1570	272	17	216	209	30	27
14	3.0	9.8	7.8	150	5.7	1280	461	142	220	174	28	20
15	2.9	2.4	228	337	7.3	1050	214	310	230	141	26	18
16	2.7	1.6	11	30	41	1140	27	51	176	200	27	23
17	2.7	5.0	7.5	16	8.1	1040	11	36	142	300	31	16
18	2.5	1.9	21	30	6.3	820	54	51	119	290	32	16
19	11	1.9	78	44	4.9	703	13	4.4	92	260	27	16
20	13	1.9	8.1	70	157	874	16	1.7	67	250	27	178
21	3.8	1.8	11	110	3260	587	10	174	47	220	28	88
22	.84	2.1	8.1	191	6430	393	29	318	31	200	28	19
23	.38	21	8.1	41	5900	407	349	549	40	160	28	17
24	.29	3.3	11	7.6	4820	397	189	577	25	100	31	16
25	1.1	1.4	253	12	4180	339	12	593	16	70	27	15
26	1.4	1.8	256	229	3540	630	17	590	50	31	27	14
27	4.7	5.9	183	157	3090	883	12	545	67	17	27	23
28	1.2	1.9	524	6.5	2670	743	12	560	5.7	15	26	20
29	1.2	1.9	529	57	---	646	12	570	665	16	27	19
30	1.2	1.9	430	6.8	---	734	12	534	614	21	26	18
31	1.3	---	421	7.5	---	774	---	573	---	21	26	---
TOTAL	111.21	134.20	4629.4	4968.4	35580.8	52970	8048	6761.1	7536.7	7102	890	820
MEAN	3.59	4.47	149	160	1271	1709	268	216	251	229	28.7	27.3
MAX	13	26	611	511	6430	5190	1230	593	665	586	75	178
MIN	.29	.70	3.4	6.5	4.9	339	10	1.7	5.7	15	18	14
AC-FT	221	266	9180	9850	70570	105100	15960	13410	14950	14090	1770	1630
CAL YR 1982	TOTAL	104399.11	MEAN	286	MAX	6230	MIN	.29	AC-FT	207100		
WTR YR 1983	TOTAL	129551.81	MEAN	355	MAX	6430	MIN	.29	AC-FT	257000		

## SABINE RIVER BASIN

08018500 SABINE RIVER NEAR MINEOLA, TX

LOCATION.--Lat 32°36'49", long 95°29'08", Wood County, Hydrologic Unit 12010001, on left bank 5 ft downstream from bridge on U.S. Highway 69, 3.5 mi south of Mineola, 4.5 mi upstream from Missouri Pacific Railway Lines bridge, 16.2 mi upstream from Lake Fork Creek, and at mile 461.1.

DRAINAGE AREA.--1,357 mi<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 National Geodetic Vertical Datum of 1929. May 12, 1939, to Dec. 11, 1955, at site 55 ft upstream from downstream side of bridge; Dec. 12, 1955, to Dec. 12, 1959, at downstream side of bridge; Oct. 1, 1967, to Sept. 12, 1968, nonrecording gage at downstream side of bridge; Sept. 13, 1968, to Oct. 23, 1974, water-stage recorder at downstream side of bridge; Oct. 24, 1974, to Oct. 16, 1975, at site on right bank 75 ft downstream from bridge. All gages at present datum.

REMARKS.--Water-discharge records good. Flow partly regulated since October 1960 by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft, located 53 mi upstream, and since September 1962 by Lake Holbrook, capacity 7,990 acre-ft, located on Keys Creek, tributary to Sabine River 8.0 mi 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. This structure controls runoff from 9.70 mi<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 (763,600 acre-ft/yr); 16 years (water years 1968-83) regulated, 896 ft<sup>3</sup>/s (649,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,000 ft<sup>3</sup>/s Apr. 1, 1945 (gage height, 24.00 ft); maximum gage height, 24.37 ft June 8, 1943; no flow at times.  
Maximum stage since at least 1890, that of June 8, 1943.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,950 ft<sup>3</sup>/s Dec. 5 at 1830 hours (gage height, 17.86 ft); minimum, 3.2 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	21	705	1540	156	4220	1810	52	627	1970	21	18
2	4.0	24	525	1100	363	3700	1780	52	616	2380	18	18
3	4.5	84	2850	832	425	3440	1740	53	561	2620	19	18
4	4.5	89	5760	735	517	3140	1680	53	459	2500	22	18
5	3.7	57	7500	648	736	3350	1600	119	367	1930	22	18
6	3.3	43	7250	488	1170	3600	1470	124	545	1230	24	19
7	4.0	44	5290	385	1280	4810	1190	68	1110	865	30	18
8	6.1	34	3500	337	1230	6170	1020	47	1550	700	31	17
9	20	24	2230	297	1190	5520	860	40	1970	568	33	17
10	27	17	1170	285	1510	5070	673	53	2190	474	68	17
11	24	15	1060	255	1580	4450	523	103	1950	389	49	17
12	17	13	1770	265	1390	3690	358	445	1300	316	31	17
13	14	12	2260	268	1050	3140	264	635	673	262	24	17
14	13	9.8	2530	278	679	3370	224	385	328	220	21	17
15	13	7.7	2420	184	386	3020	262	227	227	191	21	17
16	12	6.5	1860	166	270	2600	446	540	199	174	20	17
17	10	12	1070	300	198	2410	394	925	215	157	19	18
18	8.3	16	489	213	156	2200	195	813	258	165	19	20
19	7.6	15	190	125	154	2030	104	477	284	250	20	19
20	7.3	14	128	99	148	1920	76	451	264	263	21	19
21	7.2	14	129	98	853	1840	80	980	162	228	26	19
22	7.7	12	116	117	2150	1660	69	1500	109	196	26	18
23	8.1	15	89	137	3150	1540	66	1900	82	169	25	75
24	11	21	80	190	4330	1640	68	2150	65	143	22	84
25	16	16	73	174	5720	1510	211	2200	55	117	20	45
26	15	36	70	119	6070	1430	257	1950	54	92	19	28
27	13	866	526	96	5480	1500	148	1530	89	69	19	22
28	12	1360	1300	134	4850	1380	76	1160	236	53	20	20
29	27	1350	1680	261	---	1770	57	874	503	40	20	19
30	58	1130	1900	154	---	1800	54	705	1460	31	19	18
31	36	---	1870	98	---	1860	---	651	---	25	18	---
TOTAL	418.3	5378.0	58390	10378	47191	89780	17755	21262	18508	18787	767	704
MEAN	13.5	179	1884	335	1685	2896	592	686	617	606	24.7	23.5
MAX	58	1360	7500	1540	6070	6170	1810	2200	2190	2620	68	84
MIN	3.3	6.5	70	96	148	1380	54	40	54	25	18	17
AC-FT	830	10670	115800	20580	93600	178100	35220	42170	36710	37260	1520	1400

CAL YR 1982 TOTAL 204611.9 MEAN 561 MAX 7500 MIN 2.2 AC-FT 405800  
WTR YR 1983 TOTAL 289318.3 MEAN 793 MAX 7500 MIN 3.3 AC-FT 573900



## SABINE RIVER BASIN

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08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to current year. Biochemical analysis: July 1970 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, 31.0°C Sept. 1, 1982, and July 26, 1983; minimum daily, 0.0°C Jan. 15, Feb. 1, 1979.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 5,610 micromhos Oct. 31; minimum daily, 79 micromhos Dec. 7.

WATER TEMPERATURES: Maximum daily, 31.0°C July 26; minimum daily, 4.0°C Feb. 5.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
NOV 15...	1140	8.0	462	7.2	9.0	8.4	72	1.3	89	50
FEB 14...	1023	698	320	6.5	10.0	8.6	77	1.3	76	58
APR 04...	1300	1690	240	7.3	13.0	9.1	88	1.5	76	13
MAY 23...	1345	1970	220	6.9	20.5	5.4	61	2.9	57	34
JUL 11...	1115	390	232	7.6	26.5	6.4	80	1.7	76	4
AUG 22...	1105	27	380	7.5	28.0	3.4	44	1.9	110	36

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
NOV 15...	25	6.4	52	2.5	5.5	39	62	75	.10
FEB 14...	19	7.0	27	1.4	4.0	18	64	40	.10
APR 04...	24	4.0	16	.8	3.6	64	25	18	.20
MAY 23...	15	4.8	19	1.1	4.4	23	42	26	.10
JUL 11...	24	3.9	15	.8	3.9	72	17	15	.20
AUG 22...	33	6.9	30	1.3	4.2	75	45	39	.30

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 15...	17	266	.19	.010	.20	<.060	--	.90	.090
FEB 14...	10	182	.07	.030	.10	.200	.90	1.10	.090
APR 04...	2.1	131	--	<.100	<.10	.160	.74	.90	.060
MAY 23...	8.8	134	.06	.040	.10	.150	2.2	2.30	.160
JUL 11...	3.4	126	--	.030	<.10	.110	.89	1.00	.080
AUG 22...	5.9	209	--	.050	<.10	.080	1.2	1.30	.050

## SABINE RIVER BASIN

08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	418.3	2010	1060	1190	600	679	120	136	220
NOV.	1982	5378.0	346	189	2740	69	999	30	434	55
DEC.	1982	58390	146	80	12600	26	4130	14	2260	26
JAN.	1983	10378	331	181	5080	62	1720	31	876	58
FEB.	1983	47191	236	129	16400	44	5580	22	2840	41
MAR.	1983	89780	229	125	30400	42	10100	22	5390	41
APR.	1983	17755	270	148	7090	49	2370	26	1250	48
MAY	1983	21262	319	174	9980	63	3610	28	1590	51
JUNE	1983	18508	235	129	6430	43	2140	23	1130	42
JULY	1983	18787	199	109	5550	36	1830	19	985	36
AUG.	1983	767	520	282	585	110	221	42	88	79
SEPT	1983	704	330	181	343	61	116	31	59	57
TOTAL		289318.3	**	**	98500	**	33500	**	17000	**
WTD. AVG.		793	230	126	**	43	**	22	**	40

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	544	3080	240	220	473	213	298	490	240	180	320	537
2	553	987	248	259	1770	216	255	510	250	140	330	482
3	548	1050	96	277	555	222	249	520	260	130	360	462
4	529	2300	102	278	542	223	253	580	270	160	375	463
5	516	1350	105	283	302	258	228	710	260	190	390	452
6	502	693	91	327	378	264	240	510	200	210	380	424
7	475	545	79	346	305	208	256	350	290	235	390	406
8	440	437	100	355	354	173	240	370	200	280	385	400
9	448	509	139	365	305	178	264	380	180	240	380	390
10	473	472	175	380	309	193	270	410	170	235	360	386
11	424	441	229	395	289	203	276	390	190	232	320	382
12	2990	440	230	404	269	209	298	2500	230	235	300	372
13	5310	460	174	369	237	212	324	400	240	240	330	365
14	4240	463	148	343	317	215	333	470	250	245	360	358
15	3940	461	145	367	350	218	351	540	260	250	345	354
16	3950	465	179	428	379	220	247	610	270	250	330	359
17	4380	540	224	402	436	222	257	200	270	255	335	365
18	2970	578	234	325	437	227	305	300	260	540	340	360
19	2250	596	297	451	447	229	343	350	350	560	350	335
20	1750	606	357	452	469	223	378	430	360	320	355	318
21	1350	648	395	527	462	249	435	370	330	280	360	308
22	1200	434	458	544	176	279	436	280	340	270	385	315
23	1120	433	459	470	175	254	463	240	360	260	870	265
24	1430	331	442	399	150	304	512	200	350	265	650	254
25	1110	442	407	348	136	347	420	190	360	270	2770	239
26	1120	186	403	407	163	346	327	210	390	280	1650	235
27	962	183	408	446	188	356	352	220	430	285	1070	241
28	991	357	343	539	202	321	377	230	630	295	780	249
29	1120	226	247	611	---	348	396	240	220	300	620	260
30	1400	233	197	366	---	235	437	230	260	315	560	281
31	5610	---	204	414	---	254	---	220	---	320	540	---
MEAN	1760	665	244	390	378	246	327	440	289	267	558	354

## SABINE RIVER BASIN

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08018500 SABINE RIVER NEAR MINEOLA, TX--Continued

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	OCT	NOV	DEC	JAN	FEB	MAR.	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	17.0	12.0	6.0	9.0	13.0	15.0	22.0	22.0	27.0	29.0	30.0
2	24.0	17.0	15.0	7.0	8.0	14.0	14.0	22.0	23.0	26.0	28.0	28.0
3	25.0	15.0	15.0	7.0	8.0	15.0	14.0	22.0	23.0	27.0	28.0	28.0
4	21.0	13.0	14.0	7.0	6.0	16.0	14.0	22.0	28.0	28.0	28.0	27.0
5	21.0	11.0	12.0	7.0	4.0	15.0	15.0	20.0	24.0	27.0	29.0	28.0
6	24.0	15.0	12.0	8.0	7.0	16.0	14.0	20.0	23.0	22.0	29.0	29.0
7	22.0	12.0	---	---	5.0	15.0	14.0	24.0	22.0	25.0	28.0	29.0
8	25.0	13.0	12.0	8.0	5.0	15.0	14.0	22.0	22.0	25.0	---	28.0
9	22.0	13.0	11.0	9.0	7.0	14.0	15.0	20.0	22.0	---	27.0	25.0
10	20.0	16.0	10.0	8.0	9.0	14.0	14.0	20.0	22.0	25.0	27.0	25.0
11	18.0	16.0	10.0	8.0	---	12.0	15.0	22.0	22.0	28.0	28.0	25.0
12	18.0	15.0	7.0	8.0	10.0	12.0	17.0	21.0	23.0	28.0	27.0	22.0
13	15.0	11.0	6.0	10.0	10.0	13.0	17.0	22.0	25.0	27.0	---	27.0
14	15.0	11.0	9.0	10.0	13.0	14.0	19.0	---	25.0	28.0	29.0	25.0
15	15.0	---	6.0	8.0	13.0	14.0	17.0	---	24.0	26.0	28.0	24.0
16	15.0	10.0	10.0	7.0	11.0	15.0	16.0	19.0	23.0	27.0	29.0	26.0
17	14.0	---	8.0	8.0	10.0	15.0	15.0	21.0	25.0	25.0	28.0	25.0
18	16.0	11.0	9.0	8.0	11.0	14.0	18.0	21.0	24.0	27.0	28.0	22.0
19	18.0	14.0	8.0	6.0	12.0	13.0	17.0	21.0	26.0	29.0	22.0	26.0
20	15.0	13.0	8.0	6.0	14.0	13.0	15.0	20.0	25.0	27.0	28.0	25.0
21	15.0	14.0	9.0	6.0	13.0	13.0	15.0	20.0	25.0	30.0	28.0	20.0
22	13.0	14.0	10.0	5.0	12.0	12.0	---	19.0	26.0	28.0	28.0	20.0
23	12.0	13.0	---	---	13.0	12.0	17.0	22.0	25.0	28.0	30.0	21.0
24	11.0	10.0	14.0	5.0	13.0	11.0	17.0	22.0	25.0	28.0	28.0	20.0
25	12.0	---	---	6.0	13.0	13.0	15.0	22.0	28.0	28.0	29.0	19.0
26	10.0	11.0	11.0	6.0	12.0	15.0	18.0	23.0	25.0	31.0	28.0	19.0
27	12.0	10.0	10.0	7.0	13.0	14.0	---	23.0	27.0	29.0	29.0	21.0
28	13.0	---	8.0	7.0	12.0	15.0	22.0	23.0	19.0	28.0	27.0	22.0
29	13.0	---	8.0	7.0	---	14.0	20.0	23.0	23.0	29.0	29.0	21.0
30	15.0	---	7.0	7.0	---	14.0	21.0	23.0	25.0	29.0	29.0	20.0
31	16.0	---	6.0	9.0	---	15.0	---	23.0	---	28.0	29.0	---
MEAN	17.0	13.0	10.0	7.5	10.0	14.0	16.0	21.5	24.0	27.5	28.0	24.0

## 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 to left of left end of main bridge on Farm Road 1567, 100 ft upstream from Cane Branch, 1.2 mi upstream from Brushy Branch, and 5.0 mi northwest of Yantis.

DRAINAGE AREA.--33.1 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1978 to current year.

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

REMARKS.--Records poor. There are no known diversions or return effluents in the basin above gage. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 21.6 ft<sup>3</sup>/s (8.86 in/yr), 15,650 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,990 ft<sup>3</sup>/s June 16, 1981 (gage height, 11.59 ft), from graph based on gage reading on June 16; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1943, 17.5 ft 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 and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 3	1000	*2,710	11.72
Mar. 4	1000	1,060	10.50

Minimum discharge, no flow Oct. 1-8, Aug. 25 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.17	1.3	5.0	130	14	20	20	17	30	3.1	.00
2	.00	10	9.4	6.0	84	14	25	20	17	21	3.0	.00
3	.00	4.1	1180	5.6	36	19	19	20	17	15	3.0	.00
4	.00	.53	177	5.4	13	526	17	18	17	13	5.0	.00
5	.00	.21	43	5.0	70	130	15	17	17	160	4.0	.00
6	.00	.25	6.6	5.0	84	46	14	17	30	80	3.5	.00
7	.00	.17	3.5	5.0	62	19	15	17	20	39	2.8	.00
8	.00	.34	2.7	5.2	45	15	14	17	17	22	2.6	.00
9	2.0	.29	2.5	5.0	48	15	15	17	17	17	2.3	.00
10	.40	.53	20	4.9	92	13	15	17	17	15	2.0	.00
11	.30	.43	186	4.8	65	14	17	44	15	15	1.6	.00
12	.20	.38	158	4.8	42	14	15	30	15	13	1.4	.00
13	.20	.53	76	4.8	32	15	14	23	15	12	1.2	.00
14	.10	.60	13	4.8	27	16	14	19	14	11	1.0	.00
15	.08	.43	4.5	4.7	26	16	15	30	14	11	1.0	.00
16	.08	.60	4.2	4.7	24	16	14	24	13	10	.60	.00
17	.07	.48	3.5	4.7	20	15	14	21	12	35	.40	.00
18	.07	.38	3.6	4.6	17	14	13	20	11	20	.40	.00
19	.06	.66	3.8	4.6	15	14	13	19	11	13	10	.00
20	.06	.73	3.8	10	13	16	17	70	11	11	3.0	.00
21	.05	.66	3.5	13	450	16	18	120	11	10	2.1	.00
22	.05	1.0	3.5	12	130	13	23	150	11	8.0	1.4	.00
23	.10	.88	3.4	7.0	48	20	48	21	11	7.0	.40	.00
24	.10	.88	3.4	6.4	24	15	20	17	10	6.0	.20	.00
25	.10	.66	3.6	6.8	20	14	19	17	10	5.4	.00	.00
26	.08	.88	5.2	8.4	18	100	23	17	30	4.5	.00	.00
27	.10	101	200	9.2	16	30	21	100	50	4.0	.00	.00
28	.05	42	100	10	15	24	21	49	20	3.6	.00	.00
29	.43	1.5	30	10	---	20	22	17	200	3.4	.00	.00
30	.29	1.1	18	9.7	---	80	23	17	70	3.4	.00	.00
31	.29	---	10	17	---	50	---	17	---	3.2	.00	---
TOTAL	5.26	172.37	2283.0	214.1	1666	1343	553	1022	740	621.5	56.00	.00
MEAN	.17	5.75	73.6	6.91	59.5	43.3	18.4	33.0	24.7	20.0	1.81	.000
MAX	2.0	101	1180	17	450	526	48	150	200	160	10	.00
MIN	.00	.17	1.3	4.6	13	13	13	17	10	3.2	.00	.000
CFSM	.005	.17	2.22	.21	1.80	1.31	.56	1.00	.75	.60	.06	.000
IN.	.01	.19	2.57	.24	1.87	1.51	.62	1.15	.83	.70	.06	.00
AC-FT	10	342	4530	425	3300	2660	1100	2030	1470	1230	111	.00
CAL YR 1982	TOTAL	6170.47	MEAN 16.9	MAX 1180	MIN .00	CFSM .51	IN 6.93	AC-FT 12240				
WTR YR 1983	TOTAL	8676.23	MEAN 23.8	MAX 1180	MIN .00	CFSM .72	IN 9.75	AC-FT 17210				

## 08018800 LAKE FORK RESERVOIR NEAR QUITMAN, TX

LOCATION.--Lat 32°48'48", long 95°31'40", Wood County, Hydrologic Unit 12010003, in room at left end of gated concrete spillway structure of Lake Fork Dam on Lake Fork Creek, 2,000 ft upstream from bridge on State Highway 182, 2.3 mi upstream from Alum Branch, and 4.4 mi west-northwest of the county courthouse in Quitman.

DRAINAGE AREA.--490 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

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

REMARKS.--The lake is formed by a rolled earthfill dam 12,660 ft long, including a 260-foot gated concrete spillway. The outlet works consist of two 5- by 8-foot low-flow sluice gates, five 40- by 20-foot tainter gates, and two 5- by 6-foot sluice gates that open into a wet-well where there are two 36-inch and one 10-inch valve-controlled and metered-outlet pipes. Deliberate impoundment began June 29, 1979, and closure of the dam was completed in January 1980. The lake was built for water conservation and is owned by the Sabine River Authority. No known diversions were made from the lake this year. Flow is affected at times by discharge from the flood-detention pools of 21 floodwater-retarding structures with a combined detention capacity of 20,270 acre-ft. These structures control runoff from 60.0 mi<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, 320,300 acre-ft Mar. 7, 1983 (elevation, 386.72 ft); minimum observed, 46,140 acre-ft Dec. 11-14, 1979 (elevation, 361.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 320,300 acre-ft Mar. 7 at 1100 hours (elevation, 386.72 ft); minimum, 140,900 acre-ft Oct. 27, 28 (elevation, 373.76 ft).

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

373.0	133,300	381.0	230,700
375.0	154,000	383.0	260,400
377.0	177,200	385.0	291,900
379.0	202,800	387.0	325,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141500	141800	150200	244100	247600	295000	305900	295300	304100	300200	292200	286600
2	141400	143300	159400	244400	248200	295100	304500	295800	303300	300000	291700	286300
3	141400	143200	178000	244300	247900	296500	303600	295100	302700	299200	291400	286000
4	141300	143000	196500	244300	248300	306400	303300	294800	302200	299100	291100	285700
5	141200	142800	201000	244400	250300	318100	303000	294300	302200	300500	290900	285500
6	141200	142700	202400	244600	251500	319900	302500	294000	304800	300900	290600	285000
7	141700	142700	203100	244600	252000	318800	301700	294300	304100	300700	291700	284700
8	141900	142600	203900	244900	252600	317800	301400	293800	302700	300000	291600	284600
9	142500	142500	204900	245200	255400	315700	300500	293700	302000	299400	291200	284200
10	142400	142400	208000	245000	256500	314100	300000	294000	301000	298900	291100	284100
11	142300	142700	214100	245000	257400	312600	299400	295100	300500	298400	290800	283900
12	142500	142600	220400	244900	257400	311100	299200	295100	299900	297900	290500	283800
13	142400	142300	224600	244900	257700	309900	299200	295000	299200	297400	290300	283600
14	142200	142300	226100	245000	257900	308700	298600	296900	299100	296800	290000	283000
15	142100	141900	226500	244900	258000	307700	298100	296100	298400	296800	289700	282500
16	142000	141900	226800	244900	258200	307600	297600	295800	297900	297100	289500	282300
17	141900	141900	226800	244700	258200	305900	297300	295300	297600	296800	289200	282200
18	141700	141900	227100	245200	258200	304600	296800	295800	297100	296300	289200	282200
19	142200	141900	227200	245500	258300	304300	296800	295300	296800	296000	289500	282000
20	141600	141900	227100	245500	262900	304100	296500	297800	296500	295600	289200	282300
21	141800	141900	227200	245600	278200	302700	296300	301000	296000	295100	289000	281400
22	141700	141900	227400	245300	288100	302200	296600	304000	295500	294800	288700	281100
23	141600	142300	227400	245300	291100	302500	296800	304900	295300	294300	288500	280700
24	141400	141900	228000	245200	293000	302300	296300	304100	295100	294000	288200	280300
25	141300	141700	228100	244700	310100	301700	296000	303500	295100	293700	287900	280100
26	141100	144000	229500	245300	310600	304300	295500	302700	295300	293500	287700	279900
27	140900	146000	234200	245200	311100	305600	295300	306600	295100	293200	287600	279800
28	142000	147500	239700	245300	311100	305300	295500	307200	297400	292900	287400	279600
29	141900	149200	242400	245300	---	304600	295000	306400	298400	292700	287100	279500
30	141900	149700	243400	246800	---	305300	295100	306100	300400	292700	286800	279100
31	141800	---	243800	247600	---	305100	---	305300	---	292400	286600	---
MAX	142500	149700	243800	247600	311100	319900	305900	307200	304800	300900	292200	286600
MIN	140900	141700	150200	244100	247600	295000	295000	293700	295100	292400	286600	279100
(†)	373.85	374.60	381.90	382.15	386.17	385.81	385.20	385.82	385.52	385.03	384.67	384.20
(*)	+200	+7900	+94100	+3800	+63500	-6000	-10000	+10200	-4900	-8000	-5800	-7500
CAL YR 1982	MAX	243800	MIN	140900	*	+90200						
WTR YR 1983	MAX	319900	MIN	140900	*	+137500						

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.



## SABINE RIVER BASIN

08018800 LAKE FORK RESERVOIR NEAR QUITMAN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1980 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
SEP 13...	1420	213	28.0	62	13	15	5.9	15

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINEITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
SEP 13...	.9	5.8	49	23	20	.10	1.9	116

## SABINE RIVER BASIN

197

## 08019000 LAKE FORK CREEK NEAR QUITMAN, TX

LOCATION.--Lat 32°45'47", long 95°27'46", Wood County, Hydrologic Unit 12010003, at downstream side of highway embankment near left end of bridge on State Highway 37, 0.3 mi downstream from Dry Creek, 2.4 mi south of Quitman, and 23.4 mi upstream upstream from mouth.

DRAINAGE AREA.--585 mi<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 National Geodetic Vertical Datum of 1929. June 27, 1924, to Apr. 30, 1926, nonrecording gage at site 1,000 ft 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> is controlled by Lake Quitman (capacity 7,440 acre-ft) on Dry Creek, a tributary above this station and below Lake Fork Reservoir. Construction of Lake Fork Dam and Reservoir (capacity 675,800 acre-ft), located about 5 mi upstream from station, began in 1975. Deliberate impoundment began June 29, 1979, and the dam was completed in January 1980. Lake Fork Reservoir controls runoff from 490 mi<sup>2</sup>. The city of Quitman discharged a small amount of sewage effluent into a tributary above this station.

AVERAGE DISCHARGE.--41 years (water years 1925, 1940-79), prior to regulation by Lake Fork Reservoir, 432 ft<sup>3</sup>/s (10.03 in/yr), 313,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,600 ft<sup>3</sup>/s Mar. 30, 1945 (gage height, 29.85 ft, from floodmark), from rating curve extended above 49,000 ft<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, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,030 ft<sup>3</sup>/s Dec. 3 at 0900 hours (gage height, 16.10 ft), from graph based on once daily stage readings; minimum, 0.23 ft<sup>3</sup>/s Nov. 11, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	.86	33	120	40	112	675	61	510	293	6.4	3.9
2	.37	6.6	711	74	53	106	679	61	389	323	4.6	4.0
3	.35	31	3370	65	38	111	632	73	446	301	3.6	4.0
4	.39	12	1850	53	26	255	539	80	424	266	3.5	3.9
5	.45	3.1	1240	46	151	993	491	59	397	290	3.3	3.8
6	.36	1.4	627	42	304	1390	443	44	956	371	2.7	3.4
7	.41	.68	285	40	221	1630	421	34	1120	343	4.7	3.7
8	.59	.51	191	38	100	1690	435	40	1050	328	69	3.9
9	1.7	.47	99	36	201	1570	478	35	760	298	30	3.6
10	2.0	.31	88	34	1030	1440	486	25	533	264	9.6	3.5
11	1.6	.30	396	24	743	1280	484	40	409	236	5.8	3.6
12	1.3	.28	1010	16	387	1100	483	61	339	206	4.8	3.7
13	1.2	.44	697	21	223	990	430	54	293	176	4.3	3.8
14	.96	.73	427	21	143	898	349	52	260	150	4.2	4.2
15	.73	.68	267	17	112	812	276	87	241	120	4.2	4.4
16	.65	.68	189	16	92	730	185	104	217	108	4.3	4.2
17	.63	.59	82	15	80	671	143	76	183	120	4.4	4.3
18	.60	.78	62	16	71	615	110	78	155	115	4.3	4.5
19	.48	.63	42	16	65	544	106	112	135	97	5.1	4.4
20	.40	.74	24	15	69	525	103	207	117	88	4.7	4.6
21	.55	.81	11	15	648	525	96	350	102	75	4.5	5.6
22	.87	.74	14	15	995	443	90	751	86	69	4.2	6.1
23	.77	.63	29	15	634	452	106	627	76	59	4.3	6.2
24	.70	.57	32	14	389	587	128	523	68	39	4.4	6.1
25	.98	.79	33	13	250	513	105	528	61	35	4.3	4.8
26	1.2	8.7	34	13	163	504	87	420	57	30	4.2	4.1
27	1.4	350	257	15	129	689	77	484	65	20	4.0	4.8
28	1.8	549	598	15	119	716	70	887	67	14	4.0	4.5
29	8.8	316	508	14	---	638	66	1070	291	9.8	4.0	4.1
30	4.2	63	254	15	---	619	63	816	359	7.9	4.2	4.2
31	1.3	---	34	14	---	699	---	634	---	7.3	4.2	---
TOTAL	38.19	1353.02	13494	883	7476	23847	8836	8473	10166	4859.0	229.8	129.9
MEAN	1.23	45.1	435	28.5	267	769	295	273	339	157	7.41	4.33
MAX	8.8	549	3370	120	1030	1690	679	1070	1120	371	69	6.2
MIN	.35	.28	11	13	26	106	63	25	57	7.3	2.7	3.4
AC-FT	76	2680	26770	1750	14830	47300	17530	16810	20160	9640	456	258
CAL YR 1982	TOTAL	70216.22	MEAN 192	MAX 3370	MIN .28	AC-FT 139300						
WTR YR 1983	TOTAL	79784.91	MEAN 219	MAX 3370	MIN .28	AC-FT 158300						

## SABINE RIVER BASIN

08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1961 to June 1965, November 1967 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1967 to current year.

WATER TEMPERATURES: December 1967 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,800 micromhos Oct. 5, 1972; minimum daily, 37 micromhos Dec. 11, 1971.

WATER TEMPERATURES (1976-1979, 1981-83): Maximum daily, 34.0°C Aug. 15, 1983; minimum daily, 1.0°C Jan. 13, 1982.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,700 micromhos Nov. 20; minimum daily, 167 micromhos Dec. 3.

WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 15; minimum daily, 5.0°C Jan. 23, Feb. 4.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 19...	1700	.60	1690	14.0	240	210	61	22	220
JAN 28...	1600	15	1030	9.5	170	170	43	16	130
MAR 17...	1600	747	249	16.0	61	27	15	5.7	19
APR 30...	1200	63	294	21.0	70	33	17	6.8	26
JUL 31...	1600	7.3	278	30.0	74	23	18	7.0	22
AUG 21...	1930	4.5	340	32.0	80	15	20	7.4	27

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
NOV 19...	6.3	8.6	34	44	480	.10	8.6	865
JAN 28...	4.4	4.3	5.0	110	240	.20	25	571
MAR 17...	1.1	6.2	34	29	31	.20	3.3	130
APR 30...	1.4	5.7	38	37	40	.10	5.6	161
JUL 31...	1.2	6.0	51	30	34	.30	5.3	153
AUG 21...	1.4	5.4	66	23	40	.20	5.6	168

## SABINE RIVER BASIN

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08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	38.19	433	240	25	71	7.3	55	5.7	92
NOV.	1982	1353.02	417	231	843	69	253	53	192	88
DEC.	1982	13494	285	158	5770	43	1570	37	1360	63
JAN.	1983	883	683	377	899	130	314	80	191	130
FEB.	1983	7476	400	222	4470	66	1320	51	1030	85
MAR.	1983	23847	291	161	10400	43	2800	38	2470	64
APR.	1983	8836	267	148	3530	39	931	35	844	59
MAY	1983	8473	277	154	3510	41	943	36	835	61
JUNE	1983	10166	255	142	3890	37	1020	34	932	57
JULY	1983	4859.0	233	129	1700	33	438	31	409	52
AUG.	1983	229.8	404	224	139	65	40	52	32	86
SEPT	1983	129.9	308	171	60	46	16	40	14	68
TOTAL		79784.91	**	**	35200	**	9660	**	8310	**
WTD. AVG.		219	295	164	**	45	**	39	**	65

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	456	448	568	501	920	430	300	300	260	237	290	313
2	453	416	320	520	936	420	257	315	240	241	300	312
3	454	766	167	547	777	417	255	320	230	220	315	311
4	457	768	251	581	651	390	250	315	220	221	320	310
5	461	632	249	602	636	319	252	300	280	240	325	308
6	454	580	337	641	605	290	254	310	275	324	330	310
7	456	581	343	685	560	257	255	320	270	242	375	311
8	468	598	420	705	559	256	250	290	280	216	440	313
9	451	642	422	731	442	254	255	360	260	217	550	315
10	450	712	430	725	240	251	256	370	255	216	490	316
11	440	754	325	720	285	249	255	425	245	217	445	319
12	442	755	282	722	392	263	254	520	235	216	410	317
13	440	756	300	703	410	265	275	360	230	215	395	316
14	441	855	320	733	447	258	295	340	225	216	370	315
15	444	989	344	794	485	253	265	300	220	218	360	314
16	466	1150	390	798	526	247	268	280	225	221	340	311
17	467	1340	440	825	559	249	272	290	230	219	350	310
18	470	1560	493	852	585	260	270	310	235	221	340	308
19	467	1690	537	855	610	271	278	530	230	225	330	310
20	465	1700	576	853	600	300	283	475	240	223	340	312
21	448	1610	600	856	460	350	280	440	230	222	335	313
22	455	1480	630	969	293	400	286	270	240	226	330	302
23	460	1360	631	972	320	422	285	265	250	230	340	301
24	461	1340	640	1010	430	380	305	250	245	240	330	302
25	458	1290	650	1020	471	296	311	240	250	250	325	303
26	457	1000	656	1030	483	310	385	230	255	235	320	303
27	455	401	500	1040	493	324	287	250	260	239	330	293
28	426	308	382	1030	451	342	286	300	270	272	320	296
29	390	502	394	950	---	372	290	200	350	279	315	299
30	415	552	410	900	---	380	294	240	220	272	310	293
31	446	---	425	---	---	320	---	260	---	278	312	---
MEAN	451	918	433	796	522	316	277	322	249	236	354	309

## SABINE RIVER BASIN

08019000 LAKE FORK CREEK NEAR QUITMAN, TX--Continued

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.0	21.0	17.0	7.0	8.0	---	22.0	21.0	25.0	29.0	30.0	32.0
2	27.0	17.0	16.0	9.5	7.5	16.5	20.0	22.0	21.0	29.0	30.0	32.0
3	25.0	15.0	17.0	7.0	7.5	16.5	19.0	21.0	24.0	29.0	27.0	31.0
4	25.0	14.0	16.0	7.0	5.0	16.0	17.0	21.0	27.0	29.0	28.0	32.0
5	25.0	13.0	14.5	8.0	5.5	19.0	18.0	21.0	27.0	27.0	29.0	32.0
6	24.0	16.5	14.0	8.0	6.0	17.0	18.0	22.0	23.0	28.0	28.0	31.0
7	25.0	16.0	15.0	9.0	6.0	17.0	17.0	24.0	27.0	28.0	27.0	31.0
8	25.0	16.5	15.0	10.0	7.0	16.0	17.0	21.0	27.0	28.0	28.0	31.0
9	24.0	14.0	13.0	10.0	9.0	15.0	15.0	20.0	27.0	29.0	29.0	30.0
10	22.0	18.5	11.0	9.0	10.0	14.0	17.0	20.0	27.0	29.0	29.0	31.0
11	19.0	17.0	10.0	9.0	13.0	14.5	18.0	21.0	25.0	29.0	28.0	30.0
12	17.0	14.0	10.0	9.0	13.0	15.0	17.0	24.0	25.0	29.0	30.0	29.0
13	19.0	11.5	0.0	11.0	11.0	15.0	17.0	24.0	25.0	28.0	31.0	29.0
14	18.0	12.0	1.0	11.5	12.0	19.0	16.0	21.0	25.0	28.5	31.0	29.0
15	18.0	11.5	1.0	11.0	13.0	16.0	16.0	20.0	26.0	28.0	34.0	29.0
16	19.0	9.5	11.0	11.0	13.5	16.0	15.0	22.0	26.0	28.0	32.0	29.0
17	19.0	11.0	9.0	10.0	13.0	16.0	18.0	22.0	25.0	29.0	32.0	28.0
18	20.0	12.0	12.0	10.0	13.5	17.0	11.0	23.0	26.0	29.0	28.0	28.0
19	21.0	14.0	12.0	6.5	14.5	15.0	17.0	24.0	27.0	30.0	29.0	29.0
20	15.0	16.0	12.0	7.0	14.0	15.0	16.0	22.0	27.0	30.0	31.0	28.0
21	14.0	17.0	11.0	6.5	15.0	14.0	15.0	21.0	26.0	30.5	32.0	25.0
22	16.0	16.0	12.0	6.0	15.0	14.5	16.0	22.0	27.0	30.0	31.0	25.0
23	15.0	16.0	15.0	5.0	16.0	14.5	17.0	24.0	27.0	30.0	31.0	25.0
24	14.0	12.0	15.0	7.0	16.0	15.0	18.0	26.0	26.0	30.0	33.0	24.0
25	14.0	11.0	16.0	8.0	15.0	16.0	19.0	23.0	26.0	30.5	32.0	25.0
26	13.0	11.0	12.5	8.0	14.0	17.0	20.0	24.0	28.0	31.0	33.0	25.0
27	15.0	10.5	8.0	8.5	13.0	16.0	20.0	24.0	27.0	30.0	32.0	25.0
28	15.0	13.0	8.0	9.5	14.5	19.0	21.0	26.0	28.0	30.0	32.0	25.0
29	16.0	13.0	8.0	9.0	---	16.5	20.0	28.0	28.0	31.0	32.0	26.0
30	16.0	14.0	7.0	10.0	---	19.0	21.0	25.0	27.0	29.0	33.0	25.0
31	16.0	---	7.0	12.0	---	20.5	---	25.0	---	30.0	33.0	---
MEAN	19.0	14.0	12.0	8.5	11.5	16.5	17.5	22.5	26.0	29.0	30.5	28.5



## SABINE RIVER BASIN

201

08019300 LAKE WINNSBORO NEAR WINNSBORO, TX

LOCATION.--Lat 32°53'13", long 95°20'41", Wood County, Hydrologic Unit 12010002, near left end of dam on Big Sandy Creek, 0.8 mi upstream from bridge on State Highway 37, 2.5 mi upstream from Indian Creek, and 5.8 mi southwest of Winnsboro.

DRAINAGE AREA.--27.1 mi<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, non-recording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 2,500 ft 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 square drop inlet at crest elevation of 419.0 ft. The crest was raised in April 1966 from elevation 417 to 419 ft. The other spillway is a 300-foot-wide 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 Feb. 5, 1975 (elevation, 422.92 ft); minimum since first appreciable storage, 2,430 acre-ft Jan. 19, 20, 1965 (elevation, 409.79 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 10,230 acre-ft Dec. 3 at 1200 hours (elevation, 421.44 ft); minimum, 6,850 acre-ft Oct. 27 (elevation, 417.36 ft).

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

417.0	6,590	421.0	9,820
419.0	8,110	422.0	10,760

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6910	6910	7520	8300	8100	8230	8680	8050	8350	7910	7720	7260
2	6910	7030	8680	8270	8090	8230	8640	8050	8320	7890	7700	7240
3	6900	7010	9850	8240	8090	8230	8580	8050	8310	7860	7670	7210
4	6890	7000	9130	8200	8090	8580	8540	8050	8310	7850	7660	7210
5	6880	6990	8770	8190	8190	8680	8490	8050	8300	7990	7640	7270
6	6920	6980	8570	8190	8230	8560	8440	8040	8290	7990	7620	7270
7	6940	6970	8460	8200	8230	8460	8430	8020	8280	7960	7670	7260
8	6940	6970	8360	8170	8230	8410	8410	8010	8260	7930	7670	7240
9	6970	6970	8300	8170	8480	8340	8420	8030	8230	7920	7650	7260
10	6950	6970	8420	8160	8530	8300	8480	8050	8210	7890	7640	7250
11	6940	6970	8880	8170	8440	8270	8420	8050	8150	7870	7600	7260
12	6960	6940	8760	8130	8390	8250	8350	8080	8140	7860	7590	7260
13	6950	6920	8580	8150	8320	8240	8330	8090	8130	7840	7590	7250
14	6940	6910	8500	8130	8290	8230	8250	8070	8120	7820	7560	7210
15	6940	6900	8390	8120	8250	8230	8200	8060	8090	7810	7550	7210
16	6930	6900	8340	8120	8210	8220	8180	8020	8080	7820	7530	7180
17	6920	6900	8300	8130	8210	8210	8150	8030	8050	7820	7510	7180
18	6910	6900	8270	8100	8190	8200	8110	8040	8030	7810	7490	7150
19	6920	6910	8230	8090	8190	8190	8080	8050	8000	7790	7530	7150
20	6890	6920	8210	8090	8210	8210	8070	8100	7970	7780	7530	7150
21	6890	6910	8210	8090	8620	8210	8070	8130	7970	7770	7510	7120
22	6890	6910	8210	8090	8580	8210	8080	8130	7940	7750	7490	7100
23	6880	6920	8210	8080	8490	8280	8090	8130	7920	7730	7470	7090
24	6860	6900	8210	8090	8400	8330	8060	8160	7890	7710	7460	7070
25	6860	6900	8170	8070	8340	8340	8060	8170	7890	7680	7440	7060
26	6860	7100	8220	8070	8300	8480	8050	8170	7890	7670	7340	7060
27	6850	7430	8650	8070	8270	8530	8050	8170	7880	7820	7330	7050
28	6910	7530	8620	8070	8250	8510	8050	8280	7850	7800	7310	7040
29	6910	7540	8480	8070	---	8520	8050	8460	7950	7780	7310	7010
30	6910	7500	8400	8080	---	8600	8040	8430	7930	7760	7270	7000
31	6910	---	8320	8110	---	8660	---	8390	---	7740	7260	---
MAX	6970	7540	9850	8300	8620	8680	8680	8460	8350	7990	7720	7270
MIN	6850	6900	7520	8070	8090	8190	8040	8010	7850	7670	7260	7000
(†)	417.45	418.23	419.26	419.00	419.17	419.67	418.91	419.35	418.77	418.53	417.91	417.57
(‡)	-20	+590	+820	-210	+140	+410	-620	+350	-460	-190	-480	-260

CAL YR 1982 MAX 9850 MIN 6850 † +310  
WTR YR 1983 MAX 9850 MIN 6850 † +70

† 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°36'14", long 95°05'29", Upshur County, Hydrologic Unit 12010002, on downstream side of highway embankment near left end of bridge on State Highway 155, 0.5 mi upstream from St. Louis Southwestern Railway Lines bridge, 1.6 mi northeast of Big Sandy, and 6.5 mi upstream from mouth.

DRAINAGE AREA.--231 mi<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 National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1940, nonrecording gage, and Oct. 5, 1940, to Nov. 26, 1951, water-stage recorder at site 1.3 mi upstream at datum 3.00 ft higher.

REMARKS.--Water-discharge records good. Since June 1962, flow is affected somewhat by the flood-detention pool of Lake Winnsboro (station 08019300).

AVERAGE DISCHARGE.--44 years, 181 ft<sup>3</sup>/s (130,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 ft<sup>3</sup>/s Mar. 31, 1945 (gage height, 24.1 ft, from floodmark, present site and datum), from rating curve extended above 13,000 ft<sup>3</sup>/s; minimum estimated, 4.0 ft<sup>3</sup>/s Aug. 28, 1982. Maximum stage since at least 1875, that of Mar. 31, 1945, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,700 ft<sup>3</sup>/s Dec. 5 at 1100 hours (gage height, 17.66 ft), no other peak above base of 1,500 ft<sup>3</sup>/s; minimum daily, 6.0 ft<sup>3</sup>/s Aug. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	32	296	662	136	249	317	53	125	373	7.2	6.8
2	12	29	607	550	129	202	251	47	125	698	7.7	7.9
3	12	50	775	421	121	178	225	41	114	765	7.6	8.1
4	9.4	72	1210	327	119	360	229	35	104	571	7.3	7.5
5	9.2	75	5170	261	211	863	213	30	92	428	6.9	7.3
6	9.0	58	3180	223	280	1120	189	28	154	349	7.1	6.8
7	14	51	1610	201	246	1340	172	25	131	296	30	6.6
8	26	49	1100	184	272	1220	153	23	137	239	23	6.6
9	37	44	839	171	411	821	137	20	129	196	19	7.3
10	48	36	659	158	767	536	125	17	166	157	19	13
11	49	30	593	147	723	377	115	34	212	126	16	12
12	36	28	585	138	957	273	106	44	202	78	14	12
13	28	27	515	132	1100	216	112	42	157	47	13	11
14	26	25	676	127	824	182	164	37	119	35	8.9	12
15	23	23	1080	121	555	159	151	39	99	32	7.6	10
16	21	21	892	115	380	142	148	46	113	42	6.7	8.9
17	17	22	669	111	279	132	145	46	118	38	6.2	8.5
18	14	25	508	107	223	125	145	56	107	36	12	8.5
19	12	32	394	105	189	118	131	91	115	33	16	8.3
20	12	41	313	104	168	142	108	181	127	29	17	8.9
21	12	44	254	101	266	135	88	245	112	25	16	9.6
22	15	42	216	99	362	127	78	276	94	21	12	9.8
23	18	42	193	103	338	162	72	379	90	18	10	8.9
24	18	47	177	110	465	225	67	401	83	14	8.1	9.4
25	15	48	160	110	685	232	63	432	63	12	6.8	9.4
26	14	53	157	109	605	256	60	360	54	10	7.0	8.5
27	13	180	248	105	446	352	62	248	53	9.1	7.0	8.7
28	17	229	312	100	324	367	67	179	103	8.5	6.8	9.4
29	47	229	280	98	---	319	61	131	164	7.4	6.6	8.9
30	54	246	294	98	---	334	58	111	196	6.8	6.2	10
31	49	---	493	102	---	384	---	119	---	6.6	6.0	---
TOTAL	699.6	1930	24455	5500	11581	11648	4012	3816	3658	4706.4	344.7	270.6
MEAN	22.6	64.3	789	177	414	376	134	123	122	152	11.1	9.02
MAX	54	246	5170	662	1100	1340	317	432	212	765	30	13
MIN	9.0	21	157	98	119	118	58	17	53	6.6	6.0	6.6
AC-FT	1390	3830	48510	10910	22970	23100	7960	7570	7260	9340	684	537
CAL YR 1982	TOTAL	52412.0	MEAN 144	MAX 5170	MIN 4.0	AC-FT 104000						
WTR YR 1983	TOTAL	72621.3	MEAN 199	MAX 5170	MIN 6.0	AC-FT 144000						

## SABINE RIVER BASIN

203

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 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JAN 03...	1620	396	157	6.5	33	30	7.6	3.4	13
FEB 14...	1445	807	123	10.0	27	22	6.5	2.7	10
APR 05...	0820	217	185	15.0	39	31	8.9	4.0	16
MAY 24...	1120	404	150	21.0	32	25	7.5	3.2	14
JUL 11...	1620	120	153	25.5	30	19	7.2	3.0	15
AUG 22...	1510	12	103	26.5	20	6	4.9	1.8	10

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JAN 03...	1.0	3.6	3.0	31	20	<.10	14	94
FEB 14...	.9	3.1	5.0	29	14	<.10	9.9	78
APR 05...	1.2	3.1	8.0	34	27	<.10	7.4	105
MAY 24...	1.1	3.0	7.0	28	20	<.10	12	92
JUL 11...	1.2	3.2	11	23	24	.20	14	96
AUG 22...	1.0	2.5	14	12	18	.20	12	70

## 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 downstream from bridge on U.S. Highway 271, 0.4 mi downstream from Glade Creek, 1.2 mi southwest of Gladewater, and at mile 397.5.

DRAINAGE AREA.--2,791 mi<sup>2</sup>.

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 National Geodetic Vertical Datum of 1929 (Texas Reclamation Department bench mark based on Geological Survey datum). Prior to Oct. 13, 1933, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow is partially regulated by Lake Tawakoni (station 08017400), capacity 936,200 acre-ft, by Lake Fork Creek Reservoir (station 08018800), capacity 675,800 acre-ft, and five tributary reservoirs with a combined capacity of 42,370 acre-ft. There are many diversions above station for oilfield operations and municipal supply. Rain gage and gage-height telemeter are operated at this station.

AVERAGE DISCHARGE.--28 years (water years 1933-60) prior to regulation by Lake Tawakoni, 2,012 ft<sup>3</sup>/s (1,458,000 acre-ft/yr); 23 years (water years 1961-83) regulated, 1,683 ft<sup>3</sup>/s (1,219,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 138,000 ft<sup>3</sup>/s Apr. 2, 1945 (gage height, 44.16 ft, from floodmark), from rating curve extended above 91,000 ft<sup>3</sup>/s; minimum, 5.6 ft<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 (discharge, 85,900 ft<sup>3</sup>/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,440 ft<sup>3</sup>/s Dec. 11 at 1800 hours (gage height, 30.38 ft), based on observed high-water mark; minimum, 39 ft<sup>3</sup>/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	140	2110	2590	1440	4740	3410	467	2050	1980	117	57
2	48	188	2020	2810	1300	5040	3250	445	1850	2160	103	56
3	46	195	2150	2850	920	5250	3050	429	1680	2350	94	54
4	44	219	2790	2700	893	5730	2860	407	1530	2510	87	53
5	43	277	3680	2340	1130	6520	2750	389	1370	2620	81	51
6	42	291	4800	1860	1550	6890	2640	374	1280	2550	78	50
7	44	245	5290	1480	2010	7200	2520	379	1290	2310	87	49
8	43	192	5970	1210	2390	7290	2400	405	1420	1970	167	47
9	61	161	6870	1040	2770	7190	2230	366	1700	1670	245	57
10	67	146	7700	926	3180	6980	2030	314	1990	1440	192	48
11	78	127	8370	855	3390	6800	1810	312	2300	1220	165	52
12	93	111	8080	805	3680	6740	1560	379	2580	1010	182	56
13	96	97	7320	758	3960	6770	1340	453	2740	823	180	55
14	94	87	6760	736	4220	6800	1320	664	2680	713	148	64
15	88	81	6180	724	4440	6760	1320	969	2240	618	114	59
16	78	77	5830	718	3740	6660	1190	912	1440	568	93	57
17	67	83	5510	657	2680	6500	1100	753	872	526	81	53
18	58	84	5120	597	1690	6280	1100	843	694	487	78	52
19	52	94	4620	639	1060	5990	1040	1150	677	451	95	50
20	54	105	3810	632	874	5650	868	1710	652	428	87	49
21	48	117	2530	561	1530	5250	717	2470	621	456	92	49
22	47	140	1420	508	2410	4750	635	2980	578	472	97	48
23	46	160	966	478	2860	4250	597	3110	499	435	98	49
24	48	178	875	476	3080	4060	572	3040	457	389	88	50
25	50	208	819	495	3310	4020	542	2950	463	342	85	50
26	50	285	783	529	3630	3980	526	2920	563	300	79	63
27	48	692	1190	551	3990	3950	584	2930	676	263	73	104
28	66	1270	1810	524	4380	3910	648	2920	674	228	69	96
29	107	1820	1950	495	---	3820	591	2830	862	192	66	77
30	139	2090	2160	491	---	3720	512	2620	1560	163	62	63
31	151	---	2350	634	---	3570	---	2320	---	140	59	---
TOTAL	2048	9960	121833	32669	72507	173060	45712	43210	39988	31784	3342	1718
MEAN	66.1	332	3930	1054	2590	5583	1524	1394	1333	1025	108	57.3
MAX	151	2090	8370	2850	4440	7290	3410	3110	2740	2620	245	104
MIN	42	77	783	476	874	3570	512	312	457	140	59	47
AC-FT	4060	19760	241700	64800	143800	343300	90670	85710	79320	63040	6630	3410
CAL YR 1982	TOTAL	382129	MEAN	1047	MAX	8370	MIN	24	AC-FT	758000		
WTR YR 1983	TOTAL	577831	MEAN	1583	MAX	8370	MIN	42	AC-FT	1146000		

## SABINE RIVER BASIN

205

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 upstream from dam on Cherokee Bayou, 10 mi upstream from Sabine River, and 10.3 mi southeast of Longview.

DRAINAGE AREA.--158 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1951 to September 1983 (discontinued).

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 long. An uncontrolled concrete spillway 828 ft long is located at left end of dam. An emergency spillway, 160 ft 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 the 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. Water is diverted for municipal use by the 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 May 3, 1959 (elevation, 285.5 ft); minimum observed, 30,500 acre-ft Nov. 12-14, 1978 (elevation, 275.20 ft).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents observed, 50,700 acre-ft Feb. 5, 10 (elevation, 281.00 ft); minimum observed, 38,250 acre-ft Oct. 5-8, 27,28 (elevation, 277.70 ft).

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

276.0	32,790	280.0	46,700
278.0	39,300	281.0	50,700
279.0	42,900		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38950	39650	47490	47880	49070	47880	47490	47100	47100	47490	46320	44390
2	38950	40710	47880	47880	48270	47880	47490	47100	47100	47490	46320	44390
3	38950	41070	48670	47880	48270	47880	47490	47100	47100	47490	46320	44010
4	38600	41430	48670	47680	49470	48270	47490	47100	46710	47100	46320	44010
5	38250	41790	48670	47490	50700	48670	47490	47100	47100	47490	45540	44010
6	38250	41790	48670	47490	49470	48670	47100	47100	47100	47490	45540	44010
7	38250	41790	47880	47490	49470	48270	47100	47100	47880	47100	46710	44010
8	38250	41790	47880	47490	49470	47880	47100	46710	48270	47100	46710	43640
9	38600	41790	47490	47490	49470	47880	47100	46710	47880	47100	45930	43640
10	38600	41790	47880	47490	50700	47490	47490	46710	47880	47100	45540	43640
11	38600	41790	48270	47490	50290	47490	47490	47100	47880	47100	45540	43640
12	38600	41790	48270	47490	48670	47490	46710	47100	47490	46710	45930	43270
13	38600	41790	48670	47490	48270	47100	47490	47100	47490	46710	45540	43270
14	38600	41790	48670	47490	47880	47100	47490	47100	47490	46710	45930	43270
15	38600	41790	48270	47490	47880	47100	47490	47100	47490	46710	45540	43270
16	38600	41790	47880	47490	47880	47490	47490	47100	47490	46710	45540	43270
17	38600	41790	47880	47490	47490	47100	47490	47100	47490	46710	45540	43270
18	38600	41790	47880	47490	47490	47100	47100	48270	47490	46710	46320	42900
19	38600	41790	47880	47490	47490	47490	47100	48270	47100	46710	45930	42900
20	38600	42530	47880	47490	47880	47490	47100	48670	46710	46710	45930	42900
21	38600	42530	47490	47490	48670	47490	47100	49880	46320	46710	45540	42900
22	38600	42530	47490	47490	48670	47490	47100	49880	46320	46710	45150	42900
23	38600	42530	47490	47490	48270	47880	47100	49470	46710	46710	45150	42900
24	38600	42900	47880	47490	48270	47490	47100	48670	46710	46710	45150	42900
25	38600	42900	48270	47490	48270	47880	47100	47880	46710	46710	45150	42530
26	38600	44010	48670	47490	47880	48270	47100	47490	47100	46710	45150	42530
27	38250	45930	48670	47490	47880	47880	47100	47490	47100	46710	44770	42530
28	38250	47100	49470	47490	47880	47490	47100	47490	47490	46710	44770	42160
29	38950	47100	48670	47490	---	47490	47100	47490	47880	46710	44770	41790
30	38950	47490	48670	47490	---	47490	47100	47100	47880	46320	44390	41790
31	38950	---	48270	47490	---	47490	---	47490	---	45930	44390	---
MAX	38950	47490	49470	47880	50700	48670	47490	49880	48270	47490	46710	44390
MIN	38250	39650	47490	47490	47490	47100	46710	46710	46320	45930	44390	41790
(†)	277.90	280.20	280.40	280.20	280.30	280.20	280.10	280.20	280.30	279.80	279.40	278.70
(#)	0	+8540	+780	-780	+390	-390	-390	+390	+390	-1950	-1540	-2600
CAL YR 1982	MAX	49470	MIN	38250	#	+1560						
WTR YR 1983	MAX	50700	MIN	38250	#	+2840						

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use.



## 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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
JAN 04...	1440	134	11.0	24	19	5.6	2.5	13

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
JAN 04...	1.2	2.5	5.0	18	24	<.10	14	83

## SABINE RIVER BASIN

207

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 upstream from Eightmile Creek, 6.0 mi upstream from Farm Road 1794, 8.4 mi northwest of Beckville, 12.4 mi downstream from State Highway 43, and at mile 327.0.

DRAINAGE AREA.--3,589 mi<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 National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1978, at site 12.4 mi upstream at datum 14.18 ft higher. Prior to Sept. 21, 1945, non-recording gage.

REMARKS.--Water-discharge records good. Eight major reservoirs, with a combined capacity of 1,701,000 acre-ft, largely regulate flow. Several diversions above station and below Lake Tawakoni for oilfield operation, municipal, and industrial uses. Low flows are sustained by sewage effluents returned to the river above the station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08018500.

AVERAGE DISCHARGE.--22 years (water years 1939-60) prior to regulation by Lake Tawakoni, 2,663 ft<sup>3</sup>/s (1,929,000 acre-ft/yr); 23 years (water years 1961-83) regulated, 2,258 ft<sup>3</sup>/s (1,636,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft<sup>3</sup>/s Apr. 4, 1945 (gage height, 33.80 ft), site and datum then in use, from graph based on gage readings, from rating curve extended above 66,000 ft<sup>3</sup>/s on basis of partly estimated measurement of 88,900 ft<sup>3</sup>/s; minimum observed, 2.4 ft<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 lower than flood of Apr. 4, 1945. These dates and gage heights are based on information for stations near Tatum (08022000) and at Logansport, La. (08022500).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,100 ft<sup>3</sup>/s Feb. 7 at 1500 hours (gage height, 24.25 ft), from graph based on once-daily observer readings; minimum, 51 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	203	2410	4710	868	5520	4650	865	3180	2880	283	116
2	58	204	2770	4320	1170	5520	4440	786	2900	2990	254	106
3	59	429	5740	4200	2040	5670	4330	722	2580	2930	240	104
4	59	625	9330	4120	4080	6050	4180	714	2360	2780	231	98
5	54	403	7960	3960	8630	7220	4010	692	2150	2690	223	90
6	56	273	6300	3690	10900	8870	3840	622	1990	3280	213	92
7	67	262	5560	3170	11100	9140	3740	581	2020	3540	200	93
8	80	265	5470	2670	10200	9360	3510	539	2130	3280	189	87
9	111	242	5620	2280	8930	9450	3310	529	2130	3110	190	80
10	88	220	5880	1890	9700	9470	3150	538	2290	2880	220	86
11	74	181	6950	1650	10800	9400	2880	644	2500	2420	308	77
12	76	163	8380	1450	10400	9270	2590	880	2610	1950	307	98
13	75	142	9120	1400	9400	9110	2310	794	2760	1590	292	132
14	96	125	9140	1320	8230	9060	2070	707	2940	1310	387	119
15	107	114	9300	1260	7460	8880	1920	762	3060	1120	379	88
16	99	102	9480	1210	6790	8780	1810	1000	2930	1000	311	82
17	93	106	9310	1170	6490	8710	1710	1250	2350	927	237	81
18	84	131	8970	1120	5870	8610	1580	1200	1710	860	205	83
19	76	193	8430	1050	4620	8540	1500	2400	1270	813	190	85
20	75	504	7880	1080	3010	8460	1440	3490	1030	780	215	83
21	78	650	7160	1190	3460	8400	1320	5570	975	730	246	105
22	92	360	6240	1180	6340	8260	1190	8980	907	667	225	101
23	83	246	4480	1100	7790	8480	1200	9750	870	664	200	86
24	78	288	2700	948	7500	8320	1280	8800	827	675	189	87
25	67	356	3020	922	6770	8080	1090	6970	749	629	176	78
26	60	293	5260	926	6070	7500	912	5470	740	573	164	71
27	54	822	8560	918	5740	7220	827	4560	1280	526	152	69
28	59	2500	10700	961	5450	6760	816	4010	1540	473	150	71
29	129	3030	9760	961	---	6280	862	3720	1420	418	145	74
30	317	2540	7700	880	---	5360	911	3510	2290	383	136	99
31	281	---	5760	847	---	5080	---	3350	---	343	133	---
TOTAL	2841	15972	215340	58553	189808	244830	69378	84405	58488	49211	6990	2721
MEAN	91.6	532	6946	1889	6779	7898	2313	2723	1950	1587	225	90.7
MAX	317	3030	10700	4710	11100	9470	4650	9750	3180	3540	387	132
MIN	54	102	2410	847	868	5080	816	529	740	343	133	69
AC-FT	5640	31680	427100	116100	376500	485600	137600	167400	116000	97610	13860	5400
CAL YR 1982	TOTAL	605285	MEAN	1658	MAX	10700	MIN	42	AC-FT	1201000		
WTR YR 1983	TOTAL	998537	MEAN	2736	MAX	11100	MIN	54	AC-FT	1981000		

## SABINE RIVER BASIN

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1952 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: March 1968 to September 1981.

## 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, 1964-83): 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, 1,300 micromhos Oct. 24; minimum daily, 128 micromhos Dec. 12.

WATER TEMPERATURES: Maximum daily, 31.0°C July 26, 30; minimum daily, 6.5°C Jan. 4, 5, 22.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CaCO3)
NOV 17...	0900	109	952	8.0	11.0	35	10	10.4	95	2.5	95
FEB 16...	0835	6690	187	6.6	10.0	60	42	9.7	87	1.5	38
APR 06...	0845	3850	270	7.1	14.0	45	6.8	8.7	85	1.4	65
MAY 25...	1450	6710	200	6.9	22.0	70	32	5.8	67	3.1	36
JUL 13...	0855	1640	275	7.3	27.0	40	25	5.9	74	2.2	58
AUG 24...	0835	192	770	8.4	29.0	30	11	7.6	99	4.2	60
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)	ALKA- LINITY FIELD (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 17...	0	28	6.1	160	7.4	5.6	140	67	170	.30	12
FEB 16...	28	9.5	3.5	19	1.4	3.1	10	32	30	<.10	11
APR 06...	31	18	4.9	25	1.4	3.5	34	33	37	.20	8.0
MAY 25...	18	9.3	3.2	22	1.6	3.2	18	25	31	.10	11
JUL 13...	7	16	4.4	30	1.8	4.4	51	26	38	.20	9.5
AUG 24...	0	16	4.9	140	8.1	5.4	170	53	100	.40	7.0
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)
NOV 17...	533	17	8	.78	.020	.80	.060	1.4	1.50	.620	12
FEB 16...	115	29	22	.08	.020	.10	.220	.88	1.10	.110	11
APR 06...	150	39	5	--	.150	<.10	.180	.82	1.00	.090	12
MAY 25...	116	48	<1	.18	.020	.20	.130	1.2	1.30	.160	11
JUL 13...	159	47	21	.36	.040	.40	.140	.96	1.10	.230	10
AUG 24...	429	23	<1	--	.020	<.10	.100	1.8	1.90	.340	12

## SABINE RIVER BASIN

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08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 16...	0835	<1	58	<1	<10	2	330
AUG 24...	0835	1	46	<1	<10	3	71

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 16...	<1	94	.1	<1	<1	19
AUG 24...	1	13	<.1	<1	<1	5

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	2841	983	533	4090	220	1680	77	587	120
NOV.	1982	15972	630	347	14900	130	5560	53	2300	92
DEC.	1982	215340	184	104	60600	31	18200	18	10500	36
JAN.	1983	58553	355	199	31500	64	10200	33	5260	63
FEB.	1983	189808	204	115	59100	35	17800	20	10200	39
MAR.	1983	244830	197	112	73800	34	22200	19	12800	38
APR.	1983	69378	278	157	29400	49	9150	27	4990	52
MAY	1983	84405	261	147	33500	46	10600	25	5660	48
JUNE	1983	58488	283	160	25200	50	7910	27	4270	52
JULY	1983	49211	266	150	19900	47	6220	25	3380	50
AUG.	1983	6990	657	363	6850	130	2500	57	1070	99
SEPT	1983	2721	1040	564	4140	230	1720	80	588	120
TOTAL		998537	**	**	363000	**	114000	**	61500	**
WTD. AVG.		2736	239	135	**	42	**	23	**	44

## SABINE RIVER BASIN

08022040 SABINE RIVER NEAR BECKVILLE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1060	945	295	276	440	193	269	530	250	240	510	940
2	1040	599	224	319	390	175	273	550	260	200	500	939
3	1020	469	184	297	340	176	238	570	270	180	515	968
4	972	841	220	277	260	177	235	550	260	260	530	945
5	918	402	239	266	220	182	250	520	265	250	580	928
6	923	498	223	257	160	184	275	610	275	260	620	936
7	957	529	192	290	170	167	264	600	295	210	600	986
8	949	1160	137	317	230	161	256	615	310	200	610	998
9	1090	642	133	333	232	160	233	620	280	180	620	1020
10	940	614	140	353	200	165	247	605	250	200	645	1070
11	893	744	141	382	181	175	257	570	240	230	660	1110
12	874	1070	128	389	179	190	265	535	245	255	760	1090
13	721	973	153	402	177	198	262	500	250	280	780	1100
14	783	898	140	442	173	197	269	480	230	310	660	1190
15	929	869	134	454	184	196	293	520	210	320	640	1240
16	898	871	142	446	195	190	300	475	220	340	700	1210
17	806	939	156	466	203	191	311	420	235	345	530	1180
18	762	946	178	471	219	194	300	340	260	360	500	1140
19	810	1080	180	499	226	197	280	320	290	370	520	1110
20	870	950	184	519	243	201	386	250	315	410	560	1080
21	888	919	186	493	247	205	298	220	340	430	610	953
22	842	814	195	483	199	212	320	190	350	410	690	950
23	1120	630	221	475	198	215	345	170	360	400	740	946
24	1300	1060	273	477	190	211	331	180	365	420	750	1010
25	1280	883	310	480	193	222	326	200	370	440	715	1110
26	1250	960	221	500	221	225	251	215	380	400	680	1090
27	1230	856	209	480	225	224	337	225	440	405	780	1070
28	1280	701	186	459	212	243	398	240	600	410	970	1060
29	1150	328	207	341	---	232	388	235	390	450	1040	1040
30	1080	365	208	382	---	256	547	230	310	480	920	967
31	921	---	234	402	---	258	---	250	---	570	900	---
MEAN	986	785	193	401	225	199	300	404	304	330	672	1050

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	19.0	13.0	8.0	---	12.0	15.0	21.0	21.0	27.5	29.0	29.0
2	23.0	19.5	14.5	8.5	---	13.0	14.0	22.0	22.0	28.0	29.0	28.0
3	25.0	18.0	18.0	7.0	---	---	13.0	20.0	23.0	26.5	28.0	28.0
4	24.5	16.5	15.0	6.5	---	14.0	14.0	20.0	25.0	27.0	28.0	28.0
5	24.5	14.0	14.0	6.5	---	14.0	15.5	---	24.0	28.0	28.0	28.0
6	24.5	15.0	14.0	7.0	7.0	15.0	14.0	23.0	24.0	27.0	29.0	25.0
7	25.0	14.0	13.0	---	7.0	14.5	14.0	22.0	---	25.0	29.0	28.0
8	24.0	13.5	13.0	9.0	8.0	16.0	13.5	22.0	24.0	26.0	28.0	28.0
9	25.0	14.5	12.5	8.5	8.0	15.0	14.0	23.0	23.0	26.0	29.0	28.0
10	23.0	15.5	12.0	8.0	9.0	15.0	13.0	22.0	24.0	26.5	28.0	26.0
11	21.0	16.0	12.0	8.5	9.5	14.5	17.0	21.0	24.0	28.5	28.0	27.0
12	19.0	16.0	10.0	9.0	9.5	14.5	15.0	21.0	24.0	---	28.0	26.0
13	21.0	13.0	8.5	8.5	9.0	14.0	11.0	22.0	24.0	27.5	28.0	28.0
14	18.0	12.0	9.0	9.0	10.5	---	15.0	23.0	24.0	27.0	29.0	26.0
15	17.0	11.0	10.0	10.0	9.5	14.0	15.0	21.5	24.0	26.0	28.0	25.0
16	20.5	10.0	8.5	9.0	10.0	14.0	12.0	23.0	24.0	26.0	28.0	26.0
17	17.5	11.0	8.0	10.0	10.0	14.5	15.0	22.0	---	28.0	29.0	26.0
18	17.0	12.0	9.0	8.5	10.5	13.0	11.5	24.0	24.0	28.0	29.0	---
19	---	14.0	9.0	8.0	11.0	14.0	15.0	24.0	25.0	27.5	27.0	27.0
20	19.0	13.5	10.0	7.5	12.0	14.0	11.0	21.0	---	27.5	27.0	28.0
21	17.0	15.0	8.5	7.0	13.0	13.0	15.0	21.0	27.0	28.0	28.0	22.0
22	16.0	17.5	10.0	6.5	13.0	12.5	---	22.0	27.0	28.0	29.0	22.0
23	16.0	17.0	11.5	7.0	14.0	12.0	17.0	20.0	26.0	28.5	28.0	20.0
24	16.5	13.5	13.0	---	---	11.5	16.0	20.0	27.0	29.0	29.0	20.0
25	14.5	11.5	14.0	8.5	13.0	11.5	15.0	21.0	26.0	29.0	---	20.0
26	14.5	12.0	13.0	8.0	12.5	14.0	17.0	21.0	26.0	31.0	29.5	21.0
27	15.0	12.0	13.0	---	12.0	12.5	18.0	22.0	27.0	29.0	30.0	24.0
28	16.0	10.5	11.0	8.0	13.0	14.0	20.0	23.0	26.0	30.5	30.0	22.0
29	17.0	12.0	9.5	11.0	---	13.0	21.0	23.0	26.0	30.5	29.0	22.0
30	18.0	12.0	8.0	---	---	14.0	22.0	22.0	27.0	31.0	30.0	21.0
31	17.5	---	8.5	---	---	14.0	---	21.0	---	30.0	30.0	---
MEAN	20.0	14.0	11.5	8.0	10.5	13.5	15.0	22.0	24.5	28.0	28.5	25.0



## 08022060 MARTIN LAKE NEAR TATUM, TX

LOCATION.--Lat 32°15'42", long 94°34'23", Rusk County, Hydrologic Unit 12010002, on retaining wall, 30 ft to right of intake to generating plant No. 1, 1.9 mi upstream from Martin Dam on Martin Creek, 5.8 mi southwest of Tatum, and 21.9 mi upstream from mouth.

DRAINAGE AREA.--130 mi<sup>2</sup>.

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 downstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 8,675 ft long, including a 1,000-foot 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 tainter gates located near the left end of the dam. The low-flow outlet works consist of a 3.0- by 5.0-foot conduit with a sluice gate located in one of the gate piers. There is an 8-inch pipe with sluice gate. The area and capacity tables are based on an aerial survey made in October 1971. There are no known diversions. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	321.5	-
Crest of uncontrolled spillway.....	312.0	111,500
Top of gates.....	308.0	87,960
Top of conservation pool.....	306.0	77,500
Crest of gated spillway.....	294.0	31,040
Lowest gated outlet (invert).....	284.0	10,320

COOPERATION.--Area and capacity tables furnished by Forrest and Cotton, Consulting Engineers, for Texas Utilities Services, Inc.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 93,250 acre-ft Mar. 31, 1979 (elevation, 308.95 ft); minimum since first appreciable storage, 58,320 acre-ft Feb. 4, 1981 (elevation, 301.83 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 87,420 acre-ft Feb. 6 at 0900 hours (elevation, 307.90 ft); minimum, 66,360 acre-ft Oct. 28 (elevation, 303.67 ft).

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

303.0	63,340	305.0	72,560	307.0	82,610
304.0	67,880	306.0	77,470	308.0	87,970

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67740	67640	74180	77350	85800	77700	80140	80860	80290	78360	74430	70870
2	67640	68430	74720	77550	82210	77800	80140	80810	80290	78260	74230	70680
3	67550	68620	77450	77800	80090	78000	80240	80810	80240	78150	74230	70630
4	67460	68620	79320	77800	79420	78810	80340	80760	80090	78000	74040	70440
5	67370	68570	79420	77950	86610	79520	80390	80700	80090	77900	73990	70210
6	67280	68520	79220	78100	85050	79730	80650	80550	81070	77750	73940	70160
7	67880	68520	78660	78260	80190	79980	80600	80340	80810	77550	74040	69970
8	67880	68480	77950	78310	78710	80040	80650	80240	80090	77450	74090	69740
9	67780	68480	77900	78510	80550	80040	80760	80140	79370	77350	74040	70060
10	67640	68480	78710	78560	81070	79980	80760	80090	79270	77250	73840	70060
11	67600	68570	79880	78610	79630	80040	80810	80290	79220	77150	73750	69970
12	67740	68340	79930	78660	77650	80140	80860	79880	79020	77000	73550	69830
13	67740	68290	79220	78710	77950	80290	80960	79930	78960	76900	73410	69690
14	67640	68150	78410	78760	78200	80390	81010	79930	78810	76850	73310	69500
15	67550	68110	77900	78760	78360	80450	81010	79780	78760	76800	73160	69310
16	67420	68200	78050	78810	78660	80500	81070	79830	78760	76750	73070	69270
17	67320	68340	78200	78860	78810	80500	81010	79780	78610	76600	72870	69080
18	67280	68340	78260	78860	79020	80500	80960	79830	78510	76500	72830	69080
19	67190	69080	78360	79020	79220	80550	80810	80190	78410	76450	72630	68940
20	67090	69270	78360	79170	79830	80760	80810	81120	78310	76300	72540	68660
21	67050	69410	78460	79320	82470	80760	80810	83830	78260	76250	72390	68480
22	66870	69550	78610	79320	82360	80810	81070	84200	78150	76150	72300	68340
23	66770	70110	79020	79370	80760	81070	81010	81890	78310	76000	72150	68200
24	66680	70210	79980	79420	79580	80910	80960	80960	78200	75810	71910	68010
25	66590	70300	81010	79730	78910	79880	81010	80290	78260	75610	71870	67880
26	66460	70770	83460	79830	78310	79520	80910	80290	78460	75510	71770	67830
27	66410	72440	84790	79930	77750	79270	80860	80290	78460	75260	71630	67690
28	67140	73450	83620	80040	77500	79370	80860	80290	78410	75070	71480	67640
29	67510	73790	81380	80090	---	79420	80910	80240	78510	74970	71340	67460
30	67640	73890	78860	80140	---	79830	80860	80240	78510	74770	71150	67370
31	67640	---	77150	83890	---	80090	---	80290	---	74570	70910	---
MAX	67880	73890	84790	83890	86610	81070	81070	84200	81070	78360	74430	70870
MIN	66410	67640	74180	77350	77500	77700	80140	79780	78150	74570	70910	67370
(+)	303.95	305.27	305.93	307.24	306.00	306.51	306.66	306.55	306.20	305.41	304.65	303.89
(+)	-190	+6250	+3260	+6740	-6390	+2590	+770	-570	-1780	-3940	-3660	-3540

CAL YR 1982 MAX 84790 MIN 66410 +7930  
WTR YR 1983 MAX 86610 MIN 66410 -460

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

## SABINE RIVER BASIN

08022070 MARTIN CREEK NEAR TATUM, TX

LOCATION.--Lat 32°17'44", long 94°29'29", Panola County, Hydrologic Unit 1201000Z, on right bank, 35 ft downstream from right abutment, 360 ft to right of bridge on State Highway 149, 50 ft upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.7 mi upstream from Hogan Creek, 2.0 mi southeast of Tatum, 5.0 mi downstream from Martin Lake, and 15.0 mi upstream from mouth.

DRAINAGE AREA.--148 mi<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 National Geodetic Vertical Datum of 1929. Prior to Mar. 31, 1978, at site 50 ft upstream at same datum.

REMARKS.--Records good. Flow is largely regulated by Martin Lake located 5 mi upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--9 years (water years 1975-83), 88.4 ft<sup>3</sup>/s (64,050 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,540 ft<sup>3</sup>/s Apr. 30, 1976 (gage height, 13.76 ft); minimum, 0.25 ft<sup>3</sup>/s Oct. 17, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1948, 18.15 ft April 1969. The flood in April 1957 reached a stage of 13.95 ft, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,390 ft<sup>3</sup>/s May 22 at 2400 hours (gage height, 13.60 ft); minimum, 1.4 ft<sup>3</sup>/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	8.0	17	716	1430	186	26	15	21	16	10	6.9
2	1.5	20	23	132	2300	34	24	14	19	16	10	6.9
3	1.5	37	183	34	1370	23	21	14	19	15	10	7.0
4	1.5	17	147	25	987	40	21	13	18	14	12	7.3
5	1.5	12	175	22	1360	79	23	13	18	13	10	7.2
6	1.6	8.9	397	21	1650	33	22	12	44	13	9.4	7.1
7	38	7.3	439	20	2250	23	21	13	214	12	11	6.9
8	25	6.2	431	20	1650	20	20	12	357	12	13	8.1
9	13	5.8	400	20	951	18	20	12	377	11	11	7.5
10	8.9	5.7	128	19	1360	17	21	12	255	10	10	7.3
11	5.5	5.9	450	18	1300	17	20	77	35	10	9.8	7.5
12	7.1	7.6	673	17	1280	16	19	326	17	11	9.6	7.2
13	10	7.6	790	17	793	16	19	140	15	9.8	9.5	7.0
14	6.6	7.0	774	17	97	17	21	36	16	11	9.3	6.8
15	4.2	6.9	728	16	32	16	17	24	15	12	9.3	6.6
16	3.3	7.3	452	16	24	16	16	19	14	12	9.3	6.8
17	2.8	13	84	16	22	16	16	15	14	12	9.0	7.0
18	2.6	15	32	16	20	15	16	12	14	12	9.1	7.0
19	2.4	38	23	17	20	15	15	9.8	13	12	9.9	7.7
20	2.4	34	18	22	20	21	16	85	13	15	10	7.3
21	2.7	16	17	19	423	19	16	553	13	13	9.5	7.1
22	2.6	13	16	18	1080	16	17	1420	12	13	8.6	7.3
23	2.7	46	18	17	1230	66	26	1570	12	12	7.8	6.9
24	2.6	86	49	17	1080	591	18	1050	12	12	5.6	6.8
25	2.5	25	663	17	690	690	16	526	17	11	7.7	7.3
26	2.6	17	1310	21	425	813	15	138	19	11	7.4	7.4
27	2.5	124	1590	21	405	728	15	28	21	11	7.4	6.7
28	3.2	96	1550	18	403	603	15	21	18	10	7.4	6.6
29	62	31	1480	16	---	78	15	19	16	10	7.3	6.3
30	21	20	1450	16	---	28	15	20	18	10	7.1	6.3
31	12	---	1350	97	---	29	---	23	---	10	7.0	---
TOTAL	257.2	744.2	15857	1478	24652	4299	562	6241.8	1666	371.8	284.0	211.8
MEAN	8.30	24.8	512	47.7	880	139	18.7	201	55.5	12.0	9.16	7.06
MAX	62	124	1590	716	2300	813	26	1570	377	16	13	8.1
MIN	1.4	5.7	16	16	20	15	15	9.8	12	9.8	5.6	6.3
AC-FT	510	1480	31450	2930	48900	8530	1110	12380	3300	737	563	420
CAL YR 1982	TOTAL	34114.27	MEAN	93.5	MAX	1590	MIN	.83	AC-FT	67670		
WTR YR 1983	TOTAL	56624.80	MEAN	155	MAX	2300	MIN	1.4	AC-FT	112300		

## SABINE RIVER BASIN

213

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 downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.0 mi downstream from Indian Creek, 1.5 mi north of Gary, and 3 mi downstream from Murvaul Lake.

DRAINAGE AREA.--134 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Discharge largely regulated by Murvaul Lake 3 mi upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1959-83), 86.8 ft<sup>3</sup>/s (62,890 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,590 ft<sup>3</sup>/s Mar. 18, 1969 (gage height, 11.57 ft); no flow at times in 1967-82.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1928, about 14.5 ft in July 1933, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,350 ft<sup>3</sup>/s May 21 at 1530 hours (gage height, 11.19 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	122	437	544	134	193	3.0	69	6.4	.05	.00
2	.00	.13	174	385	653	100	166	2.8	50	4.2	.05	.00
3	.00	2.6	1220	321	521	86	142	7.0	40	2.8	.05	.00
4	.01	2.4	1140	246	402	81	108	5.2	33	2.0	.05	.00
5	.01	1.2	876	184	1100	223	76	2.1	26	1.7	.05	.00
6	.00	.82	629	145	2000	188	46	1.3	213	1.9	.05	.00
7	.00	.80	478	116	1340	100	40	.80	281	1.0	.05	.00
8	.00	.84	377	99	859	77	39	.76	192	.56	.04	.00
9	.00	.88	271	85	821	62	41	.28	132	.34	.04	.00
10	.00	.77	187	77	1230	49	31	.15	86	.25	.04	.00
11	.00	.56	358	67	940	42	26	1.5	57	.20	.04	.00
12	.00	.55	476	57	670	37	20	6.0	41	.17	.04	.00
13	.00	.55	458	47	512	33	20	5.0	31	.14	.04	.02
14	.00	.57	413	43	407	31	30	4.3	24	.14	.04	.01
15	.00	.58	927	41	314	30	24	12	20	.18	.04	.00
16	.00	.58	701	34	234	26	15	23	17	.24	.04	.00
17	.00	1.3	546	31	167	23	12	14	14	.25	.03	.00
18	.00	2.2	435	28	120	23	12	15	11	.20	.04	.00
19	.00	6.2	347	27	90	22	6.4	187	7.3	.16	.04	.00
20	.00	9.4	244	37	66	23	3.3	819	5.6	.14	.04	.00
21	.00	5.3	166	40	485	42	3.6	2170	4.0	.11	.03	.00
22	.00	4.0	125	44	1040	20	4.0	2050	2.6	.24	.03	.00
23	.00	12	119	45	899	10	11	1400	1.9	.21	.03	.00
24	.00	9.2	180	40	658	358	11	983	2.5	.11	.01	.00
25	.00	5.6	207	39	489	628	5.6	650	3.3	.07	.00	.00
26	.00	3.6	700	39	376	546	3.5	501	11	.06	.00	.00
27	.00	235	1700	47	273	447	3.0	365	14	.06	.00	.00
28	.00	261	1630	36	190	372	2.8	210	10	.06	.00	.00
29	.00	200	1130	35	---	314	2.9	135	8.3	.06	.00	.00
30	.00	159	758	36	---	261	2.8	99	9.4	.05	.00	.00
31	.00	---	535	84	---	223	---	81	---	.05	.00	---
TOTAL	.02	927.63	17629	2992	17400	4611	1100.9	9754.19	1416.9	24.05	.96	.03
MEAN	.001	30.9	569	96.5	621	149	36.7	315	47.2	.78	.031	.001
MAX	.01	261	1700	437	2000	628	193	2170	281	6.4	.05	.02
MIN	.00	.00	119	27	66	10	2.8	.15	1.9	.05	.00	.00
AC-FT	.04	1840	34970	5930	34510	9150	2180	19350	2810	48	1.9	.06
CAL YR 1982	TOTAL	44690.38	MEAN 122	MAX 1700	MIN .00	AC-FT 88640						
WTR YR 1983	TOTAL	55856.68	MEAN 153	MAX 2170	MIN .00	AC-FT 110800						

## 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 upstream from Bayou Castor, 111 mi upstream from Toledo Bend Dam, and at mile 267.1.

DRAINAGE AREA.--4,842 mi<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 National Geodetic Vertical Datum of 1929. July 1, 1903, to Sept. 30, 1956, nonrecording gage. Oct. 1, 1956, to Jan. 16, 1964, water-stage recorder 4,600 ft upstream. Jan. 16, 1964, to Dec. 10, 1968, water-stage recorder 4,700 ft upstream. All gages to present datum except prior to Dec. 31, 1906, when datum was 2.00 ft lower.

REMARKS.--Station discontinued as daily streamflow station Mar. 1, 1968, due to backwater from storage in Toledo Bend Reservoir (station 08025350). Ten major reservoirs, with a combined capacity of 1,824,000 acre-ft, largely regulated the flow. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08018500. Numerous diversions above station for oilfield operations, municipal, and industrial uses.

AVERAGE DISCHARGE.--64 years (water years 1904-67), 3,208 ft<sup>3</sup>/s (2,324,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (1968-81), 32.50 ft Apr. 20, 1969; minimum since initial filling of Toledo Bend Reservoir in June 1968, 17.97 ft Nov. 29, 1977. Maximum discharge (1903-67), 92,000 ft<sup>3</sup>/s Apr. 8, 1945 (gage height, 44.07 ft, from floodmark); minimum, 16 ft<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, present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 28.42 ft Feb. 11 at 1400 hours; minimum, 20.20 ft Nov. 15 or 16.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.45	---	21.97	---	---	24.90	23.87	22.90	24.69	23.77	21.92	21.12
2	20.40	---	22.12	---	---	24.63	23.57	22.90	24.69	23.70	21.65	---
3	---	---	22.45	---	---	24.73	23.70	22.69	24.53	23.77	21.90	---
4	---	---	22.94	---	---	24.59	23.33	22.70	24.37	23.60	21.95	---
5	---	---	23.30	---	---	24.70	23.03	22.83	24.47	23.35	21.82	---
6	---	---	23.59	---	---	24.83	22.76	23.20	24.39	23.30	21.80	---
7	---	---	23.83	---	---	24.69	22.72	22.70	24.39	23.25	21.80	---
8	---	---	23.84	---	26.56	24.72	22.63	22.58	24.35	23.25	21.85	---
9	---	---	23.67	---	27.66	24.55	22.53	22.65	24.32	23.19	21.76	---
10	---	---	23.58	---	28.33	24.53	22.45	22.75	24.35	23.15	21.85	---
11	---	---	23.49	---	28.38	24.60	22.68	22.95	24.25	23.07	21.80	---
12	---	---	23.80	---	28.13	24.61	22.63	22.95	24.24	22.95	21.70	---
13	---	---	24.20	---	27.83	24.58	22.42	23.05	24.21	22.87	21.66	---
14	---	---	24.78	---	27.45	24.53	22.33	23.28	24.03	22.86	21.67	---
15	---	---	25.95	---	26.95	24.45	22.41	23.05	24.17	22.70	21.65	---
16	---	---	26.33	---	26.45	---	22.46	23.30	24.23	22.70	21.64	---
17	---	---	26.15	---	25.97	---	22.64	23.47	24.16	22.68	21.55	---
18	---	---	25.93	---	25.53	---	22.46	23.45	24.10	22.67	21.81	---
19	---	---	25.65	---	25.25	24.20	22.53	23.75	23.96	22.59	21.54	---
20	---	---	25.37	---	24.83	---	22.48	25.13	23.92	22.49	21.50	---
21	---	---	25.08	---	24.84	---	22.50	26.34	23.83	22.46	21.50	---
22	---	---	24.77	---	25.34	---	22.63	26.73	23.89	22.43	21.44	---
23	---	---	24.56	---	25.55	24.19	22.53	26.80	23.86	22.37	21.46	---
24	---	---	24.25	---	25.65	24.35	22.63	26.82	23.88	22.39	21.41	---
25	---	---	23.67	---	25.73	24.67	22.70	26.86	23.83	22.33	21.41	---
26	---	---	24.32	---	25.66	24.69	22.82	26.85	23.87	22.23	21.41	---
27	---	---	25.53	---	---	24.65	22.74	26.66	23.89	22.09	21.35	---
28	---	---	---	---	---	24.68	22.85	26.25	23.90	22.00	21.27	---
29	---	21.78	---	---	---	24.66	22.82	25.69	23.72	21.91	21.22	---
30	---	21.85	---	---	---	24.45	22.90	25.21	23.77	21.87	21.21	---
31	---	---	---	---	---	24.38	---	24.82	---	21.83	21.16	---
MAX	---	---	---	---	---	---	23.87	26.86	24.69	23.77	21.95	---
MIN	---	---	---	---	---	---	22.33	22.58	23.72	21.83	21.16	---



## 08025350 TOLEDO BEND RESERVOIR NEAR BURKEVILLE, TX

LOCATION.--Lat 31°10'25", long 93°33'57", Newton County, Hydrologic Unit 12010004, in powerhouse at right end of Toledo Bend Dam on Sabine River, 15 mi northeast of Burkeville, and at mile 156.5.

DRAINAGE AREA.--7,178 mi<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 right end of spillway 1.6 mi north of present site and at same datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam. Closure of embankment completed and deliberate impoundment was begun Oct. 3, 1966. The reservoir is operated for hydro-electric power generation and water conservation. Releases during high inflow periods are controlled by eleven 40- by 28-foot tainter gates. An 8.33- by 12-foot gated conduit through the dam is used for low-flow releases. Two additional 20-inch-diameter conduits, which bypass the larger conduit, may also be used for low-flow releases. Water for turbines is admitted through four 16.75- by 29-foot penstocks and controlled by vertically operated caterpillar-type gates. The capacity table is based on Geological Survey topographic maps. For statement regarding regulation by upstream reservoirs, see station 08020000. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	185.0	-
Design flood.....	175.3	5,102,000
Top of gates.....	173.0	4,660,000
Top of power drawdown storage.....	172.0	4,476,000
Top of power head storage.....	162.2	2,922,000
Crest of spillway (controlled).....	145.0	1,162,000
Lowest gated outlet (invert).....	100.0	4,090

COOPERATION.--Capacity table furnished by the Sabine River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 4,739,000 acre-ft Mar. 21, 1969 (elevation, 173.42 ft); minimum since initial filling of reservoir in June 1968, 3,433,000 acre-ft Nov. 27, 1977 (elevation, 165.74 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,702,000 acre-ft May 23 at 0200 to 0800 hours (elevation, 173.22 ft); minimum, 3,783,000 acre-ft Nov. 16 (elevation, 167.97 ft).

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

167.0	3,628,000	171.0	4,297,000
168.0	3,788,000	172.0	4,476,000
169.0	3,953,000	173.0	4,660,000
170.0	4,123,000	174.0	4,849,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3841000	3821000	3967000	4485000	4052000	4413000	4315000	4210000	4509000	4333000	4065000	3953000
2	3838000	3857000	3989000	4476000	4087000	4404000	4260000	4196000	4476000	4324000	4083000	3940000
3	3838000	3883000	4053000	4481000	4092000	4387000	4220000	4212000	4494000	4306000	4077000	3936000
4	3836000	3842000	4079000	4467000	4123000	4392000	4227000	4210000	4491000	4315000	4070000	3920000
5	3823000	3815000	4103000	4462000	4201000	4395000	4213000	4200000	4476000	4315000	4071000	3913000
6	3823000	3812000	4121000	4453000	4245000	4399000	4217000	4167000	4516000	4310000	4065000	3913000
7	3816000	3816000	4137000	4435000	4259000	4401000	4189000	4210000	4513000	4288000	4066000	3921000
8	3806000	3818000	4161000	4422000	4281000	4395000	4172000	4222000	4489000	4280000	4054000	3925000
9	3844000	3816000	4160000	4399000	4387000	4408000	4137000	4210000	4476000	4266000	4065000	3925000
10	3865000	3818000	4184000	4381000	4422000	4400000	4113000	4207000	4456000	4250000	4049000	3930000
11	3865000	3810000	4238000	4394000	4474000	4356000	4109000	4224000	4455000	4240000	4042000	3933000
12	3900000	3847000	4208000	4327000	4513000	4351000	4126000	4229000	4437000	4227000	4042000	3935000
13	3887000	3808000	4201000	4299000	4518000	4333000	4133000	4233000	4429000	4210000	4037000	3933000
14	3875000	3855000	4227000	4315000	4513000	4315000	4158000	4227000	4428000	4207000	4042000	3923000
15	3878000	3788000	4331000	4280000	4545000	4311000	4153000	4311000	4444000	4207000	4030000	3912000
16	3870000	3790000	4335000	4245000	4513000	4311000	4154000	4308000	4440000	4207000	4025000	3903000
17	3862000	3829000	4311000	4217000	4492000	4294000	4140000	4301000	4429000	4201000	4013000	3900000
18	3855000	3823000	4333000	4198000	4476000	4262000	4168000	4351000	4435000	4193000	3998000	3903000
19	3852000	3828000	4315000	4187000	4458000	4265000	4147000	4369000	4435000	4179000	4008000	3903000
20	3868000	3833000	4306000	4182000	4447000	4274000	4165000	4557000	4421000	4167000	4007000	3978000
21	3873000	3838000	4288000	4137000	4471000	4250000	4167000	4625000	4421000	4180000	4003000	3920000
22	3862000	3836000	4288000	4116000	4480000	4229000	4172000	4699000	4419000	4159000	3997000	3913000
23	3847000	3902000	4280000	4106000	4483000	4271000	4203000	4684000	4395000	4157000	3985000	3907000
24	3844000	3862000	4262000	4089000	4491000	4281000	4200000	4645000	4388000	4156000	3980000	3903000
25	3834000	3849000	4306000	4072000	4491000	4274000	4189000	4636000	4383000	4138000	3968000	3903000
26	3831000	3867000	4324000	4072000	4474000	4299000	4186000	4632000	4383000	4121000	3955000	3903000
27	3818000	3910000	4458000	4041000	4460000	4324000	4187000	4623000	4363000	4106000	3950000	3900000
28	3818000	3912000	4531000	4007000	4444000	4306000	4189000	4590000	4365000	4087000	3950000	3900000
29	3828000	3931000	4522000	4011000	---	4297000	4210000	4575000	4365000	4082000	3953000	3902000
30	3826000	3972000	4485000	3984000	---	4313000	4193000	4551000	4347000	4075000	3953000	3900000
31	3825000	---	4476000	4018000	---	4262000	---	4548000	---	4080000	3950000	---
MAX	3900000	3972000	4531000	4485000	4545000	4413000	4315000	4699000	4516000	4333000	4083000	3978000
MIN	3806000	3788000	3967000	3984000	4052000	4229000	4109000	4167000	4347000	4075000	3950000	3900000
(†)	168.22	169.11	172.00	169.38	171.82	170.80	170.40	172.39	171.28	169.75	169.98	168.68
(‡)	-12000	+147000	+504000	-458000	+426000	-182000	-69000	+355000	-201000	-267000	-130000	-50000
CAL YR 1982	MAX	4531000	MIN	3788000	‡	+441000						
WTR YR 1983	MAX	4699000	MIN	3788000	‡	+63000						

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



## SABINE RIVER BASIN

## 08025360 SABINE RIVER AT TOLEDO BEND RESERVOIR NEAR BURKEVILLE, TX

LOCATION.--Lat 31°10'25", long 93°33'57", Newton County, Hydrologic Unit 12010005, in powerhouse at right end of Toledo Bend Dam, 10 mi upstream from Sabine River near Burkeville gage, and at mile 156.5.

DRAINAGE AREA.--7,178 mi<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. Daily discharges are combinations of releases from various outlets at the dam. Discharges made by releases through the turbines are computed using scroll case differential pressure relationships. Taintor gate releases, low-flow sluiceway releases, bypass gate releases, and turbine leakages are based on discharge measurements and operations logs.

AVERAGE DISCHARGE.--12 years, 5,476 ft<sup>3</sup>/s (3,967,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 67,000 ft<sup>3</sup>/s Jan. 28, 1974; minimum daily (estimated), 30 ft<sup>3</sup>/s Oct. 1-4, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 39,000 ft<sup>3</sup>/s May 22; minimum daily, 144 ft<sup>3</sup>/s Apr. 26 to May 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	770	1370	174	24800	5270	14600	15600	144	14000	6840	2790	174
2	1390	1360	174	20900	2090	14800	15500	1360	8610	6840	2480	174
3	174	1420	174	18300	204	14800	15700	174	6570	6840	2720	174
4	770	1400	174	15300	204	14800	15700	174	6570	6800	2880	174
5	1410	1400	174	15200	204	15000	15600	174	6570	6860	2730	174
6	1420	1600	2140	15200	204	15000	15500	174	6530	6880	2790	174
7	1280	174	4000	15300	8220	14900	15600	174	6560	6860	174	174
8	1480	1390	4020	15200	10700	14800	15800	516	6590	6910	3200	174
9	1380	1410	4110	15100	10700	14700	15800	174	6640	7030	159	174
10	174	1410	4040	15000	11800	14700	6330	174	6610	7100	2560	174
11	1450	1470	5800	14900	14500	14700	204	174	6600	7090	2720	174
12	1390	1410	4250	15000	18000	14600	185	174	6610	7110	2640	174
13	1390	1430	4330	14800	20000	14700	174	174	6580	7090	2610	182
14	1400	174	4370	13100	19900	14800	174	174	6600	7070	174	1800
15	174	1390	4360	10900	19900	14800	174	174	6610	4770	2960	1200
16	1470	1410	22900	10700	19900	14800	174	174	6670	174	3180	1650
17	174	1420	33300	12600	20000	14800	174	174	6700	174	2540	204
18	1430	1370	24400	14900	19900	14800	174	174	3150	5140	174	204
19	1410	1400	21000	14900	19900	14900	174	174	3540	7480	2480	850
20	1410	1390	20300	13500	19900	14900	174	7400	3740	7620	2500	831
21	1430	174	17000	10800	20000	15000	174	27400	3440	7610	174	1870
22	1410	1400	14800	10700	20600	15000	174	39000	4320	7630	2500	204
23	1420	1420	14700	10700	20500	15200	174	38900	6890	3130	2500	204
24	174	1350	14800	10800	20400	15400	174	38600	6840	174	2510	204
25	1410	174	14500	10900	20300	14300	153	26100	6780	5090	2500	204
26	1240	174	20100	10800	20200	15800	144	17200	6830	7580	2570	204
27	1430	174	27000	10700	20000	15500	144	19900	6800	7650	2760	204
28	1410	174	24000	10800	16600	15700	144	22000	6790	7720	174	204
29	1410	174	33300	11100	---	15700	144	21900	6790	5300	174	204
30	1390	174	33500	11200	---	15700	144	22000	6790	174	174	204
31	174	---	32800	7430	---	15700	---	18900	---	174	174	---
TOTAL	34844	31186	410690	421530	400096	464900	150480	304104	194320	174910	60671	12715
MEAN	1124	1040	13250	13600	14290	15000	5016	9810	6477	5642	1957	424
MAX	1480	1600	33500	24800	20600	15800	15800	39000	14000	7720	3200	1870
MIN	174	174	174	7430	204	14300	144	144	3150	174	159	174
AC-FT	69110	61860	814600	836100	793600	922100	298500	603200	385400	346900	120300	25220
CAL YR 1982	TOTAL	1366834	MEAN	3745	MAX	33500	MIN	144	AC-FT	2711000		
WTR YR 1983	TOTAL	2660446	MEAN	7289	MAX	39000	MIN	144	AC-FT	5277000		

## SABINE RIVER BASIN

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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 1982 TO SEPTEMBER 1983

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS (MG/L AS CaCO3)	HARDNESS, NONCARBONATE (MG/L AS CaCO3)
NOV 17...	1045	183	7.1	16.0	8.5	86	.4	29	9
FEB 03...	1205	191	7.2	10.0	11.4	101	.9	30	6
MAR 17...	1115	173	7.5	12.0	13.0	122	.8	28	12
APR 27...	1635	159	6.9	15.0	9.8	97	.7	26	10
JUN 08...	1430	142	6.9	24.0	8.2	97	1.1	25	0
AUG 25...	1120	132	6.8	26.0	6.8	83	.8	26	9

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)	ALKALINITY FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)
NOV 17...	6.1	3.4	22	1.8	3.1	20	18	30	.10
FEB 03...	6.3	3.5	23	1.9	3.2	24	19	31	.10
MAR 17...	5.5	3.5	21	1.8	3.4	16	20	29	.10
APR 27...	5.5	3.0	19	1.7	3.2	16	18	24	.10
JUN 08...	5.5	2.7	16	1.4	2.8	15	19	20	<.10
AUG 25...	6.1	2.7	14	1.2	2.8	17	16	19	.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
NOV 17...	5.9	101	--	<.020	<.10	.090	.61	.70	.040
FEB 03...	6.4	107	--	<.020	.10	<.060	--	.70	.030
MAR 17...	6.8	99	.08	.020	.10	.100	.80	.90	.010
APR 27...	7.0	89	--	<.020	.20	.100	.70	.80	.030
JUN 08...	6.7	82	--	<.020	<.10	.060	.64	.70	.020
AUG 25...	6.1	77	--	<.020	<.10	.030	.87	.90	.010

## SABINE RIVER BASIN

08026000 SABINE RIVER NEAR BURKEVILLE, TX

LOCATION.--Lat 31°03'50", long 93°31'10", Newton County, Texas-Vernon Parish, Louisiana State line, Hydrologic Unit 12010005, near left edge of low-water channel at downstream side of bridge on State Highway 63, about 200 ft downstream from Pearl Creek, 10 mi northeast of Burkeville, 16 mi downstream from Bayou Toro, and at mile 139.7.

DRAINAGE AREA.--7,482 mi<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 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 upstream, capacity 4,660,000 acre-ft.

AVERAGE DISCHARGE.--11 years (water years 1956-66) prior to completion of Toledo Bend Reservoir, 4,653 ft<sup>3</sup>/s (3,371,000 acre-ft/yr); 17 years (water years 1967-83) regulated, 5,071 ft<sup>3</sup>/s (3,674,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,600 ft<sup>3</sup>/s Jan. 29, 1974 (gage height, 34.20 ft); minimum daily, 38 ft<sup>3</sup>/s Sept. 14, 15, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1860, 35.9 ft in May 1884, from information by local resident. Flood of Apr. 15, 1945, reached a stage of 35.8 ft, and flood of May 23, 1953, reached a stage of 35.3 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42,000 ft<sup>3</sup>/s May 24, time unknown (gage height, about 30.2 ft); minimum daily, 275 ft<sup>3</sup>/s May 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	899	997	4010	34100	14400	16000	15400	305	17200	6840	1610	418
2	1170	1490	2730	28500	8330	16000	15200	1120	11400	6810	2070	408
3	694	1560	3020	24100	4280	16000	15100	826	7340	6780	3110	421
4	504	1630	3760	18200	2120	15500	15100	331	6960	6770	3340	402
5	1050	1550	2320	16500	1970	15200	15000	295	6930	6780	3380	392
6	1490	1490	1640	16000	3800	15000	15000	282	7770	6770	3040	383
7	1300	717	4370	15800	6730	15000	15100	275	7990	6750	1810	377
8	1430	1110	4410	15800	11900	15000	15200	490	7120	6770	2660	371
9	1440	1540	4400	15600	12000	15000	15300	508	6950	6850	1830	365
10	725	1530	4400	15600	14800	15000	8000	315	6890	6850	2450	364
11	694	1560	5690	15400	17300	15000	2000	437	6840	6840	3250	393
12	1480	1530	5630	15200	18300	15000	747	548	6810	6840	3450	389
13	1490	1520	5090	15000	20600	15000	709	441	6790	6850	3130	387
14	1470	614	4880	14000	20600	15000	1180	388	6780	6930	1740	1020
15	748	935	5500	12500	20500	15000	904	1140	7020	6500	1870	1590
16	930	994	12400	11500	20500	15100	697	2860	7230	1440	2920	1600
17	721	1730	28600	13000	20400	15200	559	2060	7040	482	2930	795
18	893	1810	27600	14500	20300	15100	496	1560	5610	2430	1690	381
19	1510	1770	23100	14800	20300	15100	454	2140	2970	6470	2100	841
20	1430	1850	21200	15100	20300	15300	431	7450	4120	6750	3010	1330
21	1450	1540	19500	12100	21000	15500	422	26000	3830	6890	1680	1710
22	1450	632	16000	11500	22600	15400	419	36000	3850	6920	1780	905
23	1440	1690	15300	11300	23000	15800	437	41000	6780	5170	2920	517
24	640	1640	15100	11100	22300	18500	807	41500	7000	714	2960	421
25	1130	1390	15500	11400	21300	17000	783	38500	6910	2450	3120	386
26	1190	282	19000	11500	20800	16800	468	28600	7060	6680	3080	370
27	1430	1010	33500	11000	20600	16400	373	22600	7140	6870	3100	362
28	1500	1880	34600	11100	19300	16100	338	23200	7250	6990	1710	353
29	1530	1350	36400	11500	---	15600	323	23100	7050	6550	485	346
30	1520	861	36800	12100	---	15500	310	23100	6920	1360	448	341
31	619	---	35700	11900	---	15400	---	22100	---	399	429	---
TOTAL	35967	40202	452150	467700	450330	482500	157257	349471	211550	170495	73102	18338
MEAN	1160	1340	14590	15090	16080	15560	5242	11270	7052	5500	2358	611
MAX	1530	1880	36800	34100	23000	18500	15400	41500	17200	6990	3450	1710
MIN	504	282	1640	11000	1970	15000	310	275	2970	399	429	341
AC-FT	71340	79740	896800	927700	893200	957000	311900	693200	419600	338200	145000	36370

CAL YR 1982 TOTAL 1463224 MEAN 4009 MAX 36800 MIN 163 AC-FT 2902000  
WTR YR 1983 TOTAL 2909062 MEAN 7970 MAX 41500 MIN 275 AC-FT 5770000

NOTE.--No gage-height record May 21-25.

## SABINE RIVER BASIN

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08026000 SABINE RIVER NEAR BURKEVILLE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: May 1968 to current year. Pesticide analyses: October 1972 to September 1981.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 1968 to current year.

WATER TEMPERATURES: May 1968 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 352 micromhos Mar. 15, 16, 1973; minimum, 31 micromhos Dec. 7, 1975, Jan. 24, Feb. 1, 1978.

WATER TEMPERATURES: Maximum, 32.0°C Aug. 20, 1975, and May 28, 1981; minimum, 4.5°C Feb. 1, 1977.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 192 micromhos Feb. 20; minimum daily, 37 micromhos Dec. 1.

WATER TEMPERATURES: Maximum daily, 30.5°C Aug. 27; minimum daily, 8.0°C Feb. 6.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

									OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)			
NOV 17...	1525	932	157	6.9	15.0	15	3.4	9.2	92	.9	25
FEB 02...	1745	7680	156	7.2	11.0	5	17	10.6	96	1.1	26
MAR 17...	1321	15200	171	7.4	13.0	15	4.3	13.0	125	.9	28
APR 27...	1140	366	111	6.7	18.5	45	20	7.9	84	1.3	20
JUN 08...	1130	7140	137	6.9	25.0	25	6.0	7.8	94	1.1	24
AUG 25...	1005	1700	119	6.6	27.0	15	7.3	7.4	92	.8	24
DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 17...	9	5.4	2.9	19	1.7	2.8	16	17	26	<.10	6.5
FEB 02...	10	5.5	2.9	18	1.6	2.8	16	18	25	.10	6.5
MAR 17...	12	5.5	3.4	21	1.8	3.4	16	19	28	.10	7.0
APR 27...	5	5.0	1.9	12	1.2	2.4	15	13	14	<.10	13
JUN 08...	8	5.3	2.6	15	1.4	2.6	16	18	18	<.10	7.1
AUG 25...	8	5.4	2.5	13	1.2	2.6	16	17	18	.20	6.9
DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 17...	89	12	5	--	<.020	<.10	.060	.94	1.00	.050	5.1
FEB 02...	88	27	<1	--	<.020	.10	.060	1.0	1.10	.040	7.3
MAR 17...	97	9	9	.08	.020	.10	.120	.78	.90	.020	8.2
APR 27...	70	<1	<1	.08	.020	.10	.150	.55	.70	.070	9.4
JUN 08...	78	11	6	--	<.020	<.10	.100	.60	.70	.030	6.9
AUG 25...	75	17	14	--	.020	<.10	.050	.45	.50	.040	6.7

## SABINE RIVER BASIN

08026000 SABINE RIVER NEAR BURKEVILLE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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 17...	1525	1	38	1	<10	2	30
AUG 25...	1005	<1	49	<1	<10	2	78

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 17...	<1	34	<.1	<1	<1	19
AUG 25...	2	21	<.1	<1	<1	17

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	35967	178	94	9170	25	2410	15	1500	36
NOV.	1982	40202	157	85	9250	22	2340	14	1550	33
DEC.	1982	452150	157	85	104000	21	26200	14	17400	33
JAN.	1983	467700	180	95	120000	25	31900	16	19600	37
FEB.	1983	450330	170	91	110000	24	28800	15	18200	35
MAR.	1983	482500	172	92	120000	24	31100	15	19800	35
APR.	1983	157257	159	86	36700	22	9160	15	6170	33
MAY	1983	349471	131	74	70000	17	16100	13	12200	28
JUNE	1983	211550	136	77	43800	18	10200	13	7610	29
JULY	1983	170495	134	76	34900	17	8030	13	6070	29
AUG.	1983	73102	113	66	13000	14	2820	12	2310	25
SEPT	1983	18338	117	68	3350	15	737	12	593	26
TOTAL		2909062	**	**	675000	**	170000	**	113000	**
WTD. AVG.		7970	158	86	**	22	**	14	**	33



## SABINE RIVER BASIN

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08026000 SABINE RIVER NEAR BURKEVILLE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178	177	37	171	148	179	169	117	138	136	140	120
2	179	177	40	167	52	179	166	151	139	137	131	121
3	178	178	47	173	51	178	164	150	138	135	130	121
4	178	174	48	177	70	177	163	148	138	134	94	125
5	179	178	85	178	85	177	161	134	134	134	93	124
6	179	175	111	179	45	175	162	133	135	136	80	116
7	177	172	145	181	105	178	163	133	125	132	56	119
8	177	174	172	178	163	180	164	135	137	133	90	134
9	178	175	174	183	171	179	165	137	136	134	124	136
10	173	180	171	181	170	180	141	138	137	137	91	134
11	168	177	171	182	167	181	140	125	142	135	114	131
12	173	176	170	183	160	179	106	108	139	134	100	129
13	175	180	168	182	159	178	108	119	143	132	128	130
14	176	181	180	180	186	179	85	120	140	130	127	129
15	177	176	172	182	187	178	92	75	138	129	134	128
16	177	180	178	183	187	177	95	58	138	126	136	125
17	179	165	179	184	188	176	100	65	128	130	132	128
18	180	164	179	182	187	176	97	64	140	140	123	129
19	180	174	181	182	185	175	113	55	133	135	110	115
20	178	129	180	181	192	174	121	43	132	133	102	95
21	175	130	182	181	183	167	110	107	132	132	109	80
22	181	150	182	180	171	168	107	128	134	135	115	90
23	179	178	181	177	174	160	105	138	137	133	120	105
24	183	160	181	187	173	153	110	137	134	130	123	120
25	182	159	160	185	180	158	115	140	130	132	121	124
26	176	136	142	186	179	159	114	129	137	134	122	127
27	178	95	120	188	180	165	117	138	136	135	125	130
28	180	71	108	190	181	166	118	145	134	136	121	129
29	179	72	146	188	---	165	119	144	135	136	117	132
30	179	90	160	187	---	156	152	146	136	139	119	135
31	177	---	174	189	---	169	---	138	---	143	120	---
MEAN	178	157	146	182	153	172	128	119	136	134	114	122

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	20.0	18.0	12.5	11.0	14.0	15.0	22.0	23.0	25.0	27.0	---
2	26.5	19.0	---	12.0	12.0	15.0	15.0	22.0	24.0	25.5	29.0	27.0
3	25.0	17.0	19.0	11.0	10.5	---	15.0	19.0	24.0	25.5	26.0	27.0
4	25.0	16.5	18.0	11.0	9.0	14.0	15.0	23.0	25.0	26.0	27.0	28.0
5	25.5	16.0	17.0	11.5	9.0	13.0	15.0	23.0	24.0	26.0	28.0	27.0
6	24.0	16.0	16.5	12.0	8.0	14.0	14.5	23.0	23.0	26.0	29.0	26.0
7	23.0	16.5	16.0	13.0	10.0	15.0	14.0	21.0	24.0	26.0	27.0	27.0
8	25.0	17.0	17.0	14.0	10.5	15.0	14.0	---	25.0	27.5	29.0	29.0
9	25.5	18.0	15.0	13.5	11.0	13.0	15.0	21.0	25.0	27.5	28.0	29.0
10	25.0	19.0	15.0	13.0	12.0	13.5	16.0	22.0	25.5	28.0	28.0	27.0
11	25.0	19.0	14.5	12.0	12.0	14.0	17.0	21.0	25.5	---	27.0	26.0
12	24.0	18.0	12.0	12.0	12.0	14.0	18.0	22.0	25.0	29.0	27.0	25.0
13	23.0	18.0	12.0	13.0	11.0	14.0	19.0	24.0	24.0	---	27.0	26.0
14	24.0	17.0	15.0	13.0	12.0	14.0	18.5	24.0	25.0	---	30.0	24.0
15	20.0	15.0	15.0	13.0	12.0	15.0	18.5	23.0	25.0	26.0	28.0	25.0
16	20.0	15.0	14.0	12.0	12.0	14.0	19.0	22.0	25.0	27.0	27.0	27.0
17	20.0	16.0	14.0	12.0	13.0	14.0	19.0	20.5	25.0	29.5	27.0	28.0
18	23.0	16.5	15.0	13.0	13.5	14.0	10.0	23.0	24.0	26.0	28.0	26.0
19	23.0	17.0	14.5	11.0	14.0	14.0	17.0	21.5	25.0	27.0	25.5	27.0
20	21.0	18.0	14.0	11.0	14.0	13.0	18.0	20.0	24.0	27.0	28.0	---
21	18.0	18.0	14.0	10.0	14.0	13.0	18.0	22.0	25.0	21.0	28.0	22.0
22	18.5	18.0	15.0	10.0	13.0	14.0	---	23.0	25.0	27.0	29.0	---
23	18.0	18.0	15.5	10.0	13.0	13.0	17.5	23.0	25.0	---	30.0	---
24	18.5	17.0	16.0	12.0	15.0	13.0	18.0	22.0	25.0	---	30.0	---
25	19.0	16.5	15.0	12.0	14.0	14.0	17.0	22.0	25.0	---	30.0	---
26	20.0	17.0	15.0	12.0	13.0	15.0	18.0	22.0	25.0	---	29.0	---
27	19.0	17.0	15.0	10.5	12.0	15.0	19.0	23.0	25.0	---	30.5	---
28	20.0	17.0	14.0	13.0	13.0	15.0	19.0	23.0	25.0	29.0	29.0	---
29	20.0	16.0	13.0	13.0	---	15.5	20.0	23.0	25.0	29.0	28.0	---
30	21.0	17.0	13.0	12.0	---	15.0	20.5	23.0	25.0	29.0	---	---
31	20.0	---	13.0	---	---	15.5	---	23.0	---	28.0	---	---
MEAN	22.0	17.0	15.0	12.0	12.0	14.0	17.0	22.0	24.5	27.0	28.0	26.5

## SABINE RIVER BASIN

08028500 SABINE RIVER NEAR BON WIER, TX

LOCATION.--Lat 30°44'49", long 93°36'30", Beauregard Parish, Louisiana-Newton County, Texas State line, Hydrologic Unit 12010005, near left bank at downstream side of bridge on U.S. Highway 190, 0.7 mi upstream from Quicksand Creek, 0.8 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.0 mi east of Bon Wier, 2.4 mi upstream from Caney Creek, and at mile 97.7.

DRAINAGE AREA.--8,229 mi<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 National Geodetic Vertical Datum of 1929. Prior to July 8, 1931, nonrecording gage at site 0.8 mi downstream at datum 3.00 ft higher. July 8, 1931, to Oct. 15, 1958, nonrecording gage at present site at datum 3.00 ft higher. Oct. 16, 1958, to Sept. 30, 1975, water-stage recorder at present site at datum 3.00 ft higher.

REMARKS.--Water-discharge records good. Flow regulated by Toledo Bend Reservoir (station 08025350) located 58.8 mi upstream. Gage-height telemeter at station.

AVERAGE DISCHARGE.--43 years (water years 1924-66) prior to completion of Toledo Bend Reservoir, 6,846 ft<sup>3</sup>/s (4,960,000 acre-ft/yr); 17 years (water years 1967-83) regulated, 6,096 ft<sup>3</sup>/s (4,417,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 115,000 ft<sup>3</sup>/s May 19, 1953 (gage height, 28.70 ft); minimum daily, 134 ft<sup>3</sup>/s Nov. 9, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1833, 33.5 ft Apr. 23 or 24, 1913, from information by Gulf, Colorado, and Santa Fe Railway Co. and local residents. Flood in May 1884 reached a stage of 29 ft. Floods occurring about 1844 and 1860 were higher than flood in May 1884, from information by local residents. All flood data referenced to current datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 83,800 ft<sup>3</sup>/s Dec. 29 at 0500 hours (gage height, 26.86 ft); minimum daily, 637 ft<sup>3</sup>/s Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	841	1110	7690	52900	30200	19900	16100	972	22900	7960	1070	802
2	960	1060	10800	46900	30300	17200	15800	944	18400	7810	2080	770
3	1180	1620	8240	39600	22300	16400	15800	1480	12500	7710	2440	764
4	931	1710	10600	32700	16700	16200	15800	1370	9320	7640	3630	756
5	639	1760	9680	24400	11300	17800	15900	965	8630	7620	4570	745
6	1110	1690	8290	19600	11800	19500	17200	868	9230	7590	4400	713
7	1480	1630	8280	17600	10100	18600	17800	821	11600	7530	3850	698
8	1430	1160	8590	17100	13400	17300	17400	788	11000	7490	2530	661
9	1510	1120	6350	17200	15900	16400	17100	976	9820	7490	3700	641
10	1520	1600	5650	16800	20200	15900	16500	1140	8880	7520	2470	655
11	1060	1620	5630	16300	22700	15600	10100	1030	8470	7500	3390	637
12	1100	1640	7670	15900	22700	15500	3400	1410	8220	7470	4180	642
13	1600	1610	7320	15600	23300	15400	2240	1420	8080	7480	4200	659
14	1630	1600	6560	15400	23800	15400	3590	1150	7980	7600	3710	653
15	1590	1040	6230	13800	23000	15500	4780	1120	7960	8030	2220	954
16	1100	1020	7790	12000	22400	15300	4000	5720	8280	6710	2640	1420
17	1080	1470	17600	11500	22100	15300	2930	6520	8930	2580	3250	1550
18	1060	2070	26900	13200	21700	15300	2040	5500	8810	1680	3180	1110
19	1030	2670	27500	15300	21600	15300	1730	5020	6340	4280	2140	825
20	1570	4150	24600	16000	21500	15400	1550	7320	5070	7210	3050	1510
21	1540	4310	22300	16400	22200	16100	1430	21100	5360	7460	3300	3470
22	1560	3170	19700	14300	25200	16200	1360	34500	5130	7510	1940	4120
23	1560	2460	16900	13100	26800	16200	1340	39800	6510	7520	2230	2610
24	1550	3340	16100	12600	27100	19600	1350	44500	8640	4610	2890	1700
25	1050	3050	16200	12500	26100	22100	1510	48100	9610	1550	2990	1320
26	1110	2240	22900	12600	23800	20400	1480	47200	9130	3980	3060	1150
27	1350	2700	45100	12500	22400	19900	1230	38800	8710	6840	2970	1060
28	1510	7740	71700	12200	21700	18800	1120	30600	8500	7050	2950	1000
29	1600	6320	81400	12200	---	17700	1070	26500	8400	7140	1720	947
30	1630	4980	70100	12600	---	16800	1020	25100	8130	5620	952	907
31	1640	---	59600	13800	---	16400	---	24200	---	1770	852	---
TOTAL	40521	73660	663970	574600	602300	529400	214670	426934	278540	197950	88554	35449
MEAN	1307	2455	21420	18540	21510	17080	7156	13770	9285	6385	2857	1182
MAX	1640	7740	81400	52900	30300	22100	17800	48100	22900	8030	4570	4120
MIN	639	1020	5630	11500	10100	15300	1020	788	5070	1550	852	637
AC-FT	80370	146100	1317000	1140000	1195000	1050000	425800	846800	552500	392600	175600	70310
CAL YR 1982	TOTAL	1859849	MEAN	5095	MAX	81400	MIN	530	AC-FT	3689000		
WTR YR 1983	TOTAL	3726548	MEAN	10210	MAX	81400	MIN	637	AC-FT	7392000		

## SABINE RIVER BASIN

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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: November 1969 to current year.

WATER TEMPERATURES: November 1969 to current year.

COLOR: November 1969 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 407 micromhos Aug. 31, 1978; minimum daily, 34 micromhos Feb. 3, 1983.

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, 272 micromhos Nov. 9; minimum daily, 34 micromhos Feb. 3.

WATER TEMPERATURES: Minimum daily, 11.5°C Feb. 4, 13.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT							
07...	1630	1720	192	26.0	40	23	29
14...	1030	1500	217	20.0	60	26	31
21...	1125	1450	223	20.0	60	29	32
28...	1215	1490	227	19.5	60	30	33
NOV							
07...	1110	1480	242	16.0	70	30	33
14...	0735	1360	227	13.0	50	24	32
21...	1100	4130	170	20.0	240	32	19
28...	1120	8170	58	17.0	240	11	6.8
DEC							
07...	1455	8390	50	17.0	140	11	5.9
14...	1630	6460	155	18.0	40	21	22
21...	1245	22200	176	17.0	20	19	27
28...	1100	71700	63	15.0	100	15	10
JAN							
07...	0945	17700	167	15.0	40	18	26
14...	1210	15400	54	14.0	30	10	8.2
21...	1400	16600	163	12.0	30	18	28
28...	1130	12600	174	12.5	80	18	26
FEB							
01...	0900	29400	88	15.0	80	13	11
07...	0800	10600	141	12.0	40	18	21
14...	1025	23900	169	13.0	30	19	26
21...	0845	21900	176	13.0	20	20	29
MAR							
07...	1300	18700	175	15.0	30	19	28
14...	1605	15600	178	15.5	30	20	29
21...	0815	16000	172	14.0	40	19	28
28...	1500	18700	156	17.0	50	19	24
APR							
07...	1030	17800	162	16.0	50	17	24
14...	0835	3000	77	15.0	100	11	8.9
21...	0805	1450	123	18.5	70	15	13
28...	0745	1130	205	20.0	70	29	19
MAY							
07...	0850	825	208	23.0	60	30	23
14...	1155	1140	167	25.0	120	27	18
21...	1155	21600	63	23.0	140	13	6.8
29...	0850	26700	139	24.0	40	19	18
JUN							
07...	1015	11600	137	26.0	40	18	22
14...	1030	7970	146	25.0	40	18	21
21...	0950	5610	150	25.5	50	19	20
28...	1120	8470	141	26.0	50	18	20
JUL							
07...	1115	7520	140	28.5	40	18	21
14...	1155	7620	138	28.0	40	18	19
21...	1145	7460	143	28.0	40	17	20
28...	1605	7100	145	30.0	40	19	22
AUG							
04...	1115	3980	129	28.0	40	19	15
11...	1220	3930	129	27.0	70	20	15
18...	1245	3460	172	28.0	50	27	20
25...	1435	3280	160	33.0	50	24	20
SEP							
01...	1430	792	222	31.0	80	31	23
08...	1455	655	236	29.0	100	37	24
14...	1630	647	178	30.0	70	23	18
22...	1210	4190	150	28.0	70	28	13
29...	1155	937	193	--	100	--	--

## SABINE RIVER BASIN

08028500 SABINE RIVER NEAR BON WIER, TX--Continued

DAY	SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	208	216	64	138	88	173	166	186	140	---	---	219
2	206	255	51	147	35	173	175	197	141	---	---	---
3	201	210	46	143	34	175	167	197	145	---	---	---
4	206	221	47	160	41	181	165	197	146	---	129	---
5	224	216	38	159	53	170	158	196	146	---	---	---
6	206	226	38	161	61	157	157	202	138	---	---	---
7	192	242	50	167	141	175	162	208	137	140	---	---
8	197	237	116	177	141	175	154	209	136	---	---	233
9	187	272	146	170	140	174	161	166	137	---	---	---
10	189	215	168	167	131	175	161	165	138	---	---	---
11	189	219	167	174	136	179	176	166	146	---	129	---
12	206	213	160	173	141	178	171	166	140	---	---	---
13	198	220	145	176	141	177	172	58	141	---	---	---
14	217	227	155	174	169	178	77	167	146	138	---	173
15	219	216	154	174	177	175	75	174	173	---	---	---
16	216	246	167	178	176	176	75	56	149	---	---	---
17	254	198	162	179	179	175	82	79	121	---	---	---
18	233	208	174	165	180	176	111	78	129	---	172	---
19	248	182	173	151	183	176	116	79	149	---	---	---
20	219	148	176	165	178	175	110	105	129	---	---	---
21	223	170	176	163	176	172	123	63	150	143	---	---
22	223	235	178	167	152	177	126	128	145	---	---	144
23	229	253	178	172	147	136	123	115	149	---	---	---
24	225	190	63	182	175	136	123	115	156	---	---	---
25	226	189	173	179	176	142	172	129	128	---	160	---
26	208	204	135	198	171	130	182	140	140	---	---	---
27	231	193	86	54	176	147	182	129	150	---	---	---
28	227	58	63	54	177	156	205	---	141	145	---	---
29	216	77	63	185	---	164	187	139	136	---	---	193
30	205	65	138	44	---	171	187	150	135	---	---	---
31	205	---	134	81	---	166	---	140	---	---	---	---
MEAN	214	201	122	154	138	167	147	143	142	142	148	192

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	23.5	18.0	16.0	15.0	15.5	16.0	23.0	25.0	---	---	31.0
2	25.5	23.5	21.0	12.0	12.0	15.0	17.0	23.0	25.0	---	---	---
3	26.0	23.5	19.0	13.0	12.0	14.0	15.0	23.0	25.5	---	---	---
4	26.5	17.0	19.0	14.5	11.5	15.0	15.0	24.0	26.0	---	28.0	---
5	26.0	15.0	17.0	14.0	12.0	14.5	15.0	24.0	25.0	---	---	---
6	26.0	15.0	17.0	15.0	12.0	16.0	15.0	24.0	25.0	---	---	---
7	26.0	16.0	17.0	15.0	12.0	15.0	16.0	23.0	26.0	28.5	---	---
8	25.0	17.0	17.5	14.0	12.5	16.0	16.0	24.0	25.0	---	---	29.0
9	27.0	17.0	15.0	14.0	12.5	15.0	17.0	23.0	25.0	---	---	---
10	25.0	18.0	16.0	15.0	12.0	15.0	15.0	23.0	26.0	---	---	---
11	23.0	19.0	16.0	13.0	13.0	15.0	15.0	27.5	25.0	---	27.0	---
12	21.0	19.0	16.0	12.0	12.0	15.0	17.0	23.0	25.0	---	---	---
13	21.0	16.0	13.0	14.0	11.5	15.0	18.0	23.0	25.0	---	---	---
14	20.0	13.0	18.0	14.0	13.0	15.5	15.0	25.0	25.0	28.0	---	30.0
15	21.0	15.0	16.0	13.5	12.0	15.0	17.5	25.0	25.0	---	---	---
16	21.0	13.0	17.0	13.0	12.0	15.0	17.5	23.0	25.0	---	---	---
17	20.0	14.0	16.0	13.5	13.0	15.0	18.0	23.0	25.0	---	---	---
18	23.0	16.5	16.0	12.0	14.0	15.0	19.0	22.0	25.0	---	28.0	---
19	22.0	18.0	15.0	13.0	14.0	14.5	19.5	23.0	25.5	---	---	---
20	21.0	20.0	16.0	13.0	12.0	14.0	18.0	24.0	26.0	---	---	---
21	20.0	20.0	17.0	12.0	13.0	14.0	18.5	23.0	25.5	28.0	---	---
22	19.0	20.0	16.0	12.5	13.5	15.0	19.0	20.0	25.5	---	---	28.0
23	18.0	21.0	15.0	12.0	14.5	15.0	20.0	24.0	25.0	---	---	---
24	18.0	18.0	16.0	13.0	14.0	15.0	20.5	24.0	26.0	---	---	---
25	20.0	16.0	17.5	12.0	13.0	16.0	20.0	25.0	25.0	---	33.0	---
26	20.0	16.0	16.0	12.0	12.0	17.0	20.0	24.5	26.0	---	---	---
27	19.0	16.0	15.0	12.5	13.0	15.0	20.0	25.5	26.5	---	---	---
28	19.5	17.0	15.0	12.5	13.0	17.0	20.0	---	26.0	30.0	---	---
29	19.5	17.5	16.0	13.5	---	17.0	22.0	25.0	26.0	---	---	25.0
30	22.0	17.0	16.0	12.0	---	17.0	22.5	24.0	26.0	---	---	---
31	23.0	---	16.0	14.5	---	17.0	---	25.0	---	---	---	---
MEAN	22.5	17.5	16.5	13.5	12.5	15.5	18.0	24.0	25.5	28.5	29.0	28.5

## SABINE RIVER BASIN

225

08028500 SABINE RIVER NEAR BON WIER, TX--Continued

COLOR (PLATINUM-COBALT UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983 ONCE-DAILY												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	60	240	60	80	30	30	70	50	---	---	80
2	50	60	240	40	140	30	40	70	40	---	---	---
3	40	70	240	40	160	30	40	70	40	---	---	---
4	40	60	280	40	160	30	40	70	40	---	40	---
5	50	70	200	40	120	30	50	70	40	---	---	---
6	40	70	140	40	80	40	50	60	50	---	---	---
7	40	70	140	40	40	30	50	60	40	40	---	---
8	40	60	80	30	50	30	50	60	50	---	---	100
9	70	70	70	---	50	30	50	70	50	---	---	---
10	50	70	70	30	50	30	30	70	50	---	---	---
11	40	60	70	30	40	30	70	70	40	---	70	---
12	60	60	40	30	40	30	80	70	40	---	---	---
13	60	60	50	30	40	30	70	120	40	---	---	---
14	60	50	40	30	30	30	100	120	40	40	---	70
15	60	50	40	30	30	30	100	100	50	---	---	---
16	60	70	40	20	30	30	100	100	40	---	---	---
17	70	60	80	30	30	30	80	120	40	---	---	---
18	70	60	80	30	20	30	80	70	40	---	50	---
19	70	60	30	40	20	30	80	100	50	---	---	---
20	60	60	30	30	20	30	80	80	60	---	---	---
21	60	240	20	30	20	40	70	140	50	40	---	---
22	60	240	20	30	30	40	70	50	40	---	---	70
23	50	240	30	30	30	60	70	50	60	---	---	---
24	50	200	100	20	30	70	60	70	50	---	---	---
25	60	200	40	30	30	70	70	60	50	---	50	---
26	50	140	50	30	30	70	60	50	60	---	---	---
27	70	140	100	80	30	50	70	50	50	---	---	---
28	60	240	100	80	20	50	70	---	50	40	---	---
29	50	240	100	30	---	50	80	40	60	---	---	100
30	60	240	60	140	---	50	80	40	50	---	---	---
31	60	---	50	100	---	40	---	40	---	---	---	---
MEAN	55	110	90	42	50	39	65	75	47	40	50	85



## SABINE RIVER BASIN

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 southwest of Newton, 5.0 mi downstream from Melhones Creek, and 8.0 mi upstream from White Oak Creek.

DRAINAGE AREA.--128 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 134.69 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 19, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good except those for November and those for periods of no gage-height record, which are poor. No known diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years, 112 ft<sup>3</sup>/s (11.88 in/yr), 81,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 ft<sup>3</sup>/s Apr. 29, 1953 (gage height, 19.45 ft); minimum daily, 10 ft<sup>3</sup>/s July 7, 8, 21-23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 27.5 ft in April 1922, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 2	0300	1,480	14.90	Feb. 6	1800	1,510	14.94
Dec. 4	1000	1,130	14.30	Feb. 10	1800	1,660	15.10
Dec. 27	2000	4,380	16.25	May 21	unknown	4,700	16.35
Feb. 1	1200	*6,230	16.75				

Minimum discharge, 14 ft<sup>3</sup>/s Oct. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	30	1200	517	3660	96	120	50	80	64	31	38
2	15	29	1010	616	1340	90	100	47	70	58	32	40
3	15	30	454	254	310	85	90	55	60	56	42	46
4	14	51	931	172	176	82	80	60	55	62	140	39
5	15	43	278	144	311	350	120	55	55	58	117	36
6	15	31	134	130	1240	300	300	50	200	56	87	35
7	16	27	104	122	631	200	150	48	500	53	58	35
8	19	25	89	132	219	150	120	47	250	48	53	38
9	21	23	80	129	307	120	100	70	150	45	58	38
10	22	21	76	113	1310	110	90	60	100	53	65	50
11	21	20	134	101	842	100	80	150	70	46	103	48
12	25	19	203	93	258	92	75	300	60	45	107	45
13	28	28	128	88	177	88	70	150	52	44	79	46
14	39	23	98	85	147	84	320	100	48	51	62	41
15	29	20	476	83	133	82	200	300	46	82	90	37
16	23	18	400	80	122	80	140	500	70	94	84	34
17	20	50	179	78	113	78	110	250	100	72	52	36
18	19	100	112	77	106	79	90	150	80	90	57	51
19	19	60	95	81	102	75	80	200	70	90	94	173
20	18	65	84	149	100	150	74	2000	65	61	103	433
21	18	50	77	191	215	200	70	4000	63	54	60	603
22	18	40	74	131	416	120	67	3500	62	51	49	282
23	18	30	72	100	245	300	80	1500	68	54	45	108
24	17	50	71	89	147	700	70	600	80	46	43	76
25	17	80	363	90	119	500	62	300	98	42	55	64
26	17	60	1580	91	104	300	57	200	103	39	105	58
27	17	200	3310	84	97	500	54	150	118	37	62	55
28	17	500	2300	79	98	300	52	120	86	35	52	52
29	19	300	607	77	---	200	50	100	69	34	47	50
30	23	150	228	80	---	140	55	80	69	33	42	47
31	40	---	201	325	---	160	---	100	---	32	39	---
TOTAL	629	2173	15148	4581	13045	5911	3126	15292	2997	1685	2113	2734
MEAN	20.3	72.4	489	148	466	191	104	493	99.9	54.4	68.2	91.1
MAX	40	500	3310	616	3660	700	320	4000	500	94	140	603
MIN	14	18	71	77	97	75	50	47	46	32	31	34
CFSM	.16	.57	3.82	1.16	3.64	1.49	.81	3.85	.78	.43	.53	.71
IN.	.18	.63	4.40	1.33	3.79	1.72	.91	4.44	.87	.49	.61	.79
AC-FT	1250	4310	30050	9090	25870	11720	6200	30330	5940	3340	4190	5420

CAL YR 1982 TOTAL 36463 MEAN 99.9 MAX 3310 MIN 14 CFSM .78 IN 10.60 AC-FT 72320  
WTR YR 1983 TOTAL 69434 MEAN 190 MAX 4000 MIN 14 CFSM 1.48 IN 20.18 AC-FT 137700

NOTE.--No gage-height record Mar. 20 to Apr. 26 and Apr. 28 to June 20.

## SABINE RIVER BASIN

227

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 downstream from Boggy Creek, 3.2 mi east of Buna, and 9.5 mi upstream from Little Cypress Creek.

DRAINAGE AREA.--69.2 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1952 to September 1983 (discontinued).

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 46.16 ft 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 known diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years, 70.7 ft<sup>3</sup>/s (13.87 in/yr), 51,220 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,100 ft<sup>3</sup>/s Sept. 18, 1963 (gage height, 13.28 ft); no flow at times.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 27	1400	5,450	12.66	Feb. 10	1200	1,380	10.27
Feb. 1	0300	*6,030	12.90	May 20	unknown	4,000	unknown
Feb. 6	0500	1,040	9.91				

Minimum discharge, no flow Oct. 1 to Nov. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	249	554	5060	15	49	.50	10	25	.34	.26
2	.00	.00	348	510	2420	11	31	.50	5.0	15	.32	.23
3	.00	.00	327	319	1150	8.9	19	3.0	3.0	10	.30	.20
4	.00	.00	546	178	772	19	11	2.5	2.2	8.0	.29	.19
5	.00	.00	446	103	738	191	40	2.0	2.0	10	.28	.18
6	.00	.00	203	66	980	186	130	1.5	1.9	20	.28	.25
7	.00	.00	58	48	748	120	80	1.2	2.1	12	.50	.14
8	.00	.00	19	132	601	68	50	1.0	1.9	8.0	1.3	2.5
9	.00	.00	8.9	221	593	35	30	5.0	2.0	5.0	2.1	.89
10	.00	.00	4.9	116	1260	20	20	10	1.9	10	.56	.56
11	.00	.00	31	73	963	12	12	70	1.3	8.0	87	1.2
12	.00	.00	122	44	753	7.6	9.0	200	.98	6.0	69	.95
13	.00	.00	74	26	535	5.2	7.0	170	.77	5.0	29	.55
14	.00	.00	33	17	251	4.0	70	100	.65	100	13	.42
15	.00	.00	261	12	95	3.2	120	120	.60	200	6.8	.36
16	.00	.00	434	8.6	57	2.6	100	250	.59	150	9.2	.34
17	.00	.00	279	6.4	38	2.3	40	200	69	70	155	.33
18	.00	.12	133	4.9	25	2.0	20	150	17	35	400	.35
19	.00	.05	52	12	18	1.8	10	400	8.5	15	152	.75
20	.00	3.1	26	193	15	2.0	5.0	800	6.1	6.7	42	415
21	.00	7.3	14	217	191	2.1	3.0	3000	2.5	3.0	15	804
22	.00	1.2	8.0	105	287	2.4	2.5	2500	108	1.9	6.5	496
23	.00	.28	5.2	61	118	47	2.0	1200	433	1.3	3.2	134
24	.00	25	3.8	36	68	406	1.6	600	108	.97	2.0	40
25	.00	36	43	25	42	263	1.2	250	300	.76	1.4	16
26	.00	6.0	1240	20	26	159	1.0	120	320	.63	.97	7.9
27	.00	132	4500	16	18	164	.80	60	150	.55	.73	4.7
28	.00	247	3050	13	17	133	.69	40	70	.50	.52	3.1
29	.00	74	1390	9.9	---	84	.60	25	30	.45	.40	2.2
30	.00	21	852	8.2	---	44	.55	40	50	.40	.35	1.6
31	.00	---	634	1420	---	50	---	20	---	.37	.30	---
TOTAL	.00	553.05	15394.8	4575.0	17839	2071.1	866.94	10342.20	1708.99	729.53	1056.08	2048.01
MEAN	.000	18.4	497	148	637	66.8	28.9	334	57.0	23.5	34.1	68.3
MAX	.00	247	4500	1420	5060	406	130	3000	433	200	400	804
MIN	.00	.00	3.8	4.9	15	1.8	.55	.50	.59	.37	.28	.18
CFSM	.000	.27	7.18	2.14	9.21	.97	.42	4.83	.82	.34	.49	.99
IN.	.00	.30	8.28	2.46	9.59	1.11	.47	5.56	.92	.39	.57	1.10
AC-FT	.00	1100	30540	9070	35380	4110	1720	20510	3390	1450	2090	4060

CAL YR 1982	TOTAL	35121.26	MEAN	96.2	MAX	4500	MIN	.00	CFSM	1.39	IN	18.88	AC-FT	69660
WTR YR 1983	TOTAL	57184.70	MEAN	157	MAX	5060	MIN	.00	CFSM	2.27	IN	30.74	AC-FT	113400

NOTE.--No gage-height record Apr. 6 to June 5.

## SABINE RIVER BASIN

08030500 SABINE RIVER NEAR RULIFF, TX  
(Radiochemical and national stream-quality accounting network)

LOCATION.--Lat 30°18'13", long 93°44'37", Calcasieu Parish, Louisiana-Newton County, Texas State line, Hydrologic Unit 12010005, at downstream side of bridge on State Highway 12, 2.4 mi north of Ruliff, 4.2 mi upstream from the Kansas City Southern Railway Co. bridge, 4.5 mi downstream from Cypress Creek, and at mile 40.2.

DRAINAGE AREA.--9,329 mi<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 National Geodetic Vertical Datum of 1929. Prior to Mar. 1, 1941, nonrecording gage at Kansas City Southern Railway Co. bridge, 4.2 mi downstream and at datum 2.02 ft 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 upstream.

AVERAGE DISCHARGE.--42 years (water years 1925-66) prior to completion of Toledo Bend Reservoir, 8,422 ft<sup>3</sup>/s (6,102,000 acre-ft/yr); 17 years (water years 1967-83) regulated, 7,491 ft<sup>3</sup>/s (5,427,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 121,000 ft<sup>3</sup>/s May 22, 1953 (gage height, 19.98 ft); minimum, 270 ft<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 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, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 90,000 ft<sup>3</sup>/s Dec. 31 at 0300 hours (gage height, 18.00 ft); minimum daily, 1,010 ft<sup>3</sup>/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	1680	8610	80400	14400	22500	17800	1480	24000	9420	6270	1620
2	1120	1600	9040	68900	19200	21700	17000	1410	22200	9130	3670	1440
3	1080	1190	9770	59900	37500	20700	16700	1340	21100	8860	2420	1350
4	1170	1390	10900	53300	45300	19600	16400	1410	19400	8640	3050	1320
5	1350	1640	11800	46900	36900	19000	16500	1740	17200	8560	3680	1290
6	1040	1750	12400	38900	28400	18500	16500	1520	14800	8910	4470	1330
7	1010	1780	12800	29800	23100	18300	16600	1280	12800	9030	5040	1350
8	1440	1740	12500	24200	20300	18700	17000	1190	11500	8900	5180	1300
9	1650	1620	11600	19800	19600	19000	17300	1230	11100	8720	4650	1260
10	1650	1210	10600	18100	19700	18700	17500	1380	11100	8530	4130	1210
11	1700	1410	9660	16900	20400	17900	17400	2120	11100	8360	4420	1210
12	1640	1620	8380	16200	22400	17200	16900	2220	10500	8250	4970	1230
13	1280	1660	7740	15700	25100	16800	15600	2610	9980	8190	6610	1250
14	1490	1660	8040	15300	26300	16500	12100	2770	9400	8840	6970	1230
15	1730	1640	8490	14800	25600	16300	8530	2670	8950	9490	6780	1220
16	1770	1540	8510	14500	24100	15700	7290	2770	8690	9730	5740	1220
17	1640	1180	8610	14200	22900	15300	6700	4100	8690	9700	4220	1670
18	1160	1400	9390	13700	22000	15300	5770	5990	8940	8560	4570	1860
19	1260	1770	10700	13300	21500	15300	4320	8490	9240	5870	5840	2060
20	1040	2350	12500	13300	21200	15400	3270	11800	9260	4420	5860	2690
21	1270	3230	16000	13600	23400	15200	2690	12400	8530	5610	5240	4580
22	1500	4000	21900	14100	23600	15200	2320	17300	7740	6750	5160	6170
23	1540	4040	22500	14400	23300	15800	2080	26900	7540	7400	4420	7260
24	1560	3510	21200	14500	24000	16900	1960	39600	7360	7740	3320	7290
25	1570	3660	20100	14200	25300	17500	1950	44900	7940	7720	3520	5550
26	1480	3850	23000	13500	25400	18200	1960	46300	8920	6030	3740	3540
27	1090	3930	41600	12900	24900	19400	1990	45600	9800	4120	3850	2410
28	1260	4750	62700	12500	23800	20300	1820	43700	10100	5180	3900	1850
29	1410	6230	77500	12400	---	20000	1650	39000	9940	6250	3840	1570
30	1560	7620	87600	12200	---	19600	1540	32300	9690	6930	3450	1410
31	1640	---	88100	12600	---	18700	---	27900	---	7220	2260	---
TOTAL	43200	76650	684240	735000	689600	555200	287140	435420	347510	241060	141240	70740
MEAN	1394	2555	22070	23710	24630	17910	9571	14050	11580	7776	4556	2358
MAX	1770	7620	88100	80400	45300	22500	17800	46300	24000	9730	6970	7290
MIN	1010	1180	7740	12200	14400	15200	1540	1190	7360	4120	2260	1210
AC-FT	85690	152000	1357000	1458000	1368000	1101000	569500	863700	689300	478100	280100	140300
CAL YR 1982	TOTAL	2207463	MEAN	6048	MAX	88100	MIN	830	AC-FT	4379000		
WTR YR 1983	TOTAL	4307000	MEAN	11800	MAX	88100	MIN	1010	AC-FT	8543000		

## SABINE RIVER BASIN

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08030500 SABINE RIVER NEAR RULIFF, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to September 1946, October 1947 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: January 1968 to September 1982.

## 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, 228 micromhos Nov. 19; minimum daily, 38 micromhos Feb. 5, 7.

WATER TEMPERATURES: Maximum daily, 31.0°C Aug. 25-27, Sept. 2; minimum daily, 9.0°C Jan. 21.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT 25...	0800	1570	205	--	20.0	--	--	--	--	--	--	29
NOV 16...	1330	1540	200	7.4	14.5	2.7	10.0	97	.3	24	60	29
FEB 02...	1105	18400	130	6.8	12.0	23	9.8	91	1.8	1600	920	22
APR 26...	1039	1950	97	6.8	19.0	14	8.4	90	1.1	K7	2600	22
AUG 24...	0955	3250	124	6.6	29.0	15	5.8	75	1.3	520	7700	24
DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	
OCT 25...	5	6.5	3.0	27	2.3	3.2	24	26	29	.20	8.5	
NOV 16...	4	6.6	3.0	25	2.1	3.2	25	21	30	.10	7.6	
FEB 02...	8	5.0	2.4	16	1.5	2.3	15	16	21	<.10	6.1	
APR 26...	1	5.6	2.0	10	1.0	1.8	21	13	11	<.10	16	
AUG 24...	4	5.9	2.1	16	1.5	2.1	20	18	17	.10	10	
DATE	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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	
OCT 25...	--	118	--	--	--	--	--	--	--	--	--	
NOV 16...	112	112	<.10	<.060	.80	.040	.030	<.010	7	29	87	
FEB 02...	91	79	.10	.150	.80	.040	.030	.050	34	1690	62	
APR 26...	72	73	.12	.130	.60	.060	.020	.020	31	163	82	
AUG 24...	97	84	<.10	.100	.70	.030	<.010	.020	35	307	59	

## SABINE RIVER BASIN

08030500 SABINE RIVER NEAR RULIFF, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	
DATE	TIME										
NOV 16...	1330	<1	45	<1	<1	<1	<3	2	120	1	
FEB 02...	1105	<1	44	<1	<1	<1	<3	4	140	<1	
APR 26...	1039	<1	53	1	<1	<1	<3	2	250	<1	
AUG 24...	0955	1	58	1	<1	<1	<3	5	300	3	
		LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
DATE	TIME										
NOV 16...	7	20	<.1	<10	2	<1	<1	110	<6.0	16	
FEB 02...	10	35	<.1	<10	1	<1	<1	86	<6.0	22	
APR 26...	6	86	<.1	<10	1	<1	<1	78	<6.0	300	
AUG 24...	6	110	<.1	<10	3	<1	<1	78	<6.0	19	
		GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON METHOD (PCI/L)	URANIUM DIS- SOLVED, EXTRAC- TION (UG/L)	
DATE	TIME										
FEB 02...	1105	--	<1.6	<1.7	3.6	<1.7	3.5	<1.7	.07	.06	
AUG 24...	0955	.8	<2.0	1.2	3.2	<1.1	3.1	<.9	.07	.09	

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	43200	196	105	12300	26	2980	18	2120	35
NOV.	1982	76650	157	86	17800	21	4270	15	3080	29
DEC.	1982	684240	81	47	86900	11	20100	8.2	15100	17
JAN.	1983	735000	122	69	137000	16	32200	12	23800	24
FEB.	1983	689600	105	60	111000	14	26000	10	19300	21
MAR.	1983	555200	159	88	132000	21	31500	15	22900	30
APR.	1983	287140	141	80	61600	19	14500	14	10700	27
MAY	1983	435420	86	50	59100	12	13600	8.7	10300	18
JUNE	1983	347510	129	73	68800	17	16100	13	11900	26
JULY	1983	241060	125	71	46400	17	10800	12	8040	25
AUG.	1983	141240	128	73	27800	17	6510	13	4830	25
SEPT	1983	70740	118	67	12800	16	2990	12	2220	23
TOTAL		4307000	**	**	774000	**	182000	**	134000	**
WTD. AVG.		11800	117	67	**	16	**	12	**	23



## SABINE RIVER BASIN

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08030500 SABINE RIVER NEAR RULIFF, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	188	193	61	56	160	162	147	159	132	128	122	147
2	201	194	53	69	90	162	150	161	138	126	122	154
3	205	195	45	88	53	163	154	159	139	128	134	160
4	194	203	60	109	40	165	156	157	135	129	130	167
5	202	210	52	114	38	163	157	153	133	130	128	179
6	196	200	43	117	39	162	156	160	131	125	135	177
7	195	190	42	125	38	157	154	134	132	121	139	171
8	196	194	59	131	41	154	150	144	123	124	142	170
9	190	198	74	137	43	151	145	152	113	126	147	168
10	192	204	89	142	67	155	149	161	120	128	140	169
11	190	207	113	146	85	158	151	141	119	130	121	171
12	178	198	130	150	87	163	149	127	128	131	115	172
13	185	193	144	154	98	167	140	126	132	132	112	173
14	169	194	136	161	97	168	129	99	133	130	108	170
15	175	195	115	158	110	171	126	94	135	125	109	166
16	188	193	122	161	129	172	117	94	136	120	111	164
17	194	190	126	163	145	172	100	79	137	114	113	155
18	201	210	124	161	154	173	80	55	124	105	140	142
19	193	228	138	162	161	171	85	54	125	97	114	133
20	196	181	150	164	165	171	97	50	127	110	124	115
21	198	170	157	166	162	170	101	54	125	119	126	97
22	210	120	161	159	157	171	100	43	118	123	125	83
23	196	151	163	151	158	168	96	45	124	125	132	69
24	204	184	164	150	153	163	98	50	119	124	128	65
25	205	194	166	162	146	155	96	64	115	125	144	80
26	204	170	100	161	143	146	95	79	119	135	165	99
27	210	140	80	163	150	142	112	92	118	132	150	120
28	199	100	49	164	162	139	131	107	129	131	136	138
29	213	82	53	165	---	134	149	114	128	130	137	150
30	214	69	46	166	---	137	158	119	129	131	141	166
31	200	---	42	169	---	141	---	127	---	122	147	---
MEAN	196	178	99	143	110	160	128	108	127	124	130	143

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	22.0	19.5	11.0	13.0	19.5	17.5	22.0	23.0	27.0	28.0	30.0
2	26.0	22.0	19.5	10.0	12.5	19.5	15.0	22.5	24.0	28.0	28.0	31.0
3	25.0	22.0	19.5	11.0	12.0	16.0	16.0	22.5	25.0	28.0	28.0	30.5
4	25.0	19.0	19.0	10.0	10.0	16.0	16.0	22.5	25.0	28.0	28.5	29.5
5	26.0	17.0	18.0	10.0	10.5	15.0	17.5	24.5	24.0	28.0	28.5	29.0
6	26.0	18.0	18.0	10.0	10.5	16.0	16.0	23.0	24.0	27.0	28.0	29.0
7	27.0	16.0	17.0	12.0	10.5	17.0	15.0	23.5	24.0	26.0	29.0	29.0
8	27.0	15.5	16.0	13.0	12.0	17.0	14.5	22.0	24.0	27.0	29.0	28.0
9	26.0	17.0	14.5	13.0	12.0	16.0	14.0	22.5	24.0	26.0	29.0	28.0
10	25.0	18.0	14.5	13.0	12.0	15.5	16.0	23.5	23.0	29.0	28.0	27.0
11	24.0	19.0	14.5	13.0	12.5	14.5	17.5	22.5	24.0	29.0	28.0	27.0
12	20.0	19.0	12.5	12.0	13.0	14.0	17.0	23.0	26.0	28.0	28.0	25.5
13	22.0	17.0	12.5	12.5	12.5	14.0	18.0	24.0	26.0	28.0	27.0	25.5
14	20.0	15.5	12.0	12.5	12.0	15.0	17.0	23.5	26.0	27.0	27.0	26.0
15	20.0	15.0	13.5	13.0	---	16.0	17.0	23.0	26.0	26.5	27.0	29.0
16	20.0	15.5	13.0	11.5	12.5	15.0	18.0	23.0	25.0	27.5	28.0	29.0
17	23.0	15.0	13.0	11.5	13.0	15.0	19.0	24.0	24.5	26.5	29.0	---
18	22.0	15.5	13.5	11.0	13.0	15.0	19.0	23.0	24.0	26.5	28.0	---
19	23.0	16.0	13.5	10.0	13.5	15.5	18.0	23.5	25.0	27.0	29.0	---
20	21.0	19.0	13.5	10.0	13.5	14.0	18.5	23.0	26.0	28.0	29.0	---
21	21.0	19.0	15.0	9.0	14.0	14.0	17.5	22.0	25.0	28.0	30.0	---
22	21.0	19.5	15.0	10.0	13.5	13.0	19.0	21.0	26.0	28.0	30.0	---
23	18.0	20.0	16.5	10.0	14.5	14.0	18.5	21.5	25.0	29.0	30.0	---
24	21.0	18.0	16.5	10.0	14.5	12.0	19.5	22.0	25.5	30.0	29.5	---
25	20.0	17.0	18.0	10.0	14.5	14.0	19.5	23.0	26.0	30.0	31.0	---
26	18.0	17.0	16.0	10.0	15.0	14.0	19.5	23.0	26.0	29.0	31.0	---
27	17.0	17.0	15.0	10.0	17.0	14.5	20.5	23.0	27.5	30.5	31.0	---
28	20.0	17.5	15.0	10.0	18.0	14.5	20.0	24.0	27.0	30.5	30.0	---
29	20.0	17.5	13.5	12.0	---	15.5	20.5	24.0	26.0	30.5	30.0	---
30	20.0	17.0	11.5	13.5	---	15.5	22.0	25.0	27.0	30.0	30.0	---
31	23.5	---	12.5	13.5	---	15.0	---	24.5	---	30.0	30.0	---
MEAN	22.5	18.0	15.0	11.0	13.0	15.0	18.0	23.0	25.0	28.0	29.0	28.5

## 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 upstream from Kansas City Southern Railway Co. bridge, and 2.7 mi southwest of Mauriceville.

DRAINAGE AREA.--83.3 mi<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 National Geodetic Vertical Datum of 1929. Prior to Oct. 23, 1957, nonrecording gage at same site and datum.

REMARKS.--Records fair. No large diversion above station. Base flow is partly sustained by springs. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years, 105 ft<sup>3</sup>/s (17.12 in/yr), 76,070 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,600 ft<sup>3</sup>/s Sept. 19, 1963 (gage height, 18.15 ft); no flow at times. Maximum stage since at least 1940, 18.16 ft Oct. 28, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 28	2100	*3,010	16.98
Feb. 5	2200	1,490	14.47
May 23	1200	1,650	14.90

Minimum discharge, 0.01 ft<sup>3</sup>/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.02	.05	214	1420	694	72	92	.63	34	38	7.3	6.5		
2	.02	.25	190	1160	881	49	60	.41	25	16	12	5.6		
3	.02	3.1	301	902	1220	35	39	.29	17	11	21	4.7		
4	.02	2.2	347	581	1410	29	28	.22	13	9.0	27	3.9		
5	.01	1.1	367	379	1430	141	27	.20	41	10	27	3.2		
6	.04	.60	390	291	1410	171	41	.12	48	20	22	202		
7	.08	.33	356	239	1210	170	48	.09	39	10	43	134		
8	.08	.25	285	300	1040	148	54	.11	26	4.6	30	65		
9	.10	.20	216	299	904	121	56	.13	16	4.2	20	39		
10	.13	.14	159	210	877	90	51	6.7	10	4.7	49	35		
11	.13	.13	137	178	792	62	40	124	7.0	3.6	294	65		
12	.19	.16	107	167	757	37	29	188	5.2	2.6	571	149		
13	.18	.09	77	151	704	26	23	229	4.2	1.9	979	78		
14	.12	.08	65	124	591	20	25	248	3.7	120	965	35		
15	.08	.07	115	94	449	15	41	240	3.2	180	749	21		
16	.06	.18	109	67	330	11	85	248	2.8	191	372	13		
17	.06	4.4	116	49	239	8.4	94	260	34	167	188	9.6		
18	.06	3.1	132	37	159	6.9	74	252	16	149	608	23		
19	.06	2.4	137	73	97	5.7	51	537	7.8	117	832	371		
20	.06	4.3	121	340	67	5.4	32	861	6.2	85	819	710		
21	.05	4.8	91	295	372	5.8	22	1360	13	47	806	699		
22	.04	4.3	67	290	240	5.3	14	1570	52	24	678	657		
23	.04	5.7	52	290	200	85	8.3	1640	35	15	416	573		
24	.04	15	41	264	209	294	5.7	1540	15	10	259	450		
25	.04	16	51	228	230	255	4.0	1330	46	6.5	138	329		
26	.04	18	784	180	214	299	2.8	1080	97	4.5	70	239		
27	.04	101	2000	125	169	319	2.0	784	95	3.7	32	144		
28	.04	130	2870	86	110	286	1.5	391	75	2.8	19	67		
29	.05	140	2850	63	---	238	1.1	241	55	2.2	14	34		
30	.05	189	2310	46	---	185	.86	123	57	2.5	10	22		
31	.05	---	1750	212	---	134	---	65	---	2.3	8.2	---		
TOTAL	2.00	646.93	16807	9140	17005	3329.5	1052.26	13319.90	899.1	1265.1	9085.5	5187.5		
MEAN	.065	21.6	542	295	607	107	35.1	430	30.0	40.8	293	173		
MAX	.19	189	2870	1420	1430	319	94	1640	97	191	979	710		
MIN	.01	.05	41	37	67	5.3	.86	.09	2.8	1.9	7.3	3.2		
CFM	.001	.26	6.51	3.54	7.29	1.29	.42	5.16	.36	.49	3.52	2.08		
IN.	.00	.29	7.51	4.08	7.59	1.49	.47	5.95	.40	.56	4.06	2.32		
AC-FT	4.0	1280	33340	18130	33730	6600	2090	26420	1780	2510	18020	10290		
CAL YR 1982	TOTAL	45508.79	MEAN	125	MAX	2870	MIN	.01	CFM	1.50	IN	20.32	AC-FT	90270
WTR YR 1983	TOTAL	77739.79	MEAN	213	MAX	2870	MIN	.01	CFM	2.56	IN	34.72	AC-FT	154200

## SABINE RIVER BASIN

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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: November 1969 to current year.

WATER TEMPERATURES: November 1969 to current year.

COLOR: November 1969 to current year.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 407 micromhos Aug. 31, 1978; minimum daily, 34 micromhos Feb. 3, 1983.

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, 272 micromhos Nov. 9; minimum daily, 34 micromhos Feb. 3.

WATER TEMPERATURES: Minimum daily, 11.5°C Feb. 4, 13.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT							
07...	1630	1720	192	26.0	40	23	29
14...	1030	1500	217	20.0	60	26	31
21...	1125	1450	223	20.0	60	29	32
28...	1215	1490	227	19.5	60	30	33
NOV							
07...	1110	1480	242	16.0	70	30	33
14...	0735	1360	227	13.0	50	24	32
21...	1100	4130	170	20.0	240	32	19
28...	1120	8170	58	17.0	240	11	6.8
DEC							
07...	1455	8390	50	17.0	140	11	5.9
14...	1630	6460	155	18.0	40	21	22
21...	1245	22200	176	17.0	20	19	27
28...	1100	71700	63	15.0	100	15	10
JAN							
07...	0945	17700	167	15.0	40	18	26
14...	1210	15400	54	14.0	30	10	8.2
21...	1400	16600	163	12.0	30	18	28
28...	1130	12600	174	12.5	80	18	26
FEB							
01...	0900	29400	88	15.0	80	13	11
07...	0800	10600	141	12.0	40	18	21
14...	1025	23900	169	13.0	30	19	26
21...	0845	21900	176	13.0	20	20	29
MAR							
07...	1300	18700	175	15.0	30	19	28
14...	1605	15600	178	15.5	30	20	29
21...	0815	16000	172	14.0	40	19	28
28...	1500	18700	156	17.0	50	19	24
APR							
07...	1030	17800	162	16.0	50	17	24
14...	0835	3000	77	15.0	100	11	8.9
21...	0805	1450	123	18.5	70	15	13
28...	0745	1130	205	20.0	70	29	19
MAY							
07...	0850	825	208	23.0	60	30	23
14...	1155	1140	167	25.0	120	27	18
21...	1155	21600	63	23.0	140	13	6.8
29...	0850	26700	139	24.0	40	19	18
JUN							
07...	1015	11600	137	26.0	40	18	22
14...	1030	7970	146	25.0	40	18	21
21...	0950	5610	150	25.5	50	19	20
28...	1120	8470	141	26.0	50	18	20
JUL							
07...	1115	7520	140	28.5	40	18	21
14...	1155	7620	138	28.0	40	18	19
21...	1145	7460	143	28.0	40	17	20
28...	1605	7100	145	30.0	40	19	22
AUG							
04...	1115	3980	129	28.0	40	19	15
11...	1220	3930	129	27.0	70	20	15
18...	1245	3460	172	28.0	50	27	20
25...	1435	3280	160	33.0	50	24	20
SEP							
01...	1430	792	222	31.0	80	31	23
08...	1455	655	236	29.0	100	37	24
14...	1630	647	178	30.0	70	23	18
22...	1210	4190	150	28.0	70	28	13
29...	1155	937	193	--	100	--	--

## SABINE RIVER BASIN

08028500 SABINE RIVER NEAR BON WIER, TX--Continued

DAY	SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	208	216	64	138	88	173	166	186	140	---	---	219
2	206	255	51	147	35	173	175	197	141	---	---	---
3	201	210	46	143	34	175	167	197	145	---	---	---
4	206	221	47	160	41	181	165	197	146	---	129	---
5	224	216	38	159	53	170	158	196	146	---	---	---
6	206	226	38	161	61	157	157	202	138	---	---	---
7	192	242	50	167	141	175	162	208	137	140	---	---
8	197	237	116	177	141	175	154	209	136	---	---	233
9	187	272	146	170	140	174	161	166	137	---	---	---
10	189	215	168	167	131	175	161	165	138	---	---	---
11	189	219	167	174	136	179	176	166	146	---	129	---
12	206	213	160	173	141	178	171	166	140	---	---	---
13	198	220	145	176	141	177	172	58	141	---	---	---
14	217	227	155	174	169	178	77	167	146	138	---	173
15	219	216	154	174	177	175	75	174	173	---	---	---
16	216	246	167	178	176	176	75	56	149	---	---	---
17	254	198	162	179	179	175	82	79	121	---	---	---
18	233	208	174	165	180	176	111	78	129	---	172	---
19	248	182	173	151	183	176	116	79	149	---	---	---
20	219	148	176	165	178	175	110	105	129	---	---	---
21	223	170	176	163	176	172	123	63	150	143	---	---
22	223	235	178	167	152	177	126	128	145	---	---	144
23	229	253	178	172	147	136	123	115	149	---	---	---
24	225	190	63	182	175	136	123	115	156	---	---	---
25	226	189	173	179	176	142	172	129	128	---	160	---
26	208	204	135	198	171	130	182	140	140	---	---	---
27	231	193	86	54	176	147	182	129	150	---	---	---
28	227	58	63	54	177	156	205	---	141	145	---	---
29	216	77	63	185	---	164	187	139	136	---	---	193
30	205	65	138	44	---	171	187	150	135	---	---	---
31	205	---	134	81	---	166	---	140	---	---	---	---
MEAN	214	201	122	154	138	167	147	143	142	142	148	192

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	23.5	18.0	16.0	15.0	15.5	16.0	23.0	25.0	---	---	31.0
2	25.5	23.5	21.0	12.0	12.0	15.0	17.0	23.0	25.0	---	---	---
3	26.0	23.5	19.0	13.0	12.0	14.0	15.0	23.0	25.5	---	---	---
4	26.5	17.0	19.0	14.5	11.5	15.0	15.0	24.0	26.0	---	28.0	---
5	26.0	15.0	17.0	14.0	12.0	14.5	15.0	24.0	25.0	---	---	---
6	26.0	15.0	17.0	15.0	12.0	16.0	15.0	24.0	25.0	---	---	---
7	26.0	16.0	17.0	15.0	12.0	15.0	16.0	23.0	26.0	28.5	---	---
8	25.0	17.0	17.5	14.0	12.5	16.0	16.0	24.0	25.0	---	---	29.0
9	27.0	17.0	15.0	14.0	12.5	15.0	17.0	23.0	25.0	---	---	---
10	25.0	18.0	16.0	15.0	12.0	15.0	15.0	23.0	26.0	---	---	---
11	23.0	19.0	16.0	13.0	13.0	15.0	15.0	27.5	25.0	---	27.0	---
12	21.0	19.0	16.0	12.0	12.0	15.0	17.0	23.0	25.0	---	---	---
13	21.0	16.0	13.0	14.0	11.5	15.0	18.0	23.0	25.0	---	---	---
14	20.0	13.0	18.0	14.0	13.0	15.5	15.0	25.0	25.0	28.0	---	30.0
15	21.0	15.0	16.0	13.5	12.0	15.0	17.5	25.0	25.0	---	---	---
16	21.0	13.0	17.0	13.0	12.0	15.0	17.5	23.0	25.0	---	---	---
17	20.0	14.0	16.0	13.5	13.0	15.0	18.0	23.0	25.0	---	---	---
18	23.0	16.5	16.0	12.0	14.0	15.0	19.0	22.0	25.0	---	28.0	---
19	22.0	18.0	15.0	13.0	14.0	14.5	19.5	23.0	25.5	---	---	---
20	21.0	20.0	16.0	13.0	12.0	14.0	18.0	24.0	26.0	---	---	---
21	20.0	20.0	17.0	12.0	13.0	14.0	18.5	23.0	25.5	28.0	---	---
22	19.0	20.0	16.0	12.5	13.5	15.0	19.0	20.0	25.5	---	---	28.0
23	18.0	21.0	15.0	12.0	14.5	15.0	20.0	24.0	25.0	---	---	---
24	18.0	18.0	16.0	13.0	14.0	15.0	20.5	24.0	26.0	---	---	---
25	20.0	16.0	17.5	12.0	13.0	16.0	20.0	25.0	25.0	---	33.0	---
26	20.0	16.0	16.0	12.0	12.0	17.0	20.0	24.5	26.0	---	---	---
27	19.0	16.0	15.0	12.5	13.0	15.0	20.0	25.5	26.5	---	---	---
28	19.5	17.0	15.0	12.5	13.0	17.0	20.0	---	26.0	30.0	---	---
29	19.5	17.5	16.0	13.5	---	17.0	22.0	25.0	26.0	---	---	25.0
30	22.0	17.0	16.0	12.0	---	17.0	22.5	24.0	26.0	---	---	---
31	23.0	---	16.0	14.5	---	17.0	---	25.0	---	---	---	---
MEAN	22.5	17.5	16.5	13.5	12.5	15.5	18.0	24.0	25.5	28.5	29.0	28.5

## NECHES RIVER BASIN

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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 1982 TO SEPTEMBER 1983

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
FEB 16...	0950	98	10.0	26	3	7.1	1.9	8.1

DATE	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
FEB 16...	.7	2.9	23	9.1	12	<.10	4.5	59



## NECHES RIVER BASIN

08031400 LAKE PALESTINE NEAR FRANKSTON, TX

LOCATION.--Lat 32°03'12", long 95°26'12", Anderson-Cherokee County line, Hydrologic Unit 12020001, in outlet tower near right bank, 140 ft upstream from Blackburn Crossing Dam on Neches River, 5 mi east of Frankston, 11 mi upstream from gage (station 08032000), and at mile 354.0.

DRAINAGE AREA.--839 mi<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 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 gates located in concrete tower near center of dam and connected to an 8.5-foot-diameter concrete conduit through the dam. The low-flow outlet consists of two 3.0-foot iron pipes connected to the tower structure for low-flow releases. Water is used for municipal and industrial purposes in the Palestine area. The diversion point is downstream from gage (station 08032000). There are no large diversions above station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	364.0	-
Design flood.....	355.3	726,000
Crest of spillway (top of conservation pool).....	345.0	412,000
Lowest gated outlet (invert).....	298.0	550

COOPERATION.--The capacity table, furnished by the Upper Neches River Municipal Water Authority, is based on Geological Survey topographic maps dated 1946 and 1948-49.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 501,300 acre-ft June 7, 1973 (elevation, 348.29 ft); minimum since first appreciable storage, 11,450 acre-ft Nov. 28, 1970 (elevation, 310.00 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 446,500 acre-ft Mar. 6 at 1000 hours (elevation, 346.32 ft); minimum, 368,600 acre-ft Oct. 28 (elevation, 343.25 ft).

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

343.0	362,600	345.0	411,800
344.0	386,700	346.0	437,900
		347.0	464,900

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	375100	373700	386700	421200	415500	429500	426200	413100	424300	426200	409300	403000
2	374900	378700	393000	421200	414400	428800	423300	414400	422500	424900	408300	402500
3	374900	379200	399300	420200	414400	432700	421200	413900	422500	424900	408000	401800
4	374400	377500	412800	420700	414900	443300	422500	413400	422000	425400	407800	400800
5	374200	377100	421500	420400	420400	445700	423500	411800	420200	426200	407800	399300
6	374200	376600	426400	419600	421200	445700	422800	410000	432700	424600	407300	399300
7	373700	376300	428500	419400	421200	443000	420900	413100	432700	423300	406800	398700
8	373400	376100	429300	419100	422200	442000	420900	411800	434500	421700	406500	399500
9	375900	375900	427500	418600	428500	438400	419600	411300	434000	420700	407500	399500
10	374900	375900	428500	418300	431100	436600	419400	410500	432200	419400	406800	399300
11	374700	374200	430600	419100	434200	433500	417300	411800	430100	418300	405500	399000
12	375600	377100	427200	417000	434800	431400	417800	413100	429300	417500	405500	398700
13	374700	374700	425600	416800	434500	429000	420900	412600	427500	416200	405000	398500
14	374400	376800	427200	418600	434000	428000	419600	415700	427500	415700	405000	397200
15	373700	374400	426200	415700	433200	427500	419100	414400	425900	415200	404300	396500
16	373400	374700	425400	415700	431900	428200	418300	414400	424100	417000	403800	396000
17	372700	374900	424100	415700	430100	424900	417800	413100	423300	416200	403300	395500
18	371800	374900	425400	415700	428500	422500	417300	418800	422200	415700	401300	395200
19	373900	375900	423500	416200	427200	423300	417000	420900	421700	415500	405500	394200
20	373400	375900	423000	415700	428800	423500	416000	428200	420900	415200	405800	397700
21	373000	375900	422200	415200	430600	420700	416200	434000	420400	414700	405800	393000
22	372200	375600	421200	414900	431400	420900	416500	437600	419600	414400	405500	392500
23	372000	379000	420700	414700	434000	422000	416000	439300	420200	413600	405000	391700
24	371500	375900	421200	415200	436900	420900	415200	438200	420900	412800	404500	390700
25	371000	375900	422200	414400	436100	418300	414400	436600	420400	412300	404500	390500
26	370300	381200	420900	416500	435000	423500	414100	434800	419600	411500	404300	390200
27	369300	384800	420400	413600	433700	423500	413100	432700	418800	411000	404300	389700
28	374700	385500	422200	412800	431600	422800	413100	430900	417000	410500	403300	389500
29	374200	387700	420900	414400	---	422000	413100	429500	424600	410500	403300	389200
30	373900	389000	420700	413600	---	424300	413100	428200	424900	410300	402500	389000
31	373700	---	420700	414900	---	422200	---	426700	---	409500	402500	---
MAX	375900	389000	430600	421200	436900	445700	426200	439300	434500	426200	409300	403000
MIN	369300	373700	386700	412800	414400	418300	413100	410000	417000	409500	401300	389000
(†)	343.46	344.09	345.34	345.12	345.76	345.40	345.05	345.57	345.50	344.91	344.63	344.09
(*)	-1900	+15300	+31700	-5800	+16700	-9400	-9100	+13600	-1800	-15400	-7000	-13500

CAL YR 1982 MAX 430600 MIN 369300 \* +14400  
WTR YR 1983 MAX 445700 MIN 369300 \* +13400

† 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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
FEB 16...	0830	172	9.5	24	19	2.5	4.2	21

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
FEB 16...	1.9	4.8	5.0	25	31	.20	9.3	101

## 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 downstream from Missouri Pacific Railway Co. bridge, 1.4 mi downstream from Walnut Creek, 4.4 mi northeast of Neches, and at mile 333.2.

DRAINAGE AREA.--1,145 mi<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 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 upstream and by Lake Athens (station 08031290) 50 mi upstream, capacity 454,600 acre-ft. No large diversion above station. Gage-height telemeter at gage.

AVERAGE DISCHARGE.--22 years (water years 1940-61) unregulated, 804 ft<sup>3</sup>/s (582,500 acre-ft/yr); 22 years (water years 1962-83) regulated, 634 ft<sup>3</sup>/s (459,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,500 ft<sup>3</sup>/s Apr. 2, 1945 (gage height, 22.07 ft); no flow Oct. 3-5, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 (stage 24.3 ft) was the highest since flood in May 1884, which was probably higher.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,640 ft<sup>3</sup>/s Mar. 6 at 0100 hours (gage height, 15.65 ft); minimum daily, 53 ft<sup>3</sup>/s Aug. 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	143	362	806	384	1810	1180	214	1340	813	81	62
2	57	139	264	795	433	1660	1170	211	1250	890	74	67
3	57	293	321	806	444	1550	1190	237	1140	917	72	64
4	57	304	582	790	415	1690	1150	276	971	912	90	58
5	57	213	620	739	572	4600	1030	234	825	893	72	55
6	57	163	761	705	1160	5370	1000	190	858	906	61	55
7	60	137	890	679	1250	4510	1010	144	1130	917	59	54
8	66	120	998	657	1250	3800	971	147	1270	865	81	57
9	68	110	1080	649	1230	3290	870	179	1420	764	75	74
10	70	102	1170	623	1440	2930	767	147	1500	649	124	95
11	69	98	1250	601	1600	2680	670	174	1520	540	96	100
12	68	96	1320	582	1790	2380	572	294	1490	455	75	89
13	73	99	1420	555	1910	2040	508	269	1420	386	67	82
14	75	97	1430	498	1970	1730	587	246	1320	330	63	79
15	71	93	1340	499	1970	1560	711	255	1250	272	58	76
16	68	92	1260	519	1910	1450	674	369	1170	265	55	73
17	66	95	1210	445	1810	1350	583	325	1090	327	53	72
18	66	111	1160	431	1670	1300	505	262	965	348	53	72
19	65	114	1080	408	1570	1250	483	345	882	313	187	71
20	66	115	1040	472	1470	1170	429	836	795	281	305	71
21	70	116	996	508	1450	1130	407	1420	717	262	168	91
22	70	112	941	482	1500	1100	387	1660	637	246	104	112
23	68	108	877	451	1590	987	399	2030	558	217	81	78
24	68	108	820	416	1660	1050	454	2260	540	185	71	71
25	66	111	765	396	1680	1060	399	2310	587	159	67	70
26	65	112	788	382	1790	1030	303	2250	597	136	74	70
27	67	442	853	416	1890	1140	255	2110	567	119	74	69
28	69	775	924	418	1900	1190	238	1910	520	101	71	69
29	252	669	945	337	---	1190	230	1670	480	90	71	69
30	293	522	953	330	---	1170	221	1540	640	86	67	69
31	184	---	876	330	---	1180	---	1440	---	86	62	---
TOTAL	2565	5809	29296	16725	39708	60347	19353	25954	29449	13730	2711	2194
MEAN	82.7	194	945	540	1418	1947	645	837	982	443	87.5	73.1
MAX	293	775	1430	806	1970	5370	1190	2310	1520	917	305	112
MIN	57	92	264	330	384	987	221	144	480	86	53	54
AC-FT	5090	11520	58110	33170	78760	119700	38390	51480	58410	27230	5380	4350

CAL YR 1982 TOTAL 132383 MEAN 363 MAX 1500 MIN 17, AC-FT 262600  
WTR YR 1983 TOTAL 247841 MEAN 679 MAX 5370 MIN 53 AC-FT 491600

## NECHES RIVER BASIN

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08032000 NECHES RIVER NEAR NECHES, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1969 to current year. Biochemical analyses: October 1974 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1969 to current year.

INSTRUMENTATION.--Since December 1969, specific conductance is recorded continuously at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1973-83): Maximum daily, 1,190 micromhos Aug. 29, 1976; minimum daily, 77 micromhos July 28, 1979.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 473 micromhos Aug. 10; minimum daily, 116 micromhos Mar. 5, Apr. 30.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
NOV 09...	1000	110	188	6.4	15.5	8.3	83	1.1	34
JAN 31...	1000	328	188	6.4	11.0	10.4	96	.9	29
MAR 21...	1000	1130	156	7.6	12.5	9.5	89	1.3	27
APR 25...	1000	411	173	6.8	16.5	8.8	91	1.1	30
JUL 18...	1000	352	178	7.0	26.5	6.5	81	.9	33
AUG 24...	0700	72	197	6.4	27.5	5.5	70	1.8	39

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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 09...	21	6.2	4.4	20	1.5	4.8	13	32	33
JAN 31...	19	4.5	4.2	22	1.8	3.9	10	24	33
MAR 21...	14	4.1	4.0	18	1.5	4.1	13	24	27
APR 25...	20	4.9	4.2	19	1.6	3.8	10	31	28
JUL 18...	22	5.6	4.6	19	1.5	4.1	11	26	31
AUG 24...	17	7.9	4.8	22	1.6	4.3	23	20	35

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
NOV 09...	.10	19	127	<.020	.10	.070	.73	.80	.050
JAN 31...	.10	13	111	<.020	<.10	<.060	--	1.00	.030
MAR 21...	.10	8.8	98	<.020	<.10	.180	.82	1.00	.050
APR 25...	.20	8.5	106	<.020	<.10	.180	.62	.80	.060
JUL 18...	.20	11	108	<.020	<.10	.120	.58	.70	.050
AUG 24...	.20	15	123	<.020	.10	.170	.93	1.10	.030

## NECHES RIVER BASIN

08032000 NECHES RIVER NEAR NECHES, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	199	193	196	201	182	196	193	175	189	187	184	187
2	195	191	191	209	193	201	197	193	195	190	184	188
3	193	191	192	384	192	263	284	198	229	187	182	184
4	191	191	191	191	175	183	221	132	162	183	180	182
5	191	189	191	176	175	175	149	131	141	183	183	183
6	190	187	188	191	176	187	154	142	146	183	182	183
7	197	183	187	200	191	196	170	155	165	185	181	183
8	193	182	185	200	195	198	173	170	171	183	183	183
9	191	177	182	200	191	194	174	173	173	186	183	185
10	192	180	184	195	192	193	172	170	171	189	185	186
11	179	177	178	196	195	195	175	170	172	190	187	188
12	184	176	180	196	191	192	176	175	176	187	183	185
13	185	175	180	195	193	194	176	171	173	189	183	186
14	198	183	190	220	195	209	172	170	171	189	187	188
15	203	196	201	219	202	207	179	172	176	189	183	186
16	210	199	203	202	197	199	180	178	179	188	183	185
17	206	205	206	197	192	196	180	178	179	230	188	193
18	206	203	204	279	192	222	179	176	179	229	193	203
19	204	197	202	279	220	246	181	176	179	208	193	194
20	203	198	201	231	213	217	181	180	181	237	190	207
21	197	192	194	237	206	219	181	179	180	190	183	185
22	196	191	193	212	206	210	183	180	182	200	183	193
23	199	195	197	209	206	207	186	183	184	200	193	196
24	199	194	196	211	206	209	195	185	190	194	122	188
25	195	192	194	227	206	217	187	184	187	192	192	192
26	193	190	192	206	194	198	185	179	182	194	191	192
27	193	190	192	388	146	230	207	182	191	203	188	194
28	193	179	190	143	131	133	200	175	183	221	194	198
29	334	125	202	143	124	133	175	175	175	222	200	205
30	163	135	147	174	144	156	186	175	178	200	192	196
31	180	149	165	---	---	---	187	183	185	199	122	192
MONTH	334	125	190	388	124	199	284	131	178	237	122	190

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	284	199	241	172	168	170	164	163	163	192	188	190
2	215	193	200	172	170	171	164	164	164	191	180	188
3	193	189	190	170	169	170	165	164	164	219	181	189
4	190	189	189	172	146	166	165	165	165	212	180	188
5	459	179	259	144	116	126	167	165	166	187	180	184
6	174	132	141	139	122	132	167	167	167	194	183	188
7	149	132	140	153	139	147	167	167	167	207	194	201
8	161	149	155	161	152	158	167	165	166	205	182	198
9	175	163	168	165	161	163	173	167	172	185	176	181
10	175	130	140	164	163	163	172	172	172	198	184	193
11	145	130	139	163	162	163	176	172	173	416	193	232
12	155	145	151	162	162	162	175	173	174	315	173	207
13	165	156	161	162	162	162	178	175	177	175	172	173
14	168	164	166	162	162	162	188	170	177	185	175	182
15	168	166	167	162	159	161	170	170	170	189	182	185
16	170	166	168	162	161	161	175	170	172	195	178	184
17	171	167	169	168	161	164	173	173	173	178	174	176
18	179	167	170	168	166	167	177	173	175	183	174	178
19	177	167	172	168	165	165	175	172	173	290	177	199
20	176	168	173	175	168	169	174	172	173	222	121	169
21	181	167	173	175	164	168	179	174	177	139	120	126
22	172	160	163	164	164	164	192	179	183	146	139	142
23	163	158	161	203	164	170	187	172	184	152	142	147
24	167	157	162	203	158	172	175	170	172	163	151	158
25	168	166	167	158	157	157	183	175	177	169	160	165
26	168	168	168	184	157	168	183	182	183	173	166	170
27	168	168	168	173	151	156	183	182	183	179	170	173
28	170	163	168	154	151	152	184	181	183	175	170	173
29	---	---	---	160	154	157	187	181	184	176	170	173
30	---	---	---	176	160	166	189	116	185	176	170	173
31	---	---	---	176	163	166	---	---	---	172	172	173
MONTH	459	130	171	203	116	161	192	116	174	416	120	171



## NECHES RIVER BASIN

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08032000 NECHES RIVER NEAR NECHES, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	182	170	176	172	168	171	221	211	216	---	---	218
2	180	175	177	230	168	172	226	216	221	---	---	216
3	179	175	177	174	170	172	236	218	223	---	---	217
4	179	175	177	177	170	174	218	206	210	---	---	219
5	180	175	177	175	172	173	236	208	223	---	---	219
6	213	172	184	175	170	173	243	233	238	---	---	219
7	175	146	155	178	170	173	240	233	236	---	---	220
8	168	158	163	183	172	177	232	197	212	---	---	215
9	170	163	167	183	174	178	248	194	208	198	190	194
10	173	167	170	183	175	179	473	210	340	239	189	222
11	174	172	173	186	179	182	366	231	262	249	198	217
12	175	170	173	186	180	184	251	227	238	198	192	196
13	175	170	173	187	183	185	251	232	243	201	189	197
14	175	170	172	188	183	186	231	218	221	189	183	186
15	176	171	174	195	187	191	224	215	219	196	180	188
16	177	172	175	199	188	193	224	221	222	197	191	194
17	179	175	177	238	192	205	222	221	221	194	189	191
18	175	170	173	193	180	183	221	221	221	191	187	188
19	176	170	173	186	178	182	225	221	222	189	186	187
20	176	170	173	187	182	185	224	219	222	188	187	187
21	176	171	174	191	181	185	219	215	218	187	170	182
22	180	173	177	192	184	189	---	---	210	190	170	183
23	182	176	179	198	188	193	---	---	214	189	183	187
24	179	172	175	202	194	198	---	---	216	187	181	184
25	211	172	187	206	198	202	---	---	216	187	181	184
26	197	182	187	211	202	207	---	---	215	187	180	183
27	183	177	180	214	207	210	---	---	215	185	179	182
28	185	178	181	222	210	217	---	---	216	184	179	181
29	186	176	182	227	216	222	---	---	216	186	179	182
30	181	172	178	224	219	221	---	---	216	193	183	188
31	---	---	---	222	215	219	---	---	218	---	---	---
MONTH	213	146	175	238	168	190	473	194	225	249	170	198

## NECHES RIVER BASIN

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 downstream from Texas and New Orleans Railroad Co. bridge, 2.9 mi downstream from Alabama Creek, 3.8 mi south of Diboll, and at mile 203.5.

DRAINAGE AREA.--2,724 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1923 to September 1925, March 1939 to current year. Monthly discharge only for some periods, published in WSP 1312.

Water-quality records: Chemical and biochemical analyses: October 1969 to September 1981.

REVISED RECORDS.--WSP 1242: 1950. WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 134.46 ft National Geodetic Vertical Datum of 1929. Prior to July 10, 1925, nonrecording gage at site 630 ft upstream; July 10 to Aug. 31, 1925, and Mar. 30, 1939, to Sept. 24, 1943, nonrecording gage at site 500 ft upstream; Sept. 25, 1943, to Aug. 16, 1973, nonrecording gage at site 70 ft upstream; all at present datum.

REMARKS.--Records fair. At times low flow may be affected by regulation by Lake Athens (station 08031290), Lake Palestine (station 08031400), and Lake Jacksonville (combined capacity, 485,100 acre-ft). During the current year, Upper Neches River Municipal Water Authority diverted 3,000 acre-ft from stream at Rocky Point Crossing 120 mi upstream for municipal and industrial uses in the Palestine area. Gage-height telemeter located at gage.

AVERAGE DISCHARGE.--24 years (water years 1923-25, 1939-61) unregulated, 1,807 ft<sup>3</sup>/s (1,309,000 acre-ft/yr); 22 years (water years 1962-83) regulated, 1,373 ft<sup>3</sup>/s (994,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,900 ft<sup>3</sup>/s May 4, 1944 (gage height, 18.70 ft); no flow Aug. 15-22, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1874, 21 ft in May 1884 (discharge, about 110,000 ft<sup>3</sup>/s), from rating curve extended above 40,000 ft<sup>3</sup>/s; flood in 1900 reached a stage of 19.9 ft (discharge, about 80,000 ft<sup>3</sup>/s); from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,440 ft<sup>3</sup>/s May 22 at 2000 hours to May 23 at 0300 hours (gage height, 14.52 ft); minimum daily, 56 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	207	2520	5160	1580	3510	4720	751	4150	1900	287	181
2	60	216	2020	5810	2670	3380	4250	711	3930	2250	255	191
3	59	322	2440	5440	4530	3220	3960	672	3700	2380	245	255
4	59	391	3520	4600	5920	3110	3670	637	3530	2170	284	268
5	58	447	3500	4030	6100	3250	3440	608	3460	1750	337	230
6	56	453	2470	3540	6270	3320	3130	585	4300	1430	432	203
7	60	440	1810	3100	5520	3330	2880	569	6100	1200	493	186
8	63	424	1400	2710	4890	3360	2670	550	5900	1100	832	173
9	72	409	1160	2340	5060	3380	2450	534	5190	1000	895	171
10	99	389	1030	2060	6370	3370	2280	521	4740	950	742	171
11	123	352	1020	1810	6680	3370	2140	557	4210	900	618	183
12	160	304	1220	1630	6340	3430	2000	679	3730	870	657	208
13	206	262	1340	1470	6050	3600	1880	720	3420	850	1050	205
14	239	228	1480	1350	5660	3930	1750	730	3210	830	950	205
15	230	205	2370	1250	5240	4340	1610	751	3040	820	850	201
16	189	189	3030	1150	4890	4710	1510	802	3100	900	770	195
17	170	196	3090	1080	4620	4820	1410	818	3010	880	700	185
18	162	244	2670	1030	4410	4740	1330	856	2830	850	700	177
19	148	352	2380	998	4230	4530	1260	881	2810	820	900	178
20	136	618	2200	984	4080	4400	1190	2550	2670	780	1200	176
21	133	648	2070	980	4280	4230	1130	5530	2470	750	1400	184
22	129	601	2000	974	4560	4100	1080	8950	2290	721	1300	204
23	122	485	1920	972	4470	4530	1030	9190	2120	652	1100	231
24	118	478	1930	965	4390	7160	992	8810	1920	604	850	222
25	116	466	2060	955	4220	7640	949	8090	1760	573	700	200
26	112	429	2970	943	4000	7160	905	6770	1630	531	558	177
27	108	1710	5720	933	3820	7450	867	5790	1560	485	461	159
28	108	3580	8090	923	3650	6770	826	5130	1490	440	360	151
29	129	4120	7240	907	---	6050	803	4730	1480	398	278	144
30	159	3310	6070	881	---	5590	780	4450	1630	360	226	132
31	197	---	5370	853	---	5170	---	4340	---	325	193	---
TOTAL	3840	22475	88110	61828	134500	140950	58892	87262	95380	30469	20623	5746
MEAN	124	749	2842	1994	4804	4547	1963	2815	3179	983	665	192
MAX	239	4120	8090	5810	6680	7640	4720	9190	6100	2380	1400	268
MIN	56	189	1020	853	1580	3110	780	521	1480	325	193	132
AC-FT	7620	44580	174800	122600	266800	279600	116800	173100	189200	60440	40910	11400
CAL YR 1982	TOTAL	447623	MEAN	1226	MAX	9910	MIN	56	AC-FT	887900		
WTR YR 1983	TOTAL	750075	MEAN	2055	MAX	9190	MIN	56	AC-FT	1488000		

## NECHES RIVER BASIN

243

08033300 PINEY CREEK NEAR GROVETON, TX

LOCATION.--Lat 31°08'25", long 95°05'11", Trinity County, Hydrologic Unit 12020002, on left bank at downstream side of bridge on State Highway 94, 6.3 mi northeast of Groveton, and 7.3 mi upstream from Caney Creek.

DRAINAGE AREA.--79.0 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 251.40 ft 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.--22 years, 39.5 ft<sup>3</sup>/s (6.79 in/yr), 28,620 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,480 ft<sup>3</sup>/s Apr. 20, 1979 (gage height, 15.70 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1921, 17 ft in May 1942, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 550 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 28	0500	669	11.76	Mar. 24	1400	1,120	12.72
Feb. 1	1500	1,810	13.26	May 22	0700	*2,410	13.60
Feb. 6	1500	711	11.89	June 7	1700	728	11.94
Feb. 10	2000	609	11.49				

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	.00	8.0	152	1270	11	21	1.6	6.6	3.3	.37	3.6		
2	.00	.00	7.1	425	1220	9.6	13	1.5	5.7	2.7	.37	4.5		
3	.00	.33	33	205	724	8.5	9.0	1.6	4.5	2.3	.66	4.5		
4	.00	.15	35	80	174	10	7.0	1.5	3.6	2.0	.70	4.4		
5	.00	.02	16	42	257	126	6.0	1.4	3.0	1.8	.68	3.8		
6	.00	.00	10	28	682	129	5.0	1.3	238	1.6	.68	2.7		
7	.00	.00	6.0	21	533	65	4.5	1.2	659	1.4	.63	2.1		
8	.00	.00	4.1	18	292	29	4.0	1.2	409	1.3	11	1.9		
9	.00	.00	3.1	16	134	16	3.6	1.0	56	1.2	23	1.8		
14	.00	.00	8.7	6.9	39	5.2	2.5	3.2	4.6	.77	27	3.7		
15	.00	.00	94	6.3	29	4.7	2.4	2.4	10	.79	13	3.1		
16	.00	.00	59	5.8	22	4.7	2.3	2.3	80	1.2	4.5	1.9		
17	.00	10	27	5.4	17	4.4	2.2	2.2	35	4.5	2.7	1.3		
18	.00	15	15	5.2	14	4.1	2.2	1.8	11	2.7	12	1.1		
19	.00	50	8.7	6.0	11	3.8	2.1	8.4	6.0	1.5	43	1.1		
20	.00	30	5.8	12	10	7.9	2.1	81	4.0	2.8	58	1.1		
21	.00	10	4.4	11	258	21	2.0	844	12	2.7	70	1.1		
22	.00	3.0	3.7	8.6	394	27	2.0	1900	33	1.5	45	.90		
23	.00	1.0	3.8	7.1	235	233	1.9	996	30	1.1	17	.75		
24	.00	5.0	19	6.2	80	947	1.9	555	30	.88	9.2	.72		
25	.00	10	141	5.6	42	799	1.8	78	40	.66	6.1	.68		
26	.00	50	335	5.2	27	706	1.8	31	60	.52	4.8	.65		
27	.00	250	527	4.8	19	542	1.7	19	30	.47	4.1	.64		
28	.00	70	639	4.5	14	267	1.7	12	12	.43	3.6	.61		
29	.00	20	333	4.6	---	95	1.6	8.7	7.8	.41	3.1	.56		
30	.00	7.0	97	4.8	---	42	1.6	6.6	4.7	.40	2.9	.54		
31	.00	---	44	121	---	29	---	6.8	---	.40	2.8	---		
TOTAL	.00	531.50	2538.6	1258.5	7518	4176.4	118.6	4646.4	1846.8	45.16	476.89	55.15		
MEAN	.000	17.7	81.9	40.6	269	135	3.95	150	61.6	1.46	15.4	1.84		
MAX	.00	250	639	425	1270	947	21	1900	659	4.5	70	4.5		
MIN	.00	.00	2.7	4.5	10	3.8	1.6	1.0	3.0	.40	.37	.54		
CFSM	.000	.22	1.04	.51	3.41	1.71	.05	1.90	.78	.02	.20	.02		
IN.	.00	.25	1.20	.59	3.54	1.97	.06	2.19	.87	.02	.22	.03		
AC-FT	.00	1050	5040	2500	14910	8280	235	9220	3660	90	946	109		
CAL YR 1982	TOTAL	15812.61	MEAN	43.3	MAX	2320	MIN	.00	CFSM	.55	IN	7.45	AC-FT	31360
WTR YR 1983	TOTAL	23212.00	MEAN	63.6	MAX	1900	MIN	.00	CFSM	.81	IN	10.93	AC-FT	46040

## 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 upstream from abandoned ferry crossing, 0.8 mi upstream from Texas and New Orleans Railway Co. bridge, 1.2 mi north of Rockland, 3.2 mi downstream from Billiams Creek, and 32.4 mi upstream from Angelina River.

DRAINAGE AREA.--3,636 mi<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 National Geodetic Vertical Datum of 1929. Prior to May 23, 1973, nonrecording gage located 2,200 ft downstream at datum 3.00 ft higher. May 23, 1973, to Sept. 30, 1975, recording gage at present site at datum 3.00 ft higher.

REMARKS.--Water-discharge records good. No large diversions above station. For statement regarding regulation by upstream reservoirs, see station 08033000. Gage-height telemeter located at gage.

AVERAGE DISCHARGE.--58 years (water years 1904-61) unregulated, 2,362 ft<sup>3</sup>/s (1,711,000 acre-ft/yr); 22 years (water years 1962-83) regulated, 1,974 ft<sup>3</sup>/s (1,430,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,800 ft<sup>3</sup>/s May 6, 1944 (gage height, 35.04 ft), present site; minimum observed during period of daily records, 1.6 ft<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, present site, from information by local resident (discharge, about 62,000 ft<sup>3</sup>/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,300 ft<sup>3</sup>/s May 24 at 1700 hours (gage height, 24.56 ft); minimum daily, 59 ft<sup>3</sup>/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	218	4630	9930	2000	4660	8870	824	6940	1690	332	370
2	61	244	4780	9870	2740	4380	7940	795	6020	1750	301	408
3	62	297	5760	9810	2880	4050	7100	764	5210	1850	278	417
4	61	445	5970	10000	2860	3840	6210	717	4570	1930	266	368
5	59	643	5690	9610	3880	4240	5340	668	4140	1980	290	384
6	60	608	5340	8710	5650	4490	4590	624	4620	2010	335	363
7	61	566	4890	7630	6210	4320	4010	588	5570	1820	366	331
8	69	518	4380	6560	7240	4100	3620	563	6060	1480	457	310
9	73	474	3570	5520	8120	3890	3280	538	6310	1250	623	291
10	87	436	2610	4830	9430	3720	3010	524	6240	1130	835	302
11	118	414	2020	3650	9760	3600	2760	682	6010	1070	1010	293
12	197	379	2210	3100	10100	3500	2540	923	5700	1040	798	311
13	339	339	2650	2700	9780	3430	2350	1100	5310	1030	773	317
14	476	298	2520	2300	9090	3400	2180	1010	4840	1020	923	326
15	435	264	3820	2000	8300	3420	2020	1770	4280	1010	1380	306
16	358	237	4480	1750	7570	3500	1890	3510	3730	1020	1150	296
17	300	249	4950	1600	6960	3680	1790	2940	3320	1030	1000	282
18	246	378	4910	1550	6380	3910	1690	2000	3100	1020	950	282
19	214	476	4540	1550	5800	4160	1580	2370	2990	970	900	303
20	192	700	4160	1560	5250	4540	1490	4490	2870	881	1500	407
21	173	1250	3710	1550	5640	5040	1410	9840	2780	821	2000	596
22	158	1270	3130	1540	6250	5130	1400	12100	2680	803	2500	559
23	150	1490	2720	1530	6530	6130	1560	14200	2520	777	2000	463
24	144	1260	2490	1500	6630	8580	1320	16100	2330	722	1600	378
25	137	984	2780	1470	6170	9200	1200	15900	2310	655	1450	348
26	131	884	6570	1420	5660	10500	1120	14800	2230	601	1350	311
27	128	2400	8020	1380	5220	11100	1050	13500	2000	559	1230	274
28	126	3790	8890	1340	4910	11000	956	12100	1840	514	1090	247
29	138	4350	8920	1400	---	10700	904	10600	1750	462	808	224
30	161	4550	9350	1580	---	10200	858	9220	1670	413	528	214
31	207	---	9460	1540	---	9690	---	7910	---	370	387	---
TOTAL	5183	30411	149920	120480	177010	176100	86038	163670	119940	33678	29410	10281
MEAN	167	1014	4836	3886	6322	5681	2868	5280	3998	1086	949	343
MAX	476	4550	9460	10000	10100	11100	8870	16100	6940	2010	2500	596
MIN	59	218	2020	1340	2000	3400	858	524	1670	370	266	214
AC-FT	10280	60320	297400	239000	351100	349300	170700	324600	237900	66800	58330	20390
CAL YR 1982	TOTAL	684953	MEAN	1877	MAX	12400	MIN	56	AC-FT	1359000		
WTR YR 1983	TOTAL	1102121	MEAN	3020	MAX	16100	MIN	59	AC-FT	2186000		

## NECHES RIVER BASIN

245

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 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
NOV 18...	1430	362	185	6.9	14.5	65	50	9.8	96	1.2	38
FEB 09...	1650	8210	107	5.8	9.5	100	31	12.6	111	1.9	22
MAR 23...	1020	5220	170	6.6	12.0	60	25	10.2	95	2.0	32
APR 28...	1440	946	220	6.9	19.5	45	24	9.1	99	1.2	41
JUN 09...	1405	6320	126	6.6	23.0	100	30	6.7	78	1.8	26
AUG 26...	1005	1360	147	6.6	28.0	120	31	6.6	84	1.3	31

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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 18...	22	9.4	3.4	19	1.4	4.4	16	29	28	<.10	17
FEB 09...	15	5.6	2.0	11	1.0	2.5	7.0	26	15	<.10	9.6
MAR 23...	22	7.3	3.3	18	1.4	3.4	10	29	28	<.10	9.6
APR 28...	21	9.0	4.6	23	1.6	3.3	20	31	31	.10	13
JUN 09...	10	6.4	2.5	12	1.1	2.6	16	21	14	<.10	9.7
AUG 26...	15	7.7	2.9	14	1.1	3.2	16	24	18	.20	12

DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, 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)
NOV 18...	121	22	20	.05	.050	.10	.080	.82	.90	.080	7.0
FEB 09...	76	33	18	--	.020	<.10	.090	.81	.90	.080	16
MAR 23...	105	24	19	--	.020	<.10	.180	.72	.90	.060	13
APR 28...	127	26	<1	.18	.020	.20	.130	.77	.90	.080	8.2
JUN 09...	78	39	2	.06	.040	.10	.140	.86	1.00	.100	14
AUG 26...	92	35	20	.14	.060	.20	.110	1.5	1.60	.070	15



## NECHES RIVER BASIN

08033500 NECHES RIVER NEAR ROCKLAND, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 18...	1430	1	71	<1	<10	2	890
AUG 26...	1005	<1	48	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)
NOV 18...	1	75	<.1	<1	<1	14
AUG 26...	1	19	<.1	<1	1	6

## NECHES RIVER BASIN

247

08033600 BOWLES CREEK NEAR SELMAN CITY, TX  
(Reconnaissance 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 1982 TO SEPTEMBER 1983

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
OCT 04...	1120	.01	552	6.0	24.5	90	82	22	8.6
DEC 02...	0835	5.0	787	6.5	18.5	61	56	15	5.7
27...	1300	326	189	5.8	11.0	18	13	4.9	1.5
FEB 10...	1145	63	217	6.7	11.5	31	18	9.0	2.0
MAR 28...	1218	10	504	6.2	14.0	48	35	12	4.4
MAY 02...	1210	3.6	816	6.3	22.0	84	56	22	7.0
JUN 14...	1200	3.0	869	6.4	24.0	75	62	18	7.2
JUL 26...	0930	.92	5090	5.8	25.5	240	230	61	21
SEP 02...	1150	.46	1330	6.4	24.5	67	1	16	6.5
		SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)
DATE	SODIUM, DIS- SOLVED (MG/L AS NA)								
OCT 04...	68	3.2	3.8	8.0	43	140	.20	22	312
DEC 02...	130	7.5	5.0	5.0	29	210	.10	21	419
27...	28	2.9	2.9	5.0	18	42	<.10	8.2	108
FEB 10...	29	2.4	2.5	13	22	47	<.10	11	130
MAR 28...	72	4.7	3.0	13	26	130	.10	19	274
MAY 02...	120	5.9	3.4	28	34	210	.20	24	437
JUN 14...	130	6.8	3.1	13	19	240	.10	23	448
JUL 26...	940	27	5.6	11	19	1600	.20	19	2670
SEP 02...	230	13	3.1	66	15	360	.30	19	689

## NECHES RIVER BASIN

08033800 STRIKER CREEK RESERVOIR NEAR NEW SALEM, TX

LOCATION.--Lat 31°56'02", long 94°58'33", Rusk County, Hydrologic Unit 12020004, at dam off Farm Road 837 and 1 mi west of New Salem.

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
FEB 07...	1310	370	11.0	46	43	10	5.1	48

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
FEB 07...	3.2	3.1	3.0	39	78	<.10	16	201

## NECHES RIVER BASIN

249

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 downstream from Everett Branch, 0.9 mi upstream from Reagan Branch, 3.5 mi north of Cushing, and 8 mi upstream from Angelina River.

DRAINAGE AREA.--158 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 275.29 ft 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.--19 years, 114 ft<sup>3</sup>/s (9.80 in/yr), 82,590 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,500 ft<sup>3</sup>/s Apr. 12, 1980 (gage height, 13.34 ft), from rating curve extended above 4,600 ft<sup>3</sup>/s on basis of area-velocity study; minimum, 0.7 ft<sup>3</sup>/s Aug. 14, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,350 ft<sup>3</sup>/s (revised) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 28	0200	1,960	10.30	Feb. 22	0300	1,800	10.28
Jan. 31	2100	3,920	10.82	May 22	0600	3,680	10.76
Feb. 6	0500	*4,200	10.89	June 6	1800	1,720	10.17
Feb. 10	2100	1,420	10.10				

Minimum discharge, 8.7 ft<sup>3</sup>/s Oct. 2

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	38	128	258	1720	158	186	70	177	70	26	45
2	9.1	47	111	361	1100	151	151	68	135	60	25	30
3	9.3	158	382	348	660	146	129	77	114	56	33	28
4	9.6	122	946	240	302	175	120	79	104	53	91	27
5	9.3	66	899	184	964	364	132	62	95	51	77	26
6	9.6	48	631	165	2850	367	139	55	842	59	52	25
7	15	42	299	156	1050	234	133	52	983	57	60	24
8	33	38	149	150	673	158	131	51	610	48	422	26
9	36	36	122	145	609	139	120	48	221	44	250	25
10	40	35	118	137	995	128	110	47	127	42	160	30
11	34	34	267	127	1030	120	103	84	108	42	100	50
12	43	34	458	118	662	117	97	139	99	39	85	38
13	75	35	503	112	392	116	99	92	91	41	75	33
14	49	33	312	110	240	116	106	68	88	46	65	30
15	31	33	520	107	202	114	103	67	109	49	55	27
16	27	32	831	103	181	111	88	135	171	54	52	26
17	23	45	615	101	166	110	83	116	158	53	50	25
18	21	77	281	101	156	107	81	84	101	48	48	25
19	20	72	165	120	149	103	78	544	89	53	60	33
20	21	136	137	177	145	139	75	2230	82	45	50	44
21	23	113	124	156	642	160	76	2970	75	45	45	39
22	21	76	119	129	1590	121	79	2800	78	71	40	33
23	20	94	122	121	980	270	126	1320	76	44	37	28
24	20	124	283	112	688	640	126	716	72	38	35	25
25	19	93	414	119	410	638	90	344	73	35	32	24
26	19	75	640	116	226	518	76	175	78	33	32	23
27	19	319	1580	109	184	516	71	149	81	31	30	23
28	20	464	1640	102	168	394	72	133	70	30	29	23
29	62	597	870	101	---	200	72	121	73	29	28	23
30	101	295	589	97	---	179	69	114	92	28	27	22
31	55	---	295	826	---	222	---	149	---	27	27	---
TOTAL	903.4	3411	14550	5308	19134	7031	3121	13159	5272	1421	2198	880
MEAN	29.1	114	469	171	683	227	104	424	176	45.8	70.9	29.3
MAX	101	597	1640	826	2850	640	186	2970	983	71	422	50
MIN	9.1	32	111	97	145	103	69	47	70	27	25	22
CFSM	.18	.72	2.97	1.08	4.32	1.44	.66	2.68	1.11	.29	.45	.19
IN.	.21	.80	3.43	1.25	4.50	1.66	.73	3.10	1.24	.33	.52	.21
AC-FT	1790	6770	28860	10530	37950	13950	6190	26100	10460	2820	4360	1750
CAL YR 1982	TOTAL	53690.5	MEAN	147	MAX	2500	MIN	7.8	CFSM	.93	IN	12.64
WTR YR 1983	TOTAL	76388.4	MEAN	209	MAX	2970	MIN	9.1	CFSM	1.32	IN	17.98
									AC-FT	106500	AC-FT	151500

## NECHES RIVER BASIN

## 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 north of Whitehouse Dam on Prairie Creek, 3.0 mi northwest of Mud Creek, and 3.2 mi northeast of Whitehouse.

DRAINAGE AREA.--107 mi<sup>2</sup>. Prior to May 29, 1968, 45.3 mi<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 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 wide near left end of dam. Mud Creek Dam is a rolled earthfill dam with an uncontrolled concrete spillway 300 ft wide near center of dam. On May 29, 1968, the lakes were joined through an interconnecting canal. An 18-inch 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 Feb. 3, 1975 (elevation, 376.71 ft); maximum elevation, 378.3 ft Apr. 24, 1966, prior to adjoining of lakes; minimum contents since joining of lakes, 63,100 acre-ft Nov. 13, 1978 (elevation, 371.44 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 85,550 acre-ft Mar. 5 at 0400 hours (elevation, 376.35 ft); minimum, 69,380 acre-ft Oct. 28 (elevation, 372.90 ft).

## 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 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70810	70810	73650	79140	80770	81490	81580	80860	81200	82260	79240	76780
2	70630	71610	74060	79240	80770	81490	81490	80960	81200	81880	79050	76640
3	70490	71660	74880	79240	80820	81630	81490	80910	81150	81580	78860	76460
4	70450	71610	75160	79330	81060	85400	81490	80910	81150	81390	79000	76320
5	70400	71570	75350	79380	82510	84560	81490	80820	81010	81390	78910	76180
6	70270	71480	75440	79430	82560	83530	81390	80670	82310	81340	78860	76040
7	70720	71430	75490	79530	82220	82900	81290	80670	82120	81060	78950	75900
8	70720	71390	75530	79570	82070	82410	81250	80630	81880	80960	78860	75720
9	70900	71390	75530	79620	82850	82020	81150	80530	81630	80860	78910	75720
10	70720	71340	75850	79670	82990	81830	81250	80390	81390	80670	78860	75620
11	70630	71300	76360	79720	82610	81580	81200	80820	81340	80670	78720	75490
12	70720	71250	76550	79720	82220	81580	81200	80860	81200	80630	78670	75440
13	70670	71160	76640	79720	82070	81540	81390	80860	81060	80530	78480	75250
14	70630	71070	76730	79720	81880	81540	81290	80910	81060	80390	78390	75160
15	70490	70980	76830	79720	81780	81540	81200	80910	80960	80390	78340	75020
16	70450	70980	76830	79720	81680	81440	81150	80910	80910	80580	78240	74930
17	70270	71030	76880	79720	81540	81250	81100	80910	80860	80580	78060	74790
18	70270	71030	76880	79720	81540	81200	81150	81490	80770	80580	77870	74840
19	70180	71210	76880	79960	81390	81390	81060	81680	80720	80530	77820	74790
20	70180	71210	76920	80000	82120	81390	81010	83530	80720	80430	77770	74560
21	70040	71210	76920	80000	82900	81340	80910	83770	80670	80530	77680	74380
22	70000	71300	76970	80000	82700	81340	81010	83190	80630	80530	77580	74240
23	69820	71390	77110	80050	82360	81680	80910	82610	80630	80390	77490	74060
24	69730	71390	77250	80100	82120	81680	80910	82220	80720	80240	77400	73920
25	69690	71250	77300	80200	81920	81630	80910	81970	81060	80150	77350	73880
26	69600	72060	77580	80200	81730	82120	80860	81780	81290	80000	77250	73830
27	69470	73290	78530	80200	81630	82020	80860	81580	81390	79860	77160	73650
28	70670	73470	78760	80200	81580	81880	80860	81390	81200	79670	77020	73650
29	70810	73560	78860	80240	---	81780	80860	81290	82900	79530	76920	73560
30	70810	73650	78950	80290	---	81920	80820	81200	82700	79480	76880	73420
31	70810	---	79000	80670	---	81830	---	81340	---	79330	76690	---
MAX	70900	73650	79000	80670	82990	85400	81580	83770	82900	82260	79240	76780
MIN	69470	70810	73650	79140	80770	81200	80820	80390	80630	79330	76690	73420
(+)	373.22	373.85	375.00	375.35	375.54	375.59	375.38	375.49	375.77	375.07	374.51	373.80
(+)	-90	+2840	+5350	+1670	+910	+250	-1010	+520	+1360	-3370	-2640	-3270
(++)	1110	896	928	893	826	930	983	818	968	1330	1410	1240

CAL YR 1982 MAX 80660 MIN 69470 \* +9220 ++ 13413  
WTR YR 1983 MAX 85400 MIN 69470 \* +2520 ++ 12332

† 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

251

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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
FEB 10...	1010	105	8.5	29	8	7.0	2.8	8.1

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
FEB 10...	.7	2.7	21	11	13	.10	11	68

## NECHES RIVER BASIN

08036500 ANGELINA RIVER NEAR ALTO, TX

LOCATION.--Lat 31°40'10", long 94°57'24", Nacogdoches-Cherokee County line, Hydrologic Unit 12020004, near center of rectified channel at downstream side of pier of bridge on State Highway 21, 0.4 mi upstream from Allen Creek, 1.5 mi upstream from Bingham Creek, 7.5 mi east of Alto, and 149.3 mi upstream from mouth.

DRAINAGE AREA.--1,276 mi<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 and crest-stage gage. Datum of gage is 204.30 ft National Geodetic Vertical Datum of 1929. May 9, 1940, to Mar. 31, 1949, nonrecording gage on bridge at natural channel 1,400 ft to right at same datum. Feb. 18 to Sept. 15, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good. No large diversion above station. Flow partly regulated since May 1957 by Lake Striker 35.5 mi upstream and by Lake Tyler 69.9 mi upstream since January 1949 (combined capacity, 110,700 acre-ft). Recording rain gage at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--25 years (water years 1943, 1960-83), 785 ft<sup>3</sup>/s (568,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,600 ft<sup>3</sup>/s Apr. 28, 1966 (gage height, 21.51 ft), but may have been higher during period of no gage-height record in November 1940); minimum, 2.0 ft<sup>3</sup>/s Aug. 14, 15, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1905, about 22 ft in May 1908, from information by local residents. Flood in 1932 reached a stage of 21.5 ft, and flood in May 1958 reached a stage of 20.3 ft, from floodmarks and information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,180 ft<sup>3</sup>/s Feb. 9 at 0300 to 0500 hours (gage height, 18.49 ft); minimum daily, 31 ft<sup>3</sup>/s Oct. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	179	1270	4730	3230	3160	2590	305	2380	478	77	125
2	33	234	1440	4220	2660	2910	2510	293	1840	503	74	120
3	32	288	1610	3740	3470	2600	2430	296	1400	563	81	115
4	32	286	1670	3250	4400	2310	2320	299	1030	594	131	110
5	31	351	1690	2890	4990	2180	2160	290	747	595	108	100
6	31	422	1720	2540	5370	1940	1910	283	1720	619	128	95
7	36	428	1850	2130	5710	1960	1600	257	1990	688	163	90
8	41	361	2020	1740	7530	2480	1280	228	1640	786	146	86
9	43	292	2080	1360	8030	3160	1040	208	1840	718	128	82
10	56	257	2030	1060	7290	3760	885	192	2290	523	202	78
11	71	231	1930	850	6530	3910	782	234	2670	340	277	74
12	81	195	1770	746	6460	3690	715	315	2830	238	345	72
13	87	155	1580	682	6970	3270	665	399	2820	193	377	83
14	80	130	1500	632	6900	2870	632	519	2630	166	340	82
15	84	119	1720	586	6140	2440	595	618	2270	160	300	76
16	94	115	1780	547	5060	2000	611	622	1800	167	270	98
17	81	124	1820	520	4380	1630	683	549	1220	185	250	106
18	66	128	1800	501	3640	1340	693	540	748	211	270	106
19	59	157	1760	520	3100	1120	595	1150	587	254	270	110
20	56	342	1680	619	2720	1020	507	1850	564	266	250	128
21	53	399	1540	685	2910	936	462	2570	519	233	220	128
22	51	405	1350	746	2810	865	428	3310	388	229	200	134
23	51	423	1150	810	2690	1110	406	4090	315	195	180	133
24	51	411	1040	833	2940	1610	392	5770	294	204	160	127
25	52	387	1360	820	3410	1560	397	6570	290	183	150	123
26	52	364	1800	792	3650	1860	414	6230	282	141	140	119
27	53	722	2450	752	3600	2160	387	5330	306	119	130	114
28	52	1020	2840	720	3400	2380	349	4620	393	107	120	106
29	67	1080	3550	695	---	2530	325	3840	504	96	110	101
30	80	1140	4360	664	---	2600	314	3280	541	87	110	98
31	107	---	4860	1290	---	2640	---	2850	---	82	120	---
TOTAL	1797	11145	61020	42670	129990	70001	29077	57907	38848	9923	5827	3119
MEAN	58.0	372	1968	1376	4643	2258	969	1868	1295	320	188	104
MAX	107	1140	4860	4730	8030	3910	2590	6570	2830	786	377	134
MIN	31	115	1040	501	2660	865	314	192	282	82	74	72
AC-FT	3560	22110	121000	84640	257800	138800	57670	114900	77050	19680	11560	6190
(††)	5.42	6.55	7.17	5.33	4.63	4.88	.23	9.14	3.52	1.75	5.26	2.93

CAL YR 1982 TOTAL 258921 MEAN 709 MAX 7910 MIN 31 AC-FT 513600 †† 39.60  
WTR YR 1983 TOTAL 461324 MEAN 1264 MAX 8030 MIN 31 AC-FT 915000 †† 56.81

†† Rainfall, in inches.

## NECHES RIVER BASIN

253

## 08036700 LAKE NACOGDOCHES NEAR NACOGDOCHES, TX

LOCATION.--Lat 31°35'19", long 94°49'31", Nacogdoches County, Hydrologic Unit 12020004, at upstream side of dam on Bayou Loco near service outlet tower and 10 mi west of Nacogdoches.

DRAINAGE AREA.--87.9 mi<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 cut through natural ground located near the right end of dam. There is an uncontrolled drop inlet with a 20.5-foot-diameter top opening that is connected to an 8- by 7-foot conduit that extends through the dam. A separate multi-gated inlet tower is connected to a valve box by a 30-inch conduit through the dam. The valve box directs water to a purification plant. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	303.0	-
Top of design flood.....	298.5	102,900
Crest of spillway.....	286.0	59,570
Crest of drop inlet (top of conservation pool).....	279.0	42,320
Lowest gated outlet (invert of 30 in conduit).....	238.25	254

COOPERATION.--The capacity table, furnished by the city of Nacogdoches, is based on Geological Survey topographic maps dated 1952.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 53,550 acre-ft June 3, 1979 (elevation, 283.76 ft); minimum since first appreciable storage, 20,540 acre-ft Nov. 26, 1977 (elevation, 266.62 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents estimated, 49,610 acre-ft May 22 at 1000 hours (elevation, about 282.19 ft); minimum estimated, 38,400 acre-ft Oct. 28 (estimated elevation, 277.13 ft).

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

277.0	38,140	281.0	47,770
279.0	42,320	283.0	51,600

CONTENTS, IN ACRE-WATER, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38610	38800	42040	44180	45490	43060	43150	42040	42860	42110	41110	41720
2	38590	38800	42170	44220	44770	42970	43080	42040	42710	42020	41040	41680
3	38570	39000	43520	43940	44220	42860	43000	42020	42620	41980	41280	41640
4	38550	39210	43940	43700	44070	43130	42950	42020	42580	41940	41300	41570
5	38510	39250	43720	43430	47450	43520	42820	41980	42470	41890	41300	41550
6	38490	39310	43460	43300	47350	43430	42760	41910	46790	41890	41300	41470
7	38630	39310	43260	43240	46110	43300	42730	41890	46300	41830	41490	41450
8	38650	39290	42970	43130	45160	43150	42670	41870	45160	41770	41720	41340
9	38670	39250	42800	43000	45350	42860	42600	41830	44440	41700	41830	41340
10	38670	39210	42760	42840	45910	42800	42560	41830	43850	41680	41870	41300
11	38690	39190	43060	42690	45130	42670	42560	42110	43520	41600	41910	41340
12	38710	39170	43320	42620	44460	42620	42540	42130	43260	41680	41910	41340
13	38760	39130	43190	42580	44070	42620	42470	42110	43080	41640	41870	41280
14	38800	39080	43320	42430	43810	42540	42430	42110	42930	41640	41830	41240
15	38800	39000	44330	42430	43610	42560	42340	42670	42760	41640	41770	41150
16	38760	39040	44070	42360	43410	42430	42320	42800	42670	41640	41720	41150
17	38710	39100	43780	42360	43240	42380	42320	42710	42580	41640	41680	41150
18	38670	39170	43560	42320	43080	42360	42320	42970	42510	41550	42000	41280
19	38630	39210	43260	42320	43040	42300	42230	44070	42430	41510	42130	41280
20	38590	39370	43080	42380	43040	42280	42170	47840	42320	41510	42130	41150
21	38550	39580	42970	42410	44220	42320	42190	48930	42300	41550	42110	41150
22	38530	39780	42860	42410	44290	42320	42190	48800	42250	41530	42040	41110
23	38510	39910	43240	42410	44110	43350	42110	47810	42250	41530	41980	41040
24	38490	40030	43740	42410	43850	43940	42080	46140	42210	41490	41940	41040
25	38470	40150	43740	42430	43610	43780	42110	44960	42210	41380	41870	41040
26	38450	40300	45420	42300	43390	44110	42060	44240	42170	41360	41810	41020
27	38430	41110	47450	42320	43240	44020	42060	43810	42110	41320	41770	41000
28	38410	41960	46690	42320	43080	43740	42060	43500	42110	41280	41700	41000
29	38550	42020	45520	42280	---	43630	42040	43240	42170	41260	41660	41000
30	38670	42020	44670	42230	---	43520	42040	43060	42110	41210	41600	40980
31	38800	---	44200	44160	---	43460	---	42970	---	41170	41550	---
MAX	38800	42020	47450	44220	47450	44110	43150	48930	46790	42110	42130	41720
MIN	38410	38800	42040	42230	43040	42280	42040	41830	42110	41170	41040	40980
(†)	277.32	278.86	279.86	279.84	279.35	279.52	278.87	279.30	278.90	278.46	278.64	278.37
(‡)	+150	+3220	+2180	-40	-1080	+380	-1420	+930	-860	-940	+380	-570
(††)	285	248	271	246	229	224	238	263	255	254	302	283

CAL YR 1982 MAX 50120 MIN 38410 ‡ +3130 †† 3458  
WTR YR 1983 MAX 48930 MIN 38410 ‡ +2330 †† 3118

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, by the city of Nacogdoches.

NOTE.--No elevation record Oct. 8 to Nov. 29.

## 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 upstream from mouth.

DRAINAGE AREA.--31.3 mi<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 National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--19 years, 31.2 ft<sup>3</sup>/s (13.54 in/yr), 22,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft<sup>3</sup>/s June 2, 1979 (gage height, 22.18 ft), from rating curve extended above 2,800 ft<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 and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 27	1430	1,880	15.78	Feb. 5	2000	1,180	13.67
Dec. 2	2400	1,520	14.89	May 21	2100	*1,920	15.87
Dec 27	1030	1,310	14.21	June 6	1430	1,680	15.29

Minimum discharge, 0.10 ft<sup>3</sup>/s Oct. 1, 2, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	10	36	157	232	29	36	6.8	22	10	.90	5.3
2	.12	200	417	124	49	28	29	5.9	19	8.0	.84	1.4
3	.14	100	679	67	33	27	28	7.2	17	7.0	38	1.2
4	.13	50	141	54	29	114	32	5.3	16	6.0	15	1.1
5	.11	25	136	47	625	143	40	4.9	16	18	5.5	1.0
6	1.7	17	63	42	215	50	31	4.8	822	12	3.4	.96
7	4.1	12	47	40	77	37	28	4.7	92	6.9	16	.92
8	13	9.0	39	38	58	31	27	4.7	45	4.5	37	.88
9	16	7.5	34	35	239	27	26	4.7	32	4.2	8.7	.84
10	4.9	6.0	64	32	289	25	24	5.8	26	3.8	10	.82
11	1.7	5.0	279	29	77	23	23	66	23	3.4	4.1	.80
12	29	6.1	130	26	59	23	22	17	20	3.0	3.2	.78
13	11	5.1	62	25	49	22	35	8.5	18	3.0	2.5	.76
14	3.4	4.9	86	24	44	21	27	7.2	16	3.4	2.1	.74
15	1.9	4.6	406	22	40	21	22	145	124	5.1	2.4	.72
16	1.2	7.9	82	21	36	20	20	50	29	5.5	2.0	.70
17	.79	51	56	21	34	19	18	20	19	3.8	1.7	.70
18	.65	22	47	20	30	18	17	58	20	5.5	3.7	4.3
19	.61	152	39	44	29	18	16	166	16	12	6.8	3.6
20	3.4	55	34	48	33	41	15	1160	14	4.0	2.7	17
21	1.2	27	32	31	440	23	14	824	16	8.2	1.8	2.7
22	1.0	21	31	28	144	19	13	374	17	4.5	1.6	1.0
23	.67	23	68	25	70	307	12	75	14	2.7	1.6	.85
24	.78	24	91	23	54	153	11	50	12	2.1	1.5	.78
25	.76	16	81	23	43	59	10	39	10	1.8	1.5	.72
26	.70	26	706	22	37	189	9.5	32	45	1.6	1.4	.68
27	.70	976	914	21	34	75	8.5	28	16	1.3	1.4	.65
28	10	144	168	20	32	48	8.0	24	12	1.1	1.5	.62
29	100	59	77	20	---	40	6.9	21	25	1.0	1.4	.60
30	50	40	59	19	---	49	7.0	18	14	.91	1.3	.58
31	20	---	59	84	---	42	---	33	---	.92	1.2	---
TOTAL	279.78	2106.1	5163	1232	3131	1741	615.9	3270.5	1587	155.23	182.74	53.70
MEAN	9.03	70.2	167	39.7	112	56.2	20.5	106	52.9	5.01	5.89	1.79
MAX	100	976	914	157	625	307	40	1160	822	18	38	17
MIN	.11	4.6	31	19	29	18	6.9	4.7	10	.91	.84	.58
CFSM	.29	2.24	5.34	1.27	3.58	1.80	.66	3.39	1.69	.16	.19	.06
IN.	.33	2.50	6.14	1.46	3.72	2.07	.73	3.89	1.89	.18	.22	.06
AC-FT	555	4180	10240	2440	6210	3450	1220	6490	3150	308	362	107
CAL YR 1982	TOTAL	17030.78	MEAN	46.7	MAX	1430	MIN	.10	CFSM	1.49	IN	20.24
WTR YR 1983	TOTAL	19517.95	MEAN	53.5	MAX	1160	MIN	.11	CFSM	1.71	IN	23.20
									AC-FT	33780	AC-FT	.38710

## 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 upstream from Amaladeros Creek, 2.8 mi east of Chireno, 5.4 mi downstream from Arenoso Creek, and 41 mi upstream from mouth.

DRAINAGE AREA.--503 mi<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 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. These structures control runoff from 46.7 mi<sup>2</sup>. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--44 years, 454 ft<sup>3</sup>/s (12.26 in/yr), 328,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,900 ft<sup>3</sup>/s Nov. 24, 1940 (gage height, 25.97 ft); minimum, 0.8 ft<sup>3</sup>/s Aug. 26, 27, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1865, 29.9 ft June 29, 1902, from information by local residents. Flood in July 1933 reached a stage of 25.2 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft<sup>3</sup>/s and maximum(\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 6	1600	2,880	17.13	Feb. 11	1400	3,700	17.67
Dec. 16	2100	2,660	16.95	Feb. 24	1200	3,250	17.39
Dec. 29	1000	6,200	18.76	May 23	0200	*11,500	20.59

Minimum discharge, 36 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	398	1220	2480	644	1490	1400	209	1050	1650	95	117
2	38	337	1260	2340	887	1320	1240	206	776	1490	90	106
3	38	433	1620	2080	929	1060	980	203	544	1340	167	97
4	38	483	2000	1810	964	816	681	227	451	1010	460	89
5	37	432	2030	1640	1150	981	523	205	387	504	522	85
6	37	378	2650	1510	1610	1110	478	198	737	344	408	80
7	38	268	2520	1390	2150	1130	467	181	1240	365	338	77
8	47	193	2080	1280	3160	1130	465	160	1270	407	431	79
9	75	158	1790	1110	3170	1150	448	148	1440	323	417	77
10	132	140	1590	876	3320	1160	415	139	1850	244	436	92
11	262	131	1460	688	3630	1060	384	203	1660	205	484	121
12	246	124	1400	583	3080	754	356	486	1420	184	471	108
13	351	124	1310	522	2490	538	339	467	1150	168	362	118
14	269	120	1200	482	2140	476	337	389	627	169	266	111
15	172	114	1820	452	1860	453	361	319	372	185	260	101
16	139	112	2380	429	1660	437	369	332	441	233	241	89
17	106	233	2560	413	1470	422	322	525	538	243	210	81
18	88	428	2410	399	1310	407	285	615	539	244	179	78
19	78	365	2270	393	1060	390	261	685	479	305	184	93
20	73	336	1980	422	752	424	249	1200	358	386	206	168
21	70	320	1750	460	1110	522	242	2440	280	322	197	257
22	71	348	1550	506	1590	513	241	9810	250	292	186	345
23	68	338	1370	503	2010	694	245	10200	251	243	154	200
24	66	333	1180	459	3070	1200	247	5620	255	262	133	143
25	63	336	930	434	2700	1310	279	3260	244	208	120	119
26	62	295	1330	431	2230	1430	298	2460	490	166	111	106
27	60	949	1790	418	1910	1550	260	2050	824	144	105	98
28	60	1260	3000	401	1690	1810	228	1780	985	128	99	91
29	145	1290	5870	391	---	1800	217	1550	1100	117	94	88
30	336	1270	4130	392	---	1710	210	1360	1460	109	90	85
31	370	---	2840	388	---	1570	---	1230	---	102	89	---
TOTAL	3675	12046	63290	26082	53746	30817	12827	48857	23468	12092	7605	3499
MEAN	119	402	2042	841	1920	994	428	1576	782	390	245	117
MAX	370	1290	5870	2480	3630	1810	1400	10200	1850	1650	522	345
MIN	37	112	930	388	644	390	210	139	244	102	89	77
CFSM	.24	.80	4.06	1.67	3.82	1.98	.85	3.13	1.56	.78	.49	.23
IN.	.27	.89	4.68	1.93	3.97	2.28	.95	3.61	1.74	.89	.56	.26
AC-FT	7290	23890	125500	51730	106600	61130	25440	96910	46550	23980	15080	6940
CAL YR 1982	TOTAL	219289	MEAN	601	MAX	11400	MIN	31	AC-FT	435000		
WTR YR 1983	TOTAL	298004	MEAN	816	MAX	10200	MIN	37	AC-FT	445000		



## 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 upstream from Turkey Creek, and 9.5 mi south of San Augustine.

DRAINAGE AREA.--89.0 mi<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 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.--24 years (water years 1960-83), 83.6 ft<sup>3</sup>/s (12.76 in/yr), 60,570 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,200 ft<sup>3</sup>/s Sept. 14, 1978 (gage height, 18.02 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Between October 1957 and February 1959, the maximum discharge was 15,900 ft<sup>3</sup>/s Sept. 21 or 22, 1958 (gage height, 17.5 ft, from floodmarks).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft<sup>3</sup>/s (revised) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	0300	2,100	12.39	Feb. 10	0600	3,170	13.06
Dec. 15	1600	3,560	13.25	Mar. 24	0800	2,290	12.39
Dec. 26	1400	2,950	12.93	May 20	2200	*3,650	13.29
Jan. 2	0700	1,720	12.14	May 22	0700	3,100	13.02

Minimum discharge, 0.97 ft<sup>3</sup>/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP				
1	1.5	31	390	465	250	116	128	28	87	26	7.6	11				
2	1.3	40	337	1300	184	107	106	27	66	20	6.9	10				
3	1.2	230	479	757	110	101	90	26	54	17	14	9.2				
4	1.1	146	871	314	89	113	84	30	46	15	126	7.9				
5	1.0	69	342	225	164	381	95	24	41	14	199	7.1				
6	1.3	48	172	193	579	290	97	21	253	15	85	6.5				
7	1.7	39	131	1,75	269	154	99	18	797	14	42	6.2				
8	2.4	33	112	166	159	121	89	18	211	11	84	6.3				
9	5.4	29	98	153	279	105	82	17	88	8.5	43	7.3				
10	118	26	94	139	2140	92	72	16	65	7.4	27	12				
11	75	24	195	120	850	84	65	90	52	6.7	25	12				
12	283	24	359	103	305	80	61	260	45	5.9	23	9.2				
13	717	29	190	94	197	77	61	81	39	5.2	19	8.3				
14	306	24	168	90	167	75	66	51	35	5.5	17	8.2				
15	58	21	1840	86	147	73	55	241	34	12	326	7.1				
16	37	19	1320	83	132	69	49	352	76	17	142	6.2				
17	26	143	563	78	118	66	45	115	50	24	50	5.5				
18	20	309	235	76	108	63	43	68	41	21	33	5.3				
19	17	142	181	75	104	59	41	100	36	14	34	6.4				
20	16	148	146	90	99	152	38	1330	29	12	38	21				
21	15	101	130	102	424	178	37	2510	25	59	27	79				
22	13	75	121	87	1540	92	39	2430	28	78	21	34				
23	12	64	115	78	945	289	43	1010	39	38	18	16				
24	11	83	132	76	338	1470	39	356	31	25	15	11				
25	9.9	102	353	79	206	822	34	156	29	19	14	8.5				
26	9.2	68	1920	94	162	375	30	114	40	15	14	7.3				
27	9.0	398	2160	81	139	813	28	94	48	13	12	6.7				
28	9.2	1400	1650	70	128	319	28	79	32	11	10	6.2				
29	59	583	785	69	---	175	29	67	28	10	9.1	5.9				
30	105	191	321	69	---	149	27	58	33	9.2	8.4	5.6				
31	49	---	237	73	---	150	---	72	---	8.4	8.4	---				
TOTAL	1991.2	4639	16147	5660	10332	7210	1800	9859	2478	556.8	1498.4	352.9				
MEAN	64.2	155	521	183	369	233	60.0	318	82.6	18.0	48.3	11.8				
MAX	717	1400	2160	1300	2140	1470	128	2510	797	78	326	79				
MIN	1.0	19	94	69	89	59	27	16	25	5.2	6.9	5.3				
CFSM	.72	1.74	5.85	2.06	4.15	2.62	.67	3.57	.93	.20	.54	.13				
IN.	.83	1.94	6.75	2.37	4.32	3.01	.75	4.12	1.04	.23	.63	.15				
AC-FT	3950	9200	32030	11230	20490	14300	3570	19560	4920	1100	2970	700				
(††)	10.32	6.24	8.47	2.52	4.57	4.66	.77	9.86	4.71	1.80	4.95	2.39				
CAL YR 1982	TOTAL	41360.78	MEAN	113	MAX	2160	MIN	.23	CFSM	1.27	IN	17.29	AC-FT	82040	††	57.12
WTR YR 1983	TOTAL	62524.30	MEAN	171	MAX	2510	MIN	1.0	CFSM	1.92	IN	26.13	AC-FT	124000	††	61.26

†† 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 northwest of Jasper, and 25.2 mi upstream from mouth.

DRAINAGE AREA.--3,449 mi<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.

REMARKS.--The reservoir is formed by a rolled earthfill dam 19,430 ft long, including spillway and dikes. The dam was completed and deliberate impoundment began Mar. 29, 1965. The spillway is an uncontrolled broad-crested weir 2,200 ft wide, on right bank 7,000 ft to right of outlet works, and is designed to discharge 125,300 ft<sup>3</sup>/s at maximum flood design. The flood-control outlet works consists of two 10.0- by 20.0-foot rectangular concrete-lined conduits controlled by two 10.0- by 20.0-foot tractor-type service gates and one 10.0- by 20.0-foot tractor-type emergency gate. Water for turbines is admitted through four 18.0- by 26.0-foot penstocks and controlled by two wheeled-leaf-type headgates. The reservoir is operated for flood control and power generation. The area-capacity tables are based on topographic maps prepared by the Corps of Engineers and detailed sedimentation ranges established in 1961 and dated February 1965. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08038000. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	190.0	-
Design flood.....	183.0	5,610,000
Crest of spillway.....	176.0	4,442,400
Top of flood-control pool.....	173.0	3,997,600
Top of conservation pool (power pool).....	164.0	2,852,600
Top of power head and sediment pool.....	149.0	1,452,000
Lowest gated outlet (invert).....	105.0	21,940

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,881,000 acre-ft Feb. 7, 1974 (elevation, 172.17 ft); minimum since conservation storage was reached in 1968, 1,797,000 acre-ft Nov. 15, 1977 (elevation, 153.35 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 3,386,000 acre-ft May 31 at 2400 hours (elevation, 168.45 ft); minimum daily, 2,217,000 acre-ft Nov. 16 at 1200 hours (elevation, 157.96 ft).

## 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	169.0	3,456,000
160.0	2,421,000	166.0	3,085,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2425000	2312000	2346000	3005000	2935000	3230000	3127000	2963000	3375000	3007000	2832000	2782000
2	2418000	2321000	2366000	3026000	2933000	3222000	3092000	2964000	3365000	2992000	2830000	2778000
3	2413000	2315000	2397000	3031000	2930000	3208000	3089000	2970000	3359000	2983000	2830000	2774000
4	2407000	2299000	2413000	3035000	2929000	3215000	3080000	2969000	3349000	2978000	2827000	2759000
5	2401000	2287000	2428000	3042000	2957000	3214000	3080000	2959000	3342000	2979000	2819000	2769000
6	2399000	2277000	2440000	3042000	2967000	3211000	3073000	2952000	3380000	2970000	2814000	2759000
7	2395000	2270000	2449000	3042000	2973000	3203000	3055000	2958000	3372000	2963000	2811000	2749000
8	2392000	2263000	2463000	3062000	2985000	3189000	3044000	2956000	3357000	2952000	2805000	2753000
9	2407000	2254000	2467000	3057000	3038000	3178000	3024000	2951000	3342000	2944000	2811000	2753000
10	2418000	2252000	2486000	3047000	3080000	3157000	3011000	2949000	3329000	2936000	2814000	2748000
11	2418000	2252000	2501000	3044000	3116000	3129000	2993000	2956000	3318000	2929000	2818000	2748000
12	2424000	2243000	2503000	3022000	3146000	3109000	2980000	2959000	3304000	2923000	2815000	2743000
13	2425000	2229000	2508000	3007000	3175000	3092000	2980000	2955000	3292000	2915000	2813000	2733000
14	2421000	2232000	2530000	3001000	3195000	3073000	2976000	2957000	3282000	2915000	2813000	2724000
15	2411000	2219000	2582000	3001000	3212000	3058000	2963000	3000000	3268000	2913000	2806000	2720000
16	2413000	2219000	2606000	2974000	3220000	3048000	2956000	2991000	3258000	2910000	2804000	2713000
17	2404000	2220000	2619000	2969000	3222000	3027000	2944000	2991000	3242000	2907000	2801000	2703000
18	2395000	2220000	2638000	2963000	3222000	3012000	2941000	3014000	3233000	2903000	2801000	2709000
19	2395000	2235000	2648000	2960000	3214000	2997000	2937000	3034000	3225000	2896000	2812000	2716000
20	2392000	2239000	2657000	2959000	3236000	2999000	2937000	3101000	3201000	2890000	2812000	2739000
21	2386000	2241000	2667000	2948000	3246000	2983000	2942000	3176000	3180000	2884000	2814000	2728000
22	2383000	2249000	2676000	2944000	3258000	2965000	2952000	3230000	3163000	2880000	2810000	2723000
23	2381000	2264000	2686000	2936000	3262000	3013000	2957000	3272000	3137000	2879000	2803000	2721000
24	2377000	2262000	2695000	2936000	3266000	3033000	2957000	3302000	3120000	2879000	2801000	2718000
25	2367000	2260000	2744000	2928000	3257000	3057000	2955000	3322000	3097000	2875000	2798000	2718000
26	2355000	2266000	2779000	2937000	3255000	3076000	2956000	3337000	3085000	2868000	2792000	2718000
27	2339000	2301000	2859000	2920000	3249000	3097000	2957000	3352000	3068000	2864000	2792000	2713000
28	2331000	2307000	2906000	2910000	3240000	3093000	2958000	3363000	3054000	2856000	2792000	2707000
29	2336000	2321000	2926000	2921000	---	3093000	2963000	3367000	3041000	2849000	2785000	2705000
30	2329000	2342000	2945000	2926000	---	3108000	2960000	3372000	3024000	2846000	2779000	2701000
31	2319000	---	2973000	2926000	---	3107000	---	3386000	---	2846000	2779000	---
MAX	2425000	2342000	2973000	3062000	3266000	3230000	3127000	3386000	3380000	3007000	2832000	2782000
MIN	2319000	2219000	2346000	2910000	2929000	2965000	2937000	2949000	3024000	2846000	2779000	2701000
(+)	159.00	159.23	165.05	164.64	167.28	166.18	164.94	168.45	165.48	163.94	163.35	162.64
(-)	-110000	+23000	+631000	-47000	+314000	-133000	-147000	+426000	-362000	-178000	-67000	-78000

CAL YR 1982 MAX 2979000 MIN 1924000 † +994000  
WTR YR 1983 MAX 3386000 MIN 2219000 † +272000

† 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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	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)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)
FEB 03...	1720	154	10.5	11.0	98	28	16	5.9	3.2

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
FEB 03...	18	1.5	2.6	12	21	22	<.10	10	90

## NECHES RIVER BASIN

259

08040000 B. A. STEINHAGEN LAKE AT TOWN BLUFF, TX

LOCATION.--Lat 30°47'43", long 94°10'48", Tyler County, Hydrologic Unit 12020003, near right bank 70 ft upstream from outlet structure of Town Bluff Dam on Neches River, 0.4 mi north of Town Bluff, and at mile 113.7.

DRAINAGE AREA.--7,573 mi<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 upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam with concrete spillway sections. The total length of dam is 6,698 ft, including a concrete spillway and 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 long. A 326-foot-long gated service spillway with six 40.0- by 35.0-foot tainter gates is located near right end of dam. The capacity of the spillways at maximum flood design is 218,300 ft<sup>3</sup>/s. The capacity table is based on a survey made in 1945. Water is used for industrial, municipal, and irrigation supplies. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam (nonoverflow).....	95.0	-
Design flood.....	93.0	306,400
Crest of uncontrolled spillway (top of tainter gates).....	85.0	124,700
Top of conservation pool.....	83.0	94,200
Bottom of tainter gates (sill).....	50.0	0

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 128,400 acre-ft May 22, 1953 (elevation, 85.21 ft); no storage Sept. 18 to Oct. 13, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 104,400 acre-ft Dec. 26 at 1300 hours (elevation, 83.871ft); minimum daily, 451 acre-ft Oct. 25 (elevation, 53.00 ft).

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

52.0	20	70.0	6,800	78.0	41,830
58.0	400	72.0	10,700	80.0	59,320
64.0	2,020	74.0	17,510	82.0	81,280
68.0	4,600	76.0	27,960	84.0	108,700

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25600	37090	96320	86290	74160	79930	74730	81520	76480	88620	83130	89150
2	24690	43490	91540	90200	75310	75890	83130	80060	78130	90870	86930	89410
3	24690	49390	89020	91670	78970	70780	85010	78130	78610	93020	91940	85650
4	23150	55130	85780	91540	81770	68690	85650	75430	77660	91670	94940	81280
5	20770	59810	83750	88620	89540	69460	87840	76480	76830	91670	98000	77070
6	21430	64760	83250	88490	95630	70220	86290	75890	78730	91000	100700	80060
7	23100	71550	82140	86680	91540	69460	82260	81640	81770	89810	99850	82140
8	24080	75780	80540	73930	89150	67830	80420	80420	86680	85780	97720	82140
9	19550	79090	79330	60310	94800	67720	79090	81890	90470	84000	98850	82510
10	13300	81150	79810	61800	96320	68370	77300	82760	93980	84260	94800	86290
11	8170	77070	81890	64560	93290	69670	76130	88620	95490	84640	95630	82880
12	10700	83880	79450	64350	88490	71550	78010	89410	95770	87710	96320	83000
13	11110	86030	80540	63320	83500	73020	81640	91270	95080	91810	96040	85020
14	10510	88890	84510	65710	80060	74270	78610	90600	94110	91540	96600	92210
15	13980	92480	93700	69460	79810	74960	79210	98000	92080	92890	99140	86290
16	13470	88890	95630	69670	77540	76480	82380	98140	89280	94520	101300	86800
17	10460	87320	94520	64560	75890	77660	83130	91940	85520	90870	93570	90600
18	14120	98810	93980	64140	77540	80910	84510	85780	81770	93570	88100	90600
19	14670	91670	92350	67720	78370	82140	85910	84510	79330	96600	84890	89540
20	11800	88890	90740	68590	80420	84000	87320	93020	76710	99710	80790	90340
21	12950	86930	91140	68370	84130	85270	86160	97580	77300	102700	77660	90340
22	12760	90470	92210	68800	88490	86290	86160	95080	80060	102700	79450	90870
23	7180	94250	91540	70000	89680	93290	87580	91270	82880	98140	83880	89280
24	1340	92890	90070	69670	90470	90200	87710	88490	85400	92750	87840	87580
25	45	92210	96320	69130	90200	79930	86550	87580	88100	91000	90200	85520
26	7860	90870	100700	71000	88620	75430	85520	86290	90870	89810	91940	83500
27	11740	97300	99140	70890	86550	72230	84630	84510	90200	89410	91140	85520
28	17290	96880	89410	72110	83130	71890	82630	80540	89020	91140	88230	86800
29	22520	94940	79090	71330	---	75310	81890	77900	87840	91940	89940	87060
30	27180	98000	76600	68480	---	74500	79570	80910	87970	88230	90870	87580
31	31700	---	81890	71890	---	71330	---	79330	---	83380	87190	---
MAX	31700	98000	100700	91670	96320	93290	87840	98140	95770	102700	101300	92210
MIN	45	37090	76600	60310	74160	67720	74730	75430	76480	83380	77660	77070
(+)	76.59	83.27	82.05	81.20	82.15	81.15	81.86	81.84	82.53	82.17	82.47	82.50
(+)	+5170	+66300	-16110	-10000	+11240	-11800	+8240	-240	+8640	-4590	+3810	+390

CAL YR 1982 MAX 106400 MIN 45 † +32320  
WTR YR 1983 MAX 102700 MIN 45 † +61050

† 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 downstream from Town Bluff Dam, 0.5 mi northeast of Town Bluff, 2.5 mi upstream from Walnut Run, 8 mi downstream from Wolf Creek, and at mile 113.4.

DRAINAGE AREA.--7,573 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1951 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 21, 1953, water-stage recorder, and May 21, 1953, to Dec. 3, 1954, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow regulated by B. A. Steinhagen Lake (station 08040000) 0.3 mi upstream and by Sam Rayburn Reservoir (station 08039300) 37.9 mi upstream. Some diversions above station. Elevation telemeter at station.

AVERAGE DISCHARGE.--13 years (water years 1952-64) prior to regulation by Sam Rayburn Reservoir, 4,406 ft<sup>3</sup>/s (3,192,000 acre-ft/yr); 19 years (water years 1965-83) regulated, 4,693 ft<sup>3</sup>/s (3,400,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,900 ft<sup>3</sup>/s May 21, 22, 1953 (elevation, 82.85 ft); no flow at times due to regulation of B. A. Steinhagen Lake.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1884 reached a stage about 86.8 ft (discharge, about 120,000 ft<sup>3</sup>/s), and is the highest since that date, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,900 ft<sup>3</sup>/s May 22 at 1000 hours (elevation, 70.74 ft); minimum daily, 1,320 ft<sup>3</sup>/s May 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2680	2880	7080	9230	5390	15900	13200	2220	14600	11300	3000	2540
2	2670	2610	8310	9380	6150	15800	12800	2220	14600	10700	2990	2540
3	2670	2540	9530	11200	5830	15600	12900	2210	14600	10000	3020	2540
4	2670	2380	9390	14800	6240	15500	12900	2200	14600	8150	3130	2520
5	2650	2440	7800	15900	7410	15800	13900	2190	14600	7120	3050	2510
6	2640	2460	6250	15900	10200	15800	15700	2190	14600	7050	3020	2490
7	2650	2470	5640	15900	12800	15600	16200	2200	14800	7020	3180	2490
8	2670	2470	5600	15900	12700	15500	15500	1870	14800	6580	3930	2500
9	2660	2450	4920	15400	12800	15500	13900	1320	15200	6120	3830	2500
10	2600	2420	3500	14400	14000	15400	13700	2530	15800	5850	3500	2500
11	2510	2410	2840	12800	13400	15400	13100	2820	15100	4990	3280	2500
12	2480	2360	2890	12700	12900	15500	12100	2710	15100	4020	3230	2510
13	2530	2340	2380	12600	12700	15500	10900	2640	15100	3680	3120	2510
14	2520	2340	1790	11700	12500	15600	7830	2620	15100	3620	3050	2490
15	2530	2240	3460	9830	12400	15600	6200	3050	15000	3330	2990	2470
16	2580	2100	5600	9730	12700	15700	5510	5900	15000	3300	2780	2470
17	2530	2100	5770	8440	13900	15700	5500	7440	15000	3290	4080	2460
18	2520	2090	5720	5960	14700	15200	5510	6620	14900	3260	5460	2480
19	2570	2100	5680	5830	14900	13900	4510	5300	14500	3270	5730	2580
20	2560	2110	5450	5820	14900	13800	2500	8660	13800	3250	5130	3010
21	2530	2070	4160	5830	15100	14000	2310	17400	13700	3240	4250	2530
22	2550	1940	3320	5820	15400	14200	1970	20800	13400	3340	3270	1760
23	2510	2000	3290	5790	15600	14600	1930	18000	12900	3450	2600	1600
24	2140	1830	3570	5790	16100	16000	1920	16200	13000	3440	2580	1550
25	1340	1710	3860	5810	16100	15500	1920	15200	13000	3250	2600	1530
26	2440	1720	8470	5780	16100	14400	1920	15000	13100	3060	2620	1520
27	3400	2540	17900	5780	16000	13800	1910	14900	13100	3040	2590	1500
28	3060	4830	20700	5030	16000	13600	1900	14800	12500	3040	2580	1490
29	2970	5640	17500	3840	---	13500	1880	14700	12100	3040	2570	1490
30	2990	5480	13300	3750	---	13800	2040	14700	11900	3040	2560	1600
31	3010	---	9360	3750	---	13900	---	14700	---	3020	2540	---
TOTAL	80830	77070	215030	290390	354920	465600	234060	245310	425500	150860	102260	67180
MEAN	2607	2569	6936	9367	12680	15020	7802	7913	14180	4866	3299	2239
MAX	3400	5640	20700	15900	16100	16000	16200	20800	15800	11300	5730	3010
MIN	1340	1710	1790	3750	5390	13500	1880	1320	11900	3020	2540	1490
AC-FT	160300	152900	426500	576000	704000	923500	464300	486600	844000	299200	202800	133300
CAL YR 1982	TOTAL	1352720	MEAN	3706	MAX	20700	MIN	1340	AC-FT	2683000		
WTR YR 1983	TOTAL	2709010	MEAN	7422	MAX	20800	MIN	1320	AC-FT	5373000		



## NECHES RIVER BASIN

261

08040500 NECHES RIVER AT TOWN BLUFF, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

									OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)			
NOV 18...	1130	2080	162	7.2	15.0	30	5.0	10.6	105	.7	29
FEB 04...	1010	5770	186	7.4	10.0	25	12	12.1	106	1.2	35
MAR 18...	1159	15700	156	7.2	14.0	40	18	11.2	109	.9	28
APR 28...	1116	1900	170	7.2	19.5	50	22	10.2	111	1.2	32
JUN 09...	1020	14800	132	6.8	24.0	40	19	8.3	98	1.8	25
AUG 25...	1645	2600	136	6.6	29.5	100	27	8.4	110	1.1	27
DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
NOV 18...	11	6.3	3.3	19	1.6	3.0	18	22	24	<.10	11
FEB 04...	19	8.1	3.6	20	1.5	2.6	16	27	26	<.10	13
MAR 18...	13	6.0	3.1	17	1.4	2.8	15	23	21	<.10	10
APR 28...	16	7.3	3.4	18	1.4	2.8	16	27	23	<.10	11
JUN 09...	9	5.8	2.6	13	1.2	2.3	16	22	15	<.10	9.7
AUG 25...	7	6.7	2.5	13	1.1	2.8	20	20	15	.20	10
DATE	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, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	
NOV 18...	100	12	6	<.020	<.10	.060	.54	.60	.040	2.2	
FEB 04...	110	8	<1	<.020	<.10	.060	.74	.80	.030	5.9	
MAR 18...	92	20	9	.030	<.10	.130	.97	1.10	.040	9.6	
APR 28...	102	74	4	.020	<.10	.120	.68	.80	.050	8.9	
JUN 09...	80	23	6	<.070	<.10	.100	.70	.80	.050	8.6	
AUG 25...	82	30	15	.030	<.10	.120	.68	.80	.040	9.5	
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)				
NOV 18...	1130	1	41	<1	<10	2	57				
AUG 25...	1645	<1	46	<1	<10	3	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 18...	<1	2	<.1	<1	<1	29					
AUG 25...	5	58	<.1	<1	<1	21					

## NECHES RIVER BASIN

08041000 NECHES RIVER AT EVADALE, TX  
(National stream-quality accounting network)

LOCATION.--Lat 30°21'20", long 94°05'35", Jasper-Hardin County line, Hydrologic Unit 12020003, near center of channel on downstream side of pier of bridge on U.S. Highway 96 at Evadale, 0.8 mi upstream from Mill Creek, 16 mi upstream from Village Creek, and at mile 55.6.

DRAINAGE AREA.--7,951 mi<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 National Geodetic Vertical Datum of 1929. July 1, 1904, to Dec. 31, 1906, nonrecording gage on Gulf, Colorado, and Santa Fe Railway Co. bridge at site 1.2 mi downstream at datum 5.50 ft lower; Apr. 1, 1921, to Dec. 7, 1948, nonrecording gages at site 1.2 mi downstream at present datum; Dec. 8, 1948, to Nov. 8, 1963, water-stage recorder at site 1.2 mi downstream at present datum.

REMARKS.--Water-discharge records fair. Flow regulated by B. A. Steinhagen Lake (station 08040000) 58.1 mi upstream, capacity 124,700 acre-ft, and Sam Rayburn Reservoir (station 08039300), 95.7 mi upstream, capacity 4,442,000 acre-ft. Some diversions upstream for municipal use. Gage-height telemeter at station.

AVERAGE DISCHARGE.--45 years (water years 1905-6, 1922-64) unregulated, 6,308 ft<sup>3</sup>/s (4,570,000 acre-ft/yr); 19 years (water years 1965-83) regulated, 5,292 ft<sup>3</sup>/s (3,834,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92,100 ft<sup>3</sup>/s May 11, 1944 (gage height, 23.58 ft, from floodmark), at site then in use; minimum daily, 63 ft<sup>3</sup>/s Nov. 26-28, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1884 reached a stage of 26.2 ft, at former site, with a discharge of about 125,000 ft<sup>3</sup>/s, and flood in August 1915 reached a stage of 24.5 ft, at former site, with a discharge of about 102,000 ft<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, 24,600 ft<sup>3</sup>/s Dec. 30 at 1600 hours (gage height, 17.60 ft); minimum daily, 1,870 ft<sup>3</sup>/s May 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2760	3330	6810	21700	9600	17900	15700	2180	15800	13400	3260	2820
2	2760	3300	8060	16200	10500	17900	15400	2370	15800	12900	3260	2800
3	2770	3090	9400	13300	10600	17800	15100	2440	15800	12400	3230	2800
4	2760	2930	10500	12400	9410	17700	14800	2440	15700	11800	3230	2790
5	2760	2730	11200	13000	8330	17900	14700	2420	15700	11000	3300	2770
6	2780	2680	11300	14900	9010	18100	14700	2400	16000	9730	3280	2750
7	2810	2690	10300	16900	9940	18000	14900	2380	15800	8670	3220	2730
8	2800	2710	8910	17900	11500	18000	16000	2380	15900	8090	3260	2740
9	2790	2710	8460	18600	13700	17900	17100	2300	15800	7700	3760	2790
10	2780	2710	7240	18400	16000	17600	17300	1870	15700	7150	4080	2820
11	2720	2680	5710	18000	16600	17400	16500	2630	15900	6650	4020	2840
12	2670	2650	4680	17400	17300	17100	15800	3540	16200	6090	3840	2900
13	2620	2630	3940	16000	17000	17000	15300	3710	16300	5300	3750	2900
14	2630	2560	3480	15100	16100	17000	14700	3510	16200	4600	3570	2880
15	2650	2560	3150	14500	15200	17200	13100	3280	16100	4390	3430	2830
16	2620	2510	4000	13700	14700	17400	10500	3440	16100	4180	3310	2790
17	2660	2490	5570	12300	14400	17400	8260	4740	16600	3980	3150	2760
18	2640	2450	6370	11400	14300	17400	6960	6460	16700	3880	4070	2730
19	2630	2480	6540	9840	14800	17500	6370	7600	16400	3830	5690	3070
20	2630	2480	6580	8360	15800	17300	5890	7520	16200	3740	6190	3870
21	2640	2490	6400	7450	16900	16600	4480	9100	15900	3670	6170	4410
22	2610	2460	5700	7050	17200	15900	3300	12700	15500	3620	5580	4420
23	2610	2360	4770	6850	17200	16100	2780	18300	15400	3600	4620	3570
24	2610	2420	4400	6740	17300	16900	2530	22300	15000	3670	3590	2670
25	2390	2300	4130	6630	17400	17100	2400	22400	14800	3670	3100	2240
26	1900	2090	4620	6540	17600	17900	2310	20500	14600	3600	2970	2020
27	2170	2160	8070	6470	17800	18200	2260	18500	14500	3420	2940	1940
28	3330	2880	12900	6460	18000	17600	2230	17300	14400	3310	2910	1940
29	3420	4450	19100	6270	---	16700	2190	16600	14200	3260	2860	1900
30	3340	5680	24100	5460	---	16000	2160	16400	13800	3250	2830	1900
31	3300	---	24300	5460	---	15700	---	16100	---	3240	2810	---
TOTAL	84560	83660	260690	371280	404190	536200	295720	259810	468800	187790	115280	84390
MEAN	2728	2789	8409	11980	14440	17300	9857	8381	15630	6058	3719	2813
MAX	3420	5680	24300	21700	18000	18200	17300	22400	16700	13400	6190	4420
MIN	1900	2090	3150	5460	8330	15700	2160	1870	13800	3240	2810	1900
AC-FT	167700	165900	517100	736400	801700	1064000	586600	515300	929900	372500	228700	167400
CAL YR 1982	TOTAL	1532820	MEAN	4200	MAX	24300	MIN	1800	AC-FT	3040000		
WTR YR 1983	TOTAL	3152370	MEAN	8637	MAX	24300	MIN	1870	AC-FT	6253000		

## 08041000 NECHES RIVER AT EVADALE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1947 to current year. Pesticide analyses: January 1968 to September 1981.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1947 to current year.

WATER TEMPERATURES: October 1947 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 422 micromhos Jan. 25, 1957; minimum daily, 23 micromhos Sept. 19, 1963. WATER TEMPERATURES: Maximum daily, 34.0°C June 29, 1953; minimum daily, 3.0°C Jan. 30, 31, 1948, Jan. 31, 1949, and Jan. 24, 1963.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 212 micromhos Oct. 14, 27; minimum daily, 68 micromhos May 27. WATER TEMPERATURES: Maximum daily, 31.0°C on several days during July and August; minimum daily, 8.0°C on several days during February.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
NOV 16...	0940	2500	168	7.4	15.0	12	10.0	98	.9	80	340	30
FEB 01...	1420	10100	81	6.4	15.0	56	11.2	112	2.1	1200	800	17
MAR 16...	1555	17500	159	6.8	16.0	18	8.9	92	1.2	40	58	29
APR 26...	1535	2300	157	6.9	20.0	22	9.6	106	1.4	40	410	31
JUN 07...	1630	16100	130	6.6	24.0	25	6.6	78	1.7	50	600	26
AUG 23...	1441	4540	138	6.9	30.0	23	7.8	103	1.4	40	2300	28

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 16...	11	6.6	3.3	20	1.6	3.0	19	24	24	<.10	11
FEB 01...	11	3.9	1.7	9.5	1.0	1.6	6.0	16	11	<.10	8.0
MAR 16...	9	6.7	3.0	18	1.5	2.9	20	23	21	.10	9.5
APR 26...	14	7.1	3.2	17	1.4	2.7	17	21	22	<.10	12
JUN 07...	8	6.3	2.6	13	1.1	2.5	18	19	15	<.10	10
AUG 23...	8	6.7	2.7	15	1.3	2.6	20	20	20	.20	11

DATE	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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 16...	103	104	<.10	.060	.80	.060	.040	<.010	77	520	39
FEB 01...	69	56	<.10	.160	1.00	.080	.040	.060	95	2590	80
MAR 16...	110	96	.10	.070	1.30	.030	.030	.020	27	1280	54
APR 26...	102	96	<.10	.080	.70	.060	.030	.020	190	1180	21
JUN 07...	89	79	<.10	.110	.90	.070	.020	.010	85	3690	37
AUG 23...	98	91	<.10	.110	.60	.040	<.010	.010	40	490	81

## NECHES RIVER BASIN

08041000 NECHES RIVER AT EVADALE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 16...	0940	1	40	<1	<1	<3	3	130
FEB 01...	1420	<1	31	<1	<1	<3	2	190
APR 26...	1535	1	51	<1	<1	<3	4	260
AUG 23...	1441	<1	46	<1	<1	<3	1	160

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 16...	1	23	<.1	2	<1	<1	7
FEB 01...	<1	50	.1	7	<1	<1	15
APR 26...	1	61	<.1	9	<1	<1	18
AUG 23...	1	19	<.1	17	<1	4	8

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	84560	175	99	22500	23	5160	21	4780	35
NOV.	1982	83660	162	93	20900	21	4660	20	4410	33
DEC.	1982	260690	105	64	44700	13	8940	13	9240	23
JAN.	1983	371280	125	74	74200	16	15600	15	15500	27
FEB.	1983	404190	125	74	80900	15	16800	15	16800	27
MAR.	1983	536200	147	85	124000	19	26800	18	25900	31
APR.	1983	295720	141	83	66000	18	14100	17	13800	30
MAY	1983	259810	100	60	42300	12	8530	12	8740	22
JUNE	1983	468800	131	77	97900	16	20500	16	20400	28
JULY	1983	187790	148	86	43600	19	9450	18	9150	31
AUG.	1983	115280	137	81	25100	17	5330	17	5240	29
SEPT	1983	84390	125	74	16900	15	3500	15	3510	27
TOTAL		3152370	**	**	659000	**	140000	**	138000	**
WTD. AVG.		8637	132	77	**	16	**	16	**	28

## NECHES RIVER BASIN

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08041000 NECHES RIVER AT EVADALE, TX--Continued

DAY	SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176	164	140	77	134	144	114	153	86	147	155	141
2	174	162	122	79	111	146	118	172	95	151	154	138
3	178	164	110	99	115	150	121	170	105	147	153	139
4	175	165	107	84	138	152	130	168	115	146	151	141
5	173	165	105	89	157	148	131	170	121	153	149	155
6	163	162	103	87	163	146	135	173	126	145	146	140
7	166	163	104	96	149	149	144	177	129	143	145	143
8	168	166	105	102	152	156	139	178	132	146	140	140
9	174	167	117	111	139	147	142	169	131	152	129	139
10	173	171	112	117	125	152	143	165	131	151	132	123
11	172	168	111	119	119	155	146	150	130	144	136	118
12	168	171	114	128	111	169	145	131	132	149	123	101
13	210	170	113	137	103	158	146	139	136	147	124	115
14	212	168	114	145	101	159	148	150	132	145	133	136
15	177	171	121	149	103	159	156	139	136	139	137	134
16	176	170	111	151	99	158	155	156	135	152	140	133
17	184	174	106	155	99	169	154	144	135	145	147	134
18	170	167	124	157	100	155	154	151	142	147	145	130
19	171	165	129	155	119	185	156	159	141	146	124	101
20	171	163	128	158	120	151	158	152	137	149	127	100
21	173	161	126	161	131	148	156	128	139	147	134	98
22	168	164	120	162	133	150	158	79	138	149	138	96
23	175	168	121	159	134	146	154	94	136	147	140	100
24	177	165	123	160	134	147	176	82	138	151	144	110
25	173	160	122	162	137	152	160	74	143	148	143	120
26	175	152	110	163	134	138	156	69	147	151	133	131
27	212	149	96	164	136	124	158	68	138	149	131	135
28	165	148	104	163	140	114	162	74	140	150	132	137
29	164	135	90	168	---	108	151	73	142	149	130	139
30	166	146	80	167	---	106	166	78	145	154	134	141
31	164	---	76	167	---	114	---	83	---	161	133	---
MEAN	176	163	112	135	126	147	148	131	131	148	138	127

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	24.0	19.0	12.0	10.0	10.0	10.0	13.0	25.0	29.0	30.0	28.0
2	27.0	24.0	20.0	12.0	9.0	10.0	11.0	14.0	25.0	29.0	30.0	28.0
3	27.0	22.0	20.0	11.0	9.0	10.0	11.0	14.0	26.0	29.0	30.0	28.0
4	27.0	20.0	19.0	10.0	8.0	10.0	12.0	14.0	26.0	29.0	30.0	28.0
5	27.0	19.0	19.0	10.0	9.0	10.0	12.0	15.0	26.0	29.0	31.0	26.0
6	27.0	18.0	19.0	10.0	8.0	10.0	10.0	15.0	25.0	29.0	31.0	26.0
7	27.0	18.0	19.0	10.0	8.0	10.0	10.0	15.0	26.0	29.0	31.0	27.0
8	27.0	19.0	18.0	10.0	8.0	10.0	10.0	15.0	25.0	29.0	30.0	26.0
9	27.0	20.0	18.0	11.0	8.0	10.0	12.0	17.0	25.0	30.0	30.0	27.0
10	26.0	20.0	17.0	11.0	8.0	10.0	12.0	18.0	25.0	30.0	30.0	27.0
11	25.0	20.0	17.0	12.0	8.0	10.0	12.0	18.0	25.0	30.0	29.0	26.0
12	27.0	19.0	15.0	12.0	8.0	10.0	12.0	20.0	25.0	30.0	29.0	26.0
13	24.0	19.0	14.0	12.0	8.0	10.0	12.0	20.0	25.0	30.0	30.0	28.0
14	24.0	19.0	14.0	12.0	8.0	12.0	12.0	20.0	25.0	30.0	30.0	27.0
15	24.0	18.0	14.0	12.0	9.0	12.0	12.0	20.0	25.0	30.0	29.0	28.0
16	24.0	18.0	14.0	11.0	9.0	12.0	12.0	18.0	25.0	30.0	29.0	28.0
17	24.0	18.0	14.0	12.0	9.0	12.0	12.0	20.0	24.0	30.0	28.0	28.0
18	24.0	18.0	15.0	12.0	9.0	12.0	14.0	20.0	25.0	31.0	28.0	27.0
19	24.0	19.0	15.0	10.0	9.0	12.0	11.0	20.0	26.0	31.0	28.0	25.0
20	23.0	20.0	15.0	10.0	9.0	10.0	11.0	17.0	26.0	31.0	28.0	21.0
21	22.0	20.0	16.0	9.0	9.0	10.0	12.0	17.0	26.0	31.0	28.0	19.0
22	22.0	20.0	16.0	9.0	9.0	10.0	12.0	17.0	26.0	31.0	28.0	16.0
23	20.0	21.0	15.0	9.0	9.0	10.0	12.0	18.0	26.0	31.0	28.0	14.0
24	20.0	19.0	15.0	9.0	9.0	10.0	12.0	20.0	27.0	31.0	28.0	15.0
25	20.0	20.0	15.0	10.0	9.0	10.0	12.0	20.0	26.0	31.0	28.0	---
26	20.0	19.0	14.0	10.0	9.0	12.0	15.0	23.0	26.0	31.0	28.0	17.0
27	21.0	18.0	14.0	10.0	8.0	12.0	13.0	23.0	27.0	31.0	28.0	17.0
28	21.0	18.0	14.0	10.0	9.0	10.0	14.0	24.0	27.0	31.0	28.0	17.0
29	21.0	18.0	13.0	10.0	---	10.0	14.0	25.0	28.0	31.0	28.0	16.0
30	21.0	18.0	12.0	10.0	---	10.0	14.0	25.0	---	31.0	28.0	16.0
31	22.0	---	12.0	10.0	---	10.0	---	25.0	---	31.0	28.0	---
MEAN	24.0	19.5	16.0	10.5	8.5	10.5	12.0	18.5	25.5	30.0	29.0	23.5



## NECHES RIVER BASIN

08041500 VILLAGE CREEK NEAR KOUNTZE, TX

LOCATION.--Lat 30°23'52", long 94°15'48", Hardin County, Hydrologic Unit 12020006, at downstream side of bridge on Farm Road 418, 1.6 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.1 mi upstream from Cypress Creek, 3.4 mi northeast of Kountze, and 4.3 mi downstream from Beech Creek.

DRAINAGE AREA.--860 mi<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 National Geodetic Vertical Datum of 1929. Prior to Apr. 30, 1939, nonrecording gage at site 1.6 mi downstream at different datum. Apr. 30, 1939, to Sept. 30, 1966, water-stage recorder at site 2,000 ft downstream at present datum.

REMARKS.--Water-discharge records good. Small diversions above station. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--47 years, 840 ft<sup>3</sup>/s (13.27 in/yr), 608,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,200 ft<sup>3</sup>/s Nov. 26, 1940 (gage height, 27.6 ft, former site, from floodmark), from rating curve extended above 32,000 ft<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 Oct. 1, 2, 1956.  
Flood of May 27, 1929, reached a stage of about 32 ft at site 2,000 ft downstream at present datum; stage was determined on basis of information by engineers of Gulf, Colorado, and Santa Fe Railway Co. for site 1.6 mi downstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1884, about 34 ft in August 1915 at site 2,000 ft downstream at present datum; stage was determined on basis of information by engineers of Gulf, Colorado, and Santa Fe Railway Co. for site 1.6 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,300 ft<sup>3</sup>/s May 23 at 1100 hours (gage height, 24.89 ft); minimum, 49 ft<sup>3</sup>/s Oct. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	54	86	2250	5400	1720	763	1550	315	795	842	179	313		
2	52	101	2980	4340	2170	695	1160	307	807	503	174	408		
3	51	116	3410	3710	2010	647	965	299	739	393	169	780		
4	50	120	3630	3490	1720	633	808	288	614	344	166	995		
5	50	166	3110	3520	1470	1020	711	284	546	318	178	747		
6	50	222	2640	3270	1920	1510	693	274	495	304	208	474		
7	52	209	2360	2570	2550	1630	722	253	479	334	230	394		
8	56	172	1970	1950	2860	1630	881	238	587	412	219	332		
9	57	144	1230	1630	3090	1420	1080	230	773	447	239	323		
10	60	127	770	1410	3930	1030	960	358	801	354	314	368		
11	66	117	664	1230	6070	759	757	1120	687	273	406	456		
12	121	110	713	1070	6190	638	631	1660	482	240	617	665		
13	269	104	826	956	5350	577	566	1830	398	223	662	806		
14	162	101	880	887	4340	544	587	1690	365	219	777	659		
15	159	98	1180	866	3270	526	536	1270	371	223	786	491		
16	173	99	1850	800	2350	513	508	1270	350	278	682	386		
17	153	122	2270	742	1650	501	495	1640	323	450	466	321		
18	124	166	2540	676	1250	489	444	2040	347	673	697	290		
19	109	224	2460	612	1040	474	399	2620	517	822	1900	635		
20	98	365	1910	756	931	475	373	3420	609	808	2790	2160		
21	92	432	1160	1040	1050	525	357	5450	596	715	3160	3560		
22	86	468	807	1110	1420	605	347	21400	522	573	3340	4690		
23	82	462	689	1040	1610	688	433	36700	445	451	3750	4750		
24	78	412	628	912	1770	1220	596	24100	397	419	2880	4050		
25	76	421	657	778	1850	1710	643	10900	386	375	1830	3120		
26	73	553	2110	656	1710	2080	564	5860	555	303	905	1910		
27	73	648	6740	618	1330	2620	449	4080	812	258	538	990		
28	72	914	12400	631	912	3690	375	2730	858	230	451	649		
29	73	1120	13900	609	---	3870	339	1710	1010	211	405	533		
30	74	1480	10900	582	---	3000	323	1110	1020	197	368	471		
31	76	---	7320	608	---	2200	---	880	---	188	333	---		
TOTAL	2821	9879	96954	48469	67533	38682	19252	136326	17686	12380	29819	36726		
MEAN	91.0	329	3128	1564	2412	1248	642	4398	590	399	962	1224		
MAX	269	1480	13900	5400	6190	3870	1550	36700	1020	842	3750	4750		
MIN	50	86	628	582	912	474	323	230	323	188	166	290		
CFSM	.11	.38	3.64	1.82	2.81	1.45	.75	5.11	.69	.46	1.12	1.42		
IN.	.12	.43	4.19	2.10	2.92	1.67	.83	5.90	.77	.54	1.29	1.59		
AC-FT	5600	19590	192300	96140	134000	76730	38190	270400	35080	24560	59150	72850		
CAL YR 1982	TOTAL	255218	MEAN	699	MAX	13900	MIN	50	CFSM	.81	IN	11.04	AC-FT	506200
WTR YR 1983	TOTAL	516527	MEAN	1415	MAX	36700	MIN	50	CFSM	1.65	IN	22.34	AC-FT	1025000

## NECHES RIVER BASIN

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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 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 19...	1100	109	74	19.5	15	5	4.1	1.2	8.5
DEC 03...	1225	3480	52	19.0	12	9	3.2	1.0	5.0
FEB 03...	1630	1980	60	11.0	12	9	3.0	1.0	7.1
MAR 18...	1130	490	105	15.0	17	12	4.8	1.2	13
APR 29...	1240	338	102	18.5	18	0	5.0	1.3	13
JUN 07...	1330	477	91	22.5	18	8	5.1	1.3	10
JUL 22...	0800	605	69	26.0	14	9	4.1	1.0	7.9
SEP 08...	1120	332	79	25.0	17	7	4.9	1.2	8.3

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 19...	1.0	1.4	10	4.5	15	<.10	13	54
DEC 03...	.6	1.8	3.0	11	8.8	<.10	7.3	40
FEB 03...	.9	.8	3.0	10	13	<.10	7.9	45
MAR 18...	1.4	.9	5.0	10	23	<.10	13	69
APR 29...	1.4	1.1	8.0	11	21	<.10	13	70
JUN 07...	1.1	1.0	10	4.0	19	<.10	13	59
JUL 22...	.9	1.1	5.0	10	13	<.10	11	51
SEP 08...	.9	1.2	10	6.5	14	<.10	12	54

## NECHES RIVER BASIN

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX

LOCATION---Lat 30°06'21", long 94°20'04", Jefferson-Hardin County line, Hydrologic Unit 12020007, on right bank at downstream side of bridge on county road and 5.1 mi southeast of Sour Lake.

DRAINAGE AREA---336 mi<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 are usually sustained by drainage from ricefields. Gage-height telemeter at this station.

AVERAGE DISCHARGE---16 years, 481 ft<sup>3</sup>/s (348,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD---Maximum discharge, 25,000 ft<sup>3</sup>/s Apr. 22, 1979 (elevation, 34.29 ft); minimum daily, 0.25 ft<sup>3</sup>/s Oct. 28, 1982.

Maximum stage since at least 1917, that of Apr. 22, 1979.

EXTREMES FOR CURRENT YEAR---Maximum discharge, 5,650 ft<sup>3</sup>/s Dec. 29 at 2000 hours and Dec. 30 at 0600 hours (elevation, 28.64 ft); minimum daily, 0.25 ft<sup>3</sup>/s Oct. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	46	2750	4030	1200	379	1010	18	746	58	88	566
2	21	114	3700	3430	1220	242	768	18	331	62	88	428
3	19	379	3740	2930	844	170	479	7.1	149	47	88	466
4	16	211	3390	2400	660	137	283	11	104	34	95	454
5	22	111	2990	1500	853	161	194	16	127	28	56	342
6	56	70	2660	1000	1410	244	152	21	128	26	81	234
7	79	46	2340	700	1510	288	128	21	87	22	239	193
8	90	32	2080	800	1590	262	95	22	61	18	185	164
9	82	22	1790	700	1670	215	72	11	50	16	300	306
10	51	18	1550	500	2040	171	56	23	44	14	1000	652
11	23	18	1320	350	2110	131	60	74	40	12	1400	679
12	13	18	1110	300	2250	98	80	69	27	12	1800	612
13	7.9	15	894	250	2240	72	108	76	21	50	2000	540
14	8.1	12	715	200	2150	55	123	73	20	90	1900	456
15	14	9.4	1090	170	2000	42	117	111	17	130	1700	397
16	10	15	1140	150	1780	34	70	160	27	600	1480	379
17	7.6	355	1100	140	1540	28	57	176	200	1110	1080	410
18	6.0	420	1010	130	1250	23	47	177	299	1490	1470	515
19	4.8	375	892	300	914	20	32	970	192	1600	3430	1330
20	4.0	533	782	500	543	21	32	1740	106	1480	4700	2240
21	3.3	613	704	660	343	21	46	3460	55	1320	4550	3210
22	2.7	605	619	705	409	18	42	4380	39	1230	4400	3660
23	2.2	528	497	643	546	146	44	4870	41	1160	4020	3380
24	1.7	546	361	522	612	781	23	5410	61	1060	3350	2960
25	1.2	437	336	407	612	970	15	5090	65	900	2730	2560
26	.85	328	1680	313	605	1110	13	4050	95	641	2270	2210
27	.55	707	3180	240	590	1160	12	3090	129	347	1950	1890
28	.25	935	4230	189	519	1160	33	2420	81	188	1680	1600
29	16	1030	5390	154	---	1170	29	1980	44	126	1420	1270
30	75	1200	5520	129	---	1170	16	1610	38	96	1110	852
31	69	---	4800	280	---	1140	---	1220	---	76	808	---
TOTAL	734.15	9748.4	64360	24722	34010	11639	4236	41374.1	3424	14043	51468	34955
MEAN	23.7	325	2076	797	1215	375	141	1335	114	453	1660	1165
MAX	90	1200	5520	4030	2250	1170	1010	5410	746	1600	4700	3660
MIN	.25	9.4	336	129	343	18	12	7.1	17	12	56	164
AC-FT	1460	19340	127700	49040	67460	23090	8400	82070	6790	27850	102100	69330
CAL YR 1982	TOTAL	164282.55	MEAN	450	MAX	5520	MIN	.25	AC-FT	325900		
WTR YR 1983	TOTAL	294713.65	MEAN	807	MAX	5520	MIN	.25	AC-FT	584600		

## NECHES RIVER BASIN

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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.

INSTRUMENTATION.--Since August 1981, specific conductance and water temperature are recorded continuously at this station.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1968-79, 1983): 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.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,440 micromhos Oct. 17, 18; minimum daily, 38 micromhos Aug. 20.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 18...	1630	5.6	1010	21.0	100	53	32	5.7	160
DEC 13...	1205	899	142	10.5	29	13	9.0	1.7	16
MAR 28...	1330	1170	78	15.0	18	6	5.8	.9	8.4
JUN 07...	1115	87	224	24.0	39	14	13	1.6	24
JUL 19...	1500	1610	91	26.0	20	5	6.4	1.0	10

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 18...	7.1	3.2	51	17	270	.20	4.2	523
DEC 13...	1.3	2.3	17	11	27	<.10	8.1	85
MAR 28...	.9	1.4	12	10	12	<.10	3.8	49
JUN 07...	1.7	1.7	25	14	40	.10	1.8	111
JUL 19...	1.0	1.6	15	12	14	<.10	5.8	60

## NECHES RIVER BASIN

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	734.15	289	147	292	56	112	12	23	49
NOV.	1982	9748.4	221	115	3040	39	1030	8.8	233	42
DEC.	1982	64360	103	55	9510	16	2800	4.1	711	22
JAN.	1983	24722	107	57	3820	17	1130	4.3	286	22
FEB.	1983	34010	80	43	3940	12	1130	3.2	293	17
MAR.	1983	11639	126	67	2110	20	636	5.0	158	26
APR.	1983	4236	164	87	991	27	313	6.6	75	33
MAY	1983	41374.1	67	36	4000	10	1150	2.7	298	14
JUNE	1983	3424	176	93	856	29	272	7.0	65	35
JULY	1983	14043	104	56	2110	17	626	4.2	158	22
AUG.	1983	51468	65	35	4870	9.9	1380	2.6	362	14
SEPT	1983	34955	95	51	4800	15	1400	3.8	359	20
TOTAL		294713.65	**	**	40300	**	12000	**	3020	**
WTD. AVG.		807	95	51	**	15	**	3.8	**	20

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	272	260	267	506	416	442	80	64	75			79
2	258	224	233	514	92	326	90	66	75			83
3	226	220	222	240	128	166	110	82	100			86
4	226	218	221	264	236	252	134	108	120			90
5	234	212	221	350	270	326	170	134	152			102
6	224	136	189	340	326	332	170	134	147			113
7	184	130	162	338	314	329	152	130	140			123
8	234	166	195	312	288	296	154	122	136			119
9	244	212	231	292	284	289	130	118	123			123
10	212	204	208	300	292	296	124	112	119			134
11	252	212	230	352	300	322	136	114	124			147
12	274	252	262	524	358	440	140	136	139			153
13	286	274	279	724	536	627	142	138	140			160
14	332	288	303	942	730	829	138	120	137			169
15	446	332	376	1210	950	1090	110	98	105			177
16	668	452	531	1260	212	1200	112	106	110			182
17	1440	686	1030	328	104	203	---	---	110			185
18	1440	1020	1210	350	304	328	---	---	112			189
19	1010	950	983	326	286	309	---	---	116			153
20	948	862	907	316	284	302	---	---	120			134
21	856	810	823	306	298	303	---	---	123			125
22	808	762	793	310	262	285	---	---	127			123
23	758	714	728	270	246	257	---	---	135			126
24	716	684	694	266	176	238	---	---	146			133
25	688	670	678	270	264	268	---	---	148			142
26	678	664	673	264	200	222	---	---	99			151
27	674	662	669	202	94	123	---	---	84			162
28	666	658	663	198	134	163	---	---	78			172
29	666	296	511	134	102	114	---	---	74			181
30	462	286	360	148	120	142	---	---	73			189
31	408	334	360	---	---	---	---	---	76			156
MONTH	1440	130	491	1260	92	361	170	64	115			141



## 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 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	108	140	122	129	---	---	113	410	246	338
2	---	---	107	160	138	147	---	---	121	434	206	352
3	---	---	118	170	160	164	---	---	136	524	220	309
4	154	126	138	170	168	169	---	---	155	538	300	486
5	124	58	93	---	---	178	---	---	170	398	292	370
6	78	66	74	---	---	161	---	---	182	328	254	310
7	72	68	69	---	---	154	208	184	196	360	244	322
8	70	64	66	---	---	158	216	208	214	320	266	289
9	72	60	69	---	---	166	230	216	225	364	284	323
10	66	62	64	---	---	176	238	228	234	354	206	284
11	66	58	62	---	---	189	266	224	238	536	244	400
12	60	58	60	---	---	203	258	230	246	696	260	544
13	66	60	63	---	---	219	240	188	216	602	256	375
14	66	60	64	---	---	235	194	176	183	390	234	290
15	64	60	62	---	---	251	266	200	247	362	196	264
16	70	62	65	---	---	265	270	260	264	382	182	243
17	76	70	72	---	---	278	276	---	234	224	150	192
18	88	78	81	---	---	292	---	---	244	164	124	134
19	102	88	94	---	---	303	---	---	269	124	76	89
20	128	102	113	---	---	299	---	---	269	102	70	89
21	176	130	141	---	---	299	---	---	245	72	58	65
22	194	114	151	---	---	311	---	---	251	58	52	55
23	112	94	101	---	---	183	---	---	248	56	48	50
24	118	98	109	---	---	120	---	---	293	62	48	55
25	118	100	110	---	---	114	---	---	326	52	48	50
26	106	98	100	---	---	110	---	---	338	58	52	55
27	130	104	120	---	---	109	---	---	345	64	58	61
28	122	114	117	---	---	109	---	---	267	70	64	66
29	---	---	---	---	---	108	---	---	276	76	68	72
30	---	---	---	---	---	108	---	246	341	90	78	82
31	---	---	---	---	---	109	---	---	---	114	90	101
MONTH	194	58	93	170	122	188	276	176	236	696	48	217

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	144	116	128	348	212	272	188	168	177	148	130	135
2	174	146	162	362	294	314	202	154	188	152	128	145
3	186	174	177	548	354	464	246	182	209	124	100	111
4	192	180	188	346	256	285	232	186	194	114	100	106
5	194	178	185	258	228	244	206	186	191	130	114	121
6	200	174	184	234	210	219	222	90	182	148	130	139
7	222	202	219	220	212	215	126	84	103	158	142	149
8	226	220	222	218	98	181	166	90	124	156	146	150
9	226	210	218	126	112	118	176	124	153	146	84	123
10	224	214	220	212	98	163	146	82	97	102	90	96
11	314	224	260	202	192	197	104	74	90	120	100	112
12	550	316	434	206	186	194	82	46	54	128	108	117
13	334	254	274	214	118	171	48	44	46	126	110	118
14	264	220	238	212	114	143	56	46	50	142	136	140
15	248	230	239	234	160	205	82	56	68	120	118	119
16	234	108	216	158	114	131	92	82	86	126	118	120
17	132	100	116	126	66	87	108	92	99	134	124	130
18	216	110	153	68	62	64	116	56	80	124	108	116
19	194	146	173	92	70	81	64	42	52	112	52	82
20	312	180	225	114	94	105	44	38	41	80	64	74
21	380	254	322	94	88	90	50	40	43	---	---	84
22	252	214	226	92	90	90	62	54	57	---	---	81
23	230	212	219	96	90	93	58	54	56	---	---	83
24	302	228	261	106	96	100	62	58	59	---	---	86
25	272	174	208	116	106	109	66	62	63	---	---	89
26	186	132	162	146	116	130	70	66	68	---	---	92
27	234	146	187	172	148	162	80	72	76	---	---	96
28	196	152	173	178	170	174	86	78	82	---	---	100
29	240	200	218	176	172	174	98	88	93	---	---	106
30	278	236	260	176	170	173	112	98	105	---	---	117
31	---	---	---	178	172	176	130	112	122	---	---	---
MONTH	550	100	216	548	62	172	246	38	100	158	52	111

## NECHES RIVER BASIN

08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	25.5	22.5	24.0	22.0	21.0	21.5	18.0	16.5	17.5			
2	25.5	22.5	24.0	22.5	17.5	20.5	19.5	18.0	19.0			
3	26.5	23.5	24.5	17.5	17.0	17.5	20.0	19.5	20.0			
4	26.5	23.0	24.5	17.0	14.5	15.5	20.0	18.0	19.0			
5	27.5	23.5	25.0	15.0	13.0	14.0	18.0	16.5	17.0			
6	26.5	24.5	25.0	14.5	13.0	13.5	16.5	15.5	16.0			
7	25.0	24.0	24.5	14.5	13.0	14.0	15.5	14.5	15.0			
8	27.0	24.0	25.0	15.0	13.5	14.5	14.5	14.5	14.5			
9	28.5	25.5	26.5	16.0	14.5	15.5	14.0	14.0	14.0			
10	27.0	23.5	25.0	17.5	16.0	17.0	14.0	13.5	13.5			
11	23.0	20.0	21.5	18.5	17.0	17.5	13.5	13.0	13.5			
12	---	---	---	19.0	17.0	18.5	13.0	11.5	12.0			
13	---	---	---	17.0	14.0	15.5	11.5	10.0	10.5			
14	---	---	---	13.5	12.5	13.0	11.5	9.5	10.0			
15	---	---	---	13.0	11.5	12.0	13.0	12.0	13.0			
16	---	---	---	13.0	11.0	11.5	13.0	12.5	12.5			
17	---	---	---	15.5	13.5	14.5	---	---	---			
18	---	---	---	16.0	15.0	15.5	---	---	---			
19	22.5	19.5	21.0	18.0	16.0	17.0	---	---	---			
20	21.0	20.0	20.5	18.5	17.5	18.0	---	---	---			
21	19.5	17.5	18.0	19.0	18.5	18.5	---	---	---			
22	18.0	16.0	17.0	19.5	19.0	19.5	---	---	---			
23	17.0	15.0	16.0	20.5	19.5	20.0	---	---	---			
24	16.0	13.5	14.5	20.0	17.0	18.0	---	---	---			
25	15.5	13.0	14.0	17.0	15.0	16.0	---	---	---			
26	15.0	12.0	13.5	15.5	14.5	15.0	---	---	---			
27	16.5	13.5	15.0	18.5	15.5	17.0	---	---	---			
28	18.0	15.5	17.0	16.0	15.0	15.5	---	---	---			
29	21.5	17.5	19.0	15.0	14.5	14.5	---	---	---			
30	21.0	19.5	20.0	16.5	14.5	15.0	---	---	---			
31	21.5	19.5	20.5	---	---	---	---	---	---			
MONTH	28.5	12.0	20.5	22.5	11.0	16.0	20.0	9.5	15.0			

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

## NECHES RIVER BASIN

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08041700 PINE ISLAND BAYOU NEAR SOUR LAKE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

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

## 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 south of LaBelle, 6.0 mi upstream from Hillebrandt Bayou, 7.2 mi upstream from State Highway 73, and 11.2 mi upstream from saltwater gates and barge locks. Distances are measured along rectified channel.

DRAINAGE AREA.--262 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1954 to current year (complete records for storms of 1.0 inch 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 below National Geodetic Vertical Datum of 1929, determined by several comparisons of water surface with auxiliary water-stage recorder 7.2 mi downstream during times of no flow and ideal weather conditions.

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 Sept. 22, 1963, and Apr. 23, 1979; maximum gage height, 11.78 ft Sept. 20, 1963 (backwater from Hillebrandt Bayou); minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.31 ft July 17, 1954.

Maximum stage since at least 1941, that of Sept. 20, 1963, and Apr. 23, 1979. Flood of Sept. 13, 1961 (Hurricane Carla), reached a stage of 11.51 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1941 reached a stage of 11.3 ft, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,860 ft<sup>3</sup>/s Dec. 29 at 0800 hours (gage height, 10.48 ft); maximum gage height, 10.64 ft Dec. 28 at 1200 hours; minimum discharge not determined (affected by tides and pumping); minimum gage height, 4.94 ft Jan. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	1930	4270	4720			---	---	---	---	---
2		---	2340	3640	6290			---	---	---	---	---
3		---	1970	3260	7120			---	---	---	---	---
4		---	1720	2380	6530			---	---	---	---	---
5		---	1000	1400	4920			---	---	---	---	---
6		---	500	600	5750			---	---	---	---	760
7		---	---	---	5590			---	---	---	---	2110
8		---	---	---	4060			---	---	---	---	2220
9		---	---	---	2300			---	---	---	---	2810
10		---	---	---	3480			---	---	---	---	3850
11		---	---	---	2530			---	---	---	---	3910
12		---	---	---	800			---	---	---	---	3150
13		---	300	---	---			---	---	1000	---	2280
14		---	740	---	---			---	---	2500	---	1000
15		---	2170	---	---			---	---	3000	---	500
16		---	3340	---	---			---	400	3000	---	---
17		---	2610	---	---			---	1050	2500	500	---
18		---	1070	200	---			200	1750	1500	2000	400
19		---	300	860	---			1060	2070	800	4500	1540
20		---	---	2650	---			1760	2160	---	3500	3770
21		---	---	3040	---			3820	1880	---	2000	4680
22		---	---	1920	---			5100	800	---	1000	3780
23		---	---	600	---			5690	---	---	500	2450
24		---	300	---	---			5180	---	---	---	1000
25		---	860	---	---			3580	---	---	---	500
26		200	3430	---	---			2340	---	---	---	---
27		1550	5610	---	---			1000	---	---	---	---
28		3020	6390	---	---			500	---	---	---	---
29		2080	6850	---	---			---	---	---	---	---
30		1150	6650	300	---			---	---	---	---	---
31		---	5520	1600	---			---	---	---	---	---
MAX		---	---	---	---			---	---	---	---	---
MIN		---	---	---	---			---	---	---	---	---

NOTE.--No gage-height record June 27 to July 20, July 28 to Sept. 6.

## TAYLOR BAYOU BASIN

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08042500 HILLEBRANDT BAYOU NEAR LOVELL LAKE, TX

LOCATION.--Lat 29°55'44", long 94°06'35", Jefferson County, Hydrologic Unit 12040201, near center of stream at downstream side of bridge on county road, 1.3 mi southeast of Lovell Lake, and 4.4 mi upstream (along rectified channel) from Taylor Bayou.

DRAINAGE AREA.--128 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1954 to current year (complete records for storms of 1.0 inch or more runoff, except for the period Sept. 11-18, 1961).

GAGE.--Water-stage recorder. Auxiliary water-stage recorder 3.0 mi downstream. Datum of gage is 4.63 ft below National Geodetic Vertical Datum of 1929, determined by comparisons of water surface with Taylor Bayou near LaBelle, auxiliary gage 5.6 mi downstream, during times of no flow and ideal weather conditions. Prior to Aug. 28, 1963, auxiliary water-stage recorder on Taylor Bayou 1.2 mi downstream from Hillebrandt Bayou, nonrecording gages on Taylor Bayou 2.3 and 5.2 mi downstream from Hillebrandt Bayou.

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 Sept. 18, 1963; maximum gage height, 12.34 ft Sept. 19, 1963; minimum discharge not determined (affected by tides and pumping); minimum gage height, 2.33 ft July 17, 1954. Maximum stage since 1941, 12.34 ft Sept. 19, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,050 ft<sup>3</sup>/s Dec. 27 at 1500 hours; maximum gage height, 10.97 ft Dec. 27 at 2100 hours; minimum discharge not determined (affected by tides and pumping); minimum gage height, 4.89 ft Jan. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			---	---	7680			---		---	---	---
2			---	---	5190			---		---	---	---
3			---	---	1980			---		---	---	---
4			---	---	600			---		---	---	---
5			---	---	1770			---		---	---	---
6			---	---	2600			---		---	---	---
7			---	---	780			---		---	---	---
8			---	---	260			---		---	---	---
9			---	---	---			---		---	370	---
10			---	---	---			---		---	940	---
11			---	---	---			---		---	1350	---
12			---	---	---			---		---	1480	---
13			---	---	---			---		---	1010	---
14			---	---	---			---		2090	300	---
15			---	---	---			---		1880	---	---
16			---	---	---			---		1510	---	---
17			---	---	---			---		740	200	---
18			---	---	---			---		300	1820	---
19			---	---	---			540		---	1320	1190
20			---	---	---			1550		---	500	1960
21			---	---	---			4510		---	---	1460
22			---	---	---			3870		---	---	670
23			---	---	---			1900		---	---	200
24			---	---	---			780		---	---	---
25			130	---	---			300		---	---	---
26			4300	---	---			---		---	---	---
27			8020	---	---			---		---	---	---
28			7200	---	---			---		---	---	---
29			4680	---	---			---		---	---	---
30			2510	50	---			---		---	---	---
31			1200	1820	---			---		---	---	---
MAX			---	---	---			---		---	---	---
MIN			---	---	---			---		---	---	---



## 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 downstream from Big Cleveland Creek, 7 mi upstream from Carroll Creek, 7 mi north-east of Jacksboro, and at mile 660.

DRAINAGE AREA.--683 mi<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 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> above this station was partly controlled by 21 floodwater-retarding structures with a combined detention capacity of 19,780 acre-ft. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--27 years (water years 1957-83), 100 ft<sup>3</sup>/s (1.99 in/yr), 72,450 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,100 ft<sup>3</sup>/s Apr. 27, 1957 (gage height, 32.10 ft, from floodmark); no flow at times each year.

Maximum stage since at least 1900, that of Apr. 27, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1941 reached a stage of 30 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,410 ft<sup>3</sup>/s June 18 at 2130 hours (gage height, 17.12 ft), no other peak above base of 1,200 ft<sup>3</sup>/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	22	12	21	3.0	70	1.4	110	8.4	.00	.00
2	.00	.00	12	10	20	2.6	37	1.2	45	25	.00	.00
3	.00	.00	6.2	12	49	2.2	20	1.2	40	15	.00	.00
4	.00	.08	4.5	13	27	2.4	13	1.2	28	9.0	.00	.00
5	.00	.27	3.1	12	15	1.9	10	1.1	15	6.5	.00	.00
6	.00	.11	2.2	8.8	10	1.5	8.4	1.0	9.5	5.5	.00	.00
7	.00	.05	1.8	7.2	8.0	1.8	6.5	1.1	6.6	4.6	.00	.00
8	.00	.03	1.3	6.5	6.5	2.1	7.2	1.3	5.4	3.9	.00	.00
9	.00	.02	.88	5.8	4.9	2.1	6.9	1.3	4.6	3.2	.00	.00
10	.00	.02	2.1	4.4	3.9	1.8	5.5	2.0	3.8	3.0	.00	.00
11	.00	.03	7.4	3.6	3.0	1.1	4.4	2.3	3.1	2.2	.00	.00
12	.00	.02	8.7	3.0	2.6	.64	3.6	2.1	2.6	1.8	.00	.00
13	.00	.02	15	2.2	2.2	.32	3.4	2.7	2.4	1.4	.00	.00
14	.00	.02	17	1.9	1.8	.32	194	17	479	1.1	.00	.00
15	.00	.01	17	1.3	1.6	75	163	3.9	898	.79	.00	.00
16	.00	.01	14	1.2	1.3	27	49	2.2	997	.71	.00	.00
17	.00	.01	9.2	1.2	1.2	18	26	1.7	1250	.58	.00	.00
18	.00	.02	6.7	1.1	1.1	7.2	14	1.7	1390	.36	.00	.00
19	.00	.02	5.1	.88	.79	8.0	9.3	4.0	1330	.25	.00	.00
20	.00	.02	3.5	.52	.79	8.8	5.8	5.8	767	.15	.00	.00
21	.00	.02	2.3	.36	.88	11	4.6	30	42	.11	.00	.00
22	.00	.02	1.7	.32	1.1	9.7	3.9	27	23	.04	.00	.00
23	.00	.02	1.2	.32	11	8.8	3.2	92	16	.02	.00	.00
24	.00	.02	1.2	.32	21	7.6	2.6	295	12	.00	.00	.00
25	.00	.02	.88	.32	11	7.2	2.4	324	13	.00	.00	.00
26	.00	3.0	1.8	.32	6.9	121	2.1	117	44	.00	.00	.00
27	.00	10	47	.32	4.6	256	2.1	57	93	.00	.00	.00
28	.00	5.1	66	.22	3.4	205	1.9	43	45	.00	.00	.00
29	.00	11	77	.17	---	91	1.6	34	15	.00	.00	.00
30	.00	33	46	.17	---	204	1.5	21	7.2	.00	.00	.00
31	.00	---	21	9.1	---	194	---	105	---	.00	.00	---
TOTAL	.00	62.96	425.76	120.54	241.56	1283.08	682.9	1201.2	7697.2	93.61	.00	.00
MEAN	.000	2.10	13.7	3.89	8.63	41.4	22.8	38.7	257	3.02	.000	.000
MAX	.00	33	77	13	49	256	194	324	1390	25	.00	.00
MIN	.00	.00	.88	.17	.79	.32	1.5	1.0	2.4	.00	.00	.00
CFSM	.000	.003	.02	.006	.01	.06	.03	.06	.38	.004	.000	.000
IN	.00	.00	.02	.01	.01	.07	.04	.07	.42	.01	.00	.00
AC-FT	.00	125	844	239	479	2540	1350	2380	15270	186	.00	.00
CAL YR 1982	TOTAL	79799.49	MEAN	219	MAX	7050	MIN	.00	CFSM	.32	IN	4.35
WTR YR 1983	TOTAL	11808.81	MEAN	32.4	MAX	1390	MIN	.00	CFSM	.05	IN	.64
									AC-FT	158300		
									AC-FT	23420		

## 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 west of Bridgeport, 13 mi upstream from Big Sandy Creek, and at mile 626.

DRAINAGE AREA.--1,111 mi<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 long. The dam was completed in December 1931 and storage began Apr. 1, 1932. The original dam was 1,900 ft long, but was lengthened to the present length (2,040 ft) in 1971-72. The original service spillway was eliminated during construction (1971-72), and a new spillway with approach and discharge channels was built through natural ground 2,800 ft from the left end of dam. The new spillway is 90 ft wide and has eight vertical lift gates that are 11.25 by 22 ft. The controlled outlet works consist of a 48-inch-diameter and an 18-inch-diameter pipe encased in a concrete conduit extending through the dam. In addition, a controlled 60-inch-diameter steel pipe extends through the service spillway wall to the spillway discharge basin. Flow is affected at times by discharge from the flood-detention pools of 25 floodwater-retarding structures with a combined detention capacity of 21,720 acre-ft. These structures control runoff from 80.3 mi<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 records were furnished by Tarrant County Water Control and Improvement District No. 1. Capacity table was 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, 424,700 acre-ft May 15, 1982 (elevation, 838.84 ft); minimum contents since first appreciable storage in 1935, 7,170 acre-ft Oct. 12-16, 1956.

EXTREMES (at 0730) FOR CURRENT YEAR.--Maximum contents observed, 365,100 acre-ft Oct. 1 (elevation, 834.28 ft); minimum observed, 303,800 acre-ft Sept. 30 (elevation, 829.11 ft).

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

829.0	302,600	833.0	349,300
831.0	325,400	835.0	374,100

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	365100	349500	338400	333300	330700	331400	346500	344500	339200	358500	336600	315300
2	364600	349700	338900	333600	330600	331200	346700	344000	339200	356100	335800	314400
3	364100	349100	339100	333400	330200	331200	346700	343200	339500	355600	335100	313500
4	363600	348400	338900	333200	330100	333300	346600	342400	339600	355100	334000	312600
5	363100	347800	338600	333100	330300	337300	346700	341600	339700	355000	332900	311900
6	362300	347000	338500	332800	330500	337400	346700	340800	340200	353700	332100	311100
7	361800	346200	337200	332700	330600	337400	346600	340200	340100	352900	331500	310200
8	361300	345500	336500	332600	330700	337400	346500	339600	339800	352100	331300	309500
9	361100	345000	336000	332300	330600	337400	346500	338900	339600	351300	330300	308900
10	360300	344400	335500	332200	330600	337300	346500	338000	339400	350700	329400	308200
11	359600	344000	336400	332200	330600	337200	346500	337400	339000	350000	328600	308400
12	359300	343700	337100	332000	330600	337100	346500	336900	338800	349500	327900	308300
13	359000	343300	336600	332000	330500	337000	346600	336500	338500	348200	327300	308200
14	358500	342500	336500	331900	330500	336900	346700	336000	340000	347400	326300	307800
15	358000	341500	336400	331600	330500	336900	346600	335500	340900	348400	325400	307400
16	357200	340400	336000	331500	330500	338200	346800	335200	343200	348300	324600	307100
17	356600	339700	335900	331400	330500	338600	347000	334600	345300	348000	323500	306800
18	356100	339100	335800	331200	330700	339000	347100	334100	347600	348000	322700	306600
19	355500	338900	335500	331200	330700	338900	346800	333500	350100	347700	323100	306800
20	354900	338400	335300	331000	331500	339400	346700	333500	352700	347600	324100	306600
21	353900	337900	335100	330900	331600	339700	346800	334600	354500	346000	324000	305900
22	354000	337400	334800	330800	331600	339500	346800	334600	354500	345000	322400	305600
23	353500	337200	334700	330700	331600	339100	346700	335400	354500	344300	321700	305300
24	353200	336700	334600	330500	331500	339000	346600	335900	342200	343700	320900	304900
25	352900	336300	334500	330300	331500	339000	346500	336100	354300	343000	320200	304600
26	352200	336900	334200	330300	331500	340800	346200	336700	354800	342200	319600	304500
27	351700	339000	334400	330100	331400	343000	346200	337200	355900	341400	318900	304400
28	351000	338900	334100	329900	331400	343300	346300	337600	356000	340400	318100	304300
29	350700	338500	333800	329700	---	343600	346500	337700	356400	339500	317500	304000
30	350200	338500	333400	329600	---	345300	345300	337700	356200	338300	316700	303800
31	349900	---	333300	329600	---	345700	---	339000	---	337400	316000	---
MAX	365100	349700	339100	333600	331600	345700	347100	344500	356400	358500	336600	315300
MIN	349900	336300	333300	329600	330100	331200	345300	333500	338500	337400	316000	303800
(†)	833.05	832.11	831.67	831.36	831.51	832.71	832.67	832.15	833.57	832.02	830.19	829.11
(‡)	-15700	-11400	-5200	-3700	+1800	+14300	-400	-6300	+17200	-18800	-21400	-12200
CAL YR 1982	MAX 424700	MIN 333300	‡ -51500									
WTR YR 1983	MAX 365100	MIN 303800	‡ -61800									

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## 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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 30...	1400	267	16.0	100	12	32	5.1	12

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 30...	.5	4.5	89	13	20	.20	1.4	142

## TRINITY RIVER BASIN

279

## 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 upstream from Greathouse Branch, 4.0 mi east of Bridgeport, and 4.4 mi upstream from mouth.

DRAINAGE AREA.--333 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since May 1, 1956, flow from 100 mi<sup>2</sup> above this station is affected at times by storage in Lake Amon G. Carter, 30 mi upstream, with a capacity of 15,240 acre-ft at elevation 920.0 ft, spillway crest. During year, the city of Bowie diverted water from Lake Amon G. Carter for municipal use and discharged sewage effluent into tributaries to Big Sandy Creek upstream from this station. Flow was also affected at times by discharge from 17 the flood-detention pools of floodwater-retarding structures with a combined capacity of 11,030 acre-ft. These structures control runoff from 44.1 mi<sup>2</sup> between this station and Lake Amon G. Carter. Gage-height telemeter at this station.

AVERAGE DISCHARGE.--47 years, 72.4 ft<sup>3</sup>/s (52,450 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,000 ft<sup>3</sup>/s June 10, 1941 (gage height, 15.69 ft, from floodmark), from rating curve extended above 22,000 ft<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, 351 ft<sup>3</sup>/s Mar. 5 at 1500 hours (gage height, 5.48 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	1.1	6.0	34	7.9	25	6.4	60	1.9	.00	.00
2	.00	.00	.66	11	24	7.9	23	7.0	31	.61	.00	.00
3	.00	.07	.52	15	16	7.8	21	5.6	16	.19	.00	.00
4	.00	.09	.52	15	11	126	19	4.7	10	.05	.00	.00
5	.00	.00	.22	12	10	318	17	4.1	7.4	.02	.00	.00
6	.00	.00	.11	10	10	138	16	3.7	5.2	.01	.00	.00
7	.00	.00	.08	9.0	10	48	15	3.2	5.4	.00	.00	.00
8	.00	.00	.03	9.2	9.9	31	14	2.6	11	.00	.00	.00
9	.00	.00	.00	8.9	9.4	24	13	2.5	6.3	.00	.00	.00
10	.00	.00	.18	8.3	9.3	19	13	2.4	3.5	.00	.00	.00
11	.00	.00	24	7.9	8.7	16	13	3.1	1.9	.00	.00	.00
12	.00	.00	34	7.2	8.0	15	12	3.2	1.4	.00	.00	.00
13	.00	.00	16	6.9	7.4	15	13	3.3	1.4	.00	.00	.00
14	.00	.00	9.8	6.9	7.1	15	16	2.9	1.3	.00	.00	.00
15	.00	.00	7.0	6.7	7.5	14	17	3.0	1.0	.00	.00	.00
16	.00	.00	5.2	6.7	7.7	16	14	3.8	.74	.00	.00	.00
17	.00	.00	4.1	6.8	7.3	16	13	3.6	.46	.00	.00	.00
18	.00	.00	3.9	7.1	7.6	14	12	3.2	.31	.00	.00	.00
19	.00	.04	3.5	7.9	9.4	13	11	2.5	.21	.00	.00	.00
20	.00	.00	3.2	8.4	17	14	11	2.4	.16	.00	.00	.00
21	.00	.00	2.9	9.0	20	13	10	3.7	.09	.00	.00	.00
22	.00	.00	3.0	9.5	18	11	12	9.0	.07	.00	.00	.00
23	.00	.00	3.6	8.7	14	11	13	29	.05	.00	.00	.00
24	.00	.00	3.7	8.2	11	11	11	36	.03	.00	.00	.00
25	.00	.00	3.4	8.3	9.7	12	9.0	22	.03	.00	.00	.00
26	.00	1.3	2.8	8.0	8.9	106	8.3	10	13	.00	.00	.00
27	.00	16	4.8	7.7	8.2	114	8.3	7.8	1.6	.00	.00	.00
28	.00	27	11	7.0	7.9	48	8.3	15	1.2	.00	.00	.00
29	.00	10	10	7.3	---	30	7.5	7.0	6.9	.00	.00	.00
30	.00	3.0	7.2	7.4	---	37	7.0	7.0	6.5	.00	.00	.00
31	.00	---	5.7	10	---	31	---	40	---	.00	.00	---
TOTAL	.00	57.50	172.22	268.0	329.0	1299.6	402.4	259.7	194.15	2.78	.00	.00
MEAN	.000	1.92	5.56	8.65	11.8	41.9	13.4	8.38	6.47	.090	.000	.000
MAX	.00	27	34	15	34	318	25	40	60	1.9	.00	.00
MIN	.00	.00	.00	6.0	7.1	7.8	7.0	2.4	.03	.00	.00	.00
AC-FT	.00	114	342	532	653	2580	798	515	385	5.5	.00	.00
CAL YR 1982	TOTAL	53815.08	MEAN	147	MAX	4430	MIN	.00	AC-FT	106700		
WTR YR 1983	TOTAL	2985.35	MEAN	8.18	MAX	318	MIN	.00	AC-FT	5920		

## 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 right of right abutment of bridge on Farm Road 730, 0.6 mi northeast of Boyd, 3.5 mi downstream from Boggy Creek, and at mile 602.

DRAINAGE AREA.--1,725 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1947 to current year.

GAGE.--Water-stage recorder. Datum of gage is 660.57 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 14, 1954, water-stage recorder at site 2.2 mi downstream at datum 5.48 ft lower.

REMARKS.--Records fair. During the current year, sustained flows were the result of releases for water supply from Bridgeport Reservoir (station 08043000) 25 mi upstream from this station (drainage area, 1,111 mi<sup>2</sup>). In addition, flow from 100 mi<sup>2</sup> is affected by storage in Lake Amon G. Carter (capacity, 15,240 acre-ft) on Big Sandy Creek. Flow is also affected at times by discharge from the flood-detention pools of 34 floodwater-retarding structures with a combined detention capacity of 24,050 acre-ft. These structures control runoff from 89.3 mi<sup>2</sup> in the Big Sandy and Salt Creeks drainage basins. Several observations of water temperature were made during the year. Gage-height telemeters at station.

AVERAGE DISCHARGE.--36 years, 233 ft<sup>3</sup>/s (168,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,400 ft<sup>3</sup>/s Oct. 14, 1981 (gage height, 25.87 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, about 25 ft in May 1908, present site and datum, from information by local residents, who also reported a flood of about the same gage height between 1870-80. A flood in April 1942 reached a stage of 20.6 ft, present site and datum, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 492 ft<sup>3</sup>/s Mar. 5 at 1100 hours (gage height, 10.53 ft); minimum daily, 2.2 ft<sup>3</sup>/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222	225	26	125	98	23	73	275	108	17	299	245
2	221	225	22	143	59	21	51	277	62	20	299	245
3	223	225	22	143	36	21	44	282	36	18	298	242
4	227	225	20	139	27	35	41	275	24	8.5	299	240
5	222	225	23	135	25	414	40	275	19	8.2	305	240
6	219	225	22	133	25	335	38	273	18	84	302	241
7	220	225	121	130	24	133	35	285	17	212	301	242
8	221	255	271	127	25	61	33	280	16	222	308	243
9	236	255	275	125	23	66	32	280	18	217	311	243
10	231	255	283	125	23	56	31	284	15	217	308	240
11	221	255	318	108	22	34	30	285	14	215	310	134
12	223	255	292	62	21	32	28	285	12	260	314	15
13	230	255	186	58	20	32	28	283	10	251	314	7.0
14	223	255	158	58	19	32	27	284	223	161	314	5.1
15	215	255	145	56	24	31	27	286	154	26	311	4.4
16	213	255	140	55	29	31	26	238	31	13	309	4.1
17	213	255	136	57	21	36	24	183	18	9.7	311	3.7
18	217	255	135	58	21	35	24	182	16	7.6	312	2.8
19	214	255	129	58	24	31	28	180	18	6.6	312	6.0
20	212	255	128	59	38	30	29	190	12	6.4	312	11
21	219	255	126	59	44	31	26	159	10	50	312	5.6
22	226	255	126	60	39	28	23	36	9.1	230	311	3.8
23	226	190	128	61	34	27	26	147	8.3	240	250	3.4
24	225	190	127	59	34	27	26	96	11	245	240	3.4
25	225	190	125	58	31	27	25	45	42	245	245	3.5
26	225	190	124	58	24	164	22	30	42	244	244	3.5
27	225	80	132	58	23	288	21	21	54	243	242	3.4
28	225	50	141	58	23	138	22	19	28	244	245	3.1
29	225	40	137	60	---	62	22	22	18	245	246	2.6
30	225	36	131	61	---	277	151	18	18	264	241	2.2
31	225	---	126	70	---	171	---	139	---	294	241	---
TOTAL	6894	6366	4275	2616	856	2729	1053	5914	1081.4	4524.0	8966	2648.6
MEAN	222	212	138	84.4	30.6	88.0	35.1	191	36.0	146	289	88.3
MAX	236	255	318	143	98	414	151	286	223	294	314	245
MIN	212	36	20	55	19	21	21	18	8.3	6.4	240	2.2
AC-FT	13670	12630	8480	5190	1700	5410	2090	11730	2140	8970	17780	5250
CAL YR 1982	TOTAL	249529.8	MEAN 684	MAX 18900	MIN 5.3	AC-FT 494900						
WTR YR 1983	TOTAL	47923.0	MEAN 131	MAX 414	MIN 2.2	AC-FT 95060						



## 08045000 EAGLE MOUNTAIN RESERVOIR ABOVE FORT WORTH, TX

LOCATION.--Lat 32°52'39", long 97°28'29", Tarrant County, Hydrologic Unit 12030101, at right end of main section (left) of Eagle Mountain Dam on West Fork Trinity River, 11.8 mi northwest of Fort Worth, and at mile 583.3.

DRAINAGE AREA.--1,970 mi<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 of present site at present datum.

REMARKS.--The reservoir is formed by two sections of rolled earthfill and a concrete spillway separated by high natural ground. Total length of the dam, including spillway, is 4,800 ft. The dam was completed Oct. 24, 1932, and storage began Feb. 28, 1934. The emergency spillway is a 1,300-foot-wide cut through natural ground located between the two sections of earthfill that make up the dam. The original service spillway, located in the section to the right of the main dam, contains a concrete spillway with four 25-foot bays, three are equipped with vertical lift gates and the fourth is left open. In 1971, a side-channel spillway was constructed. The newest spillway is located 300 ft to the left of the original service spillway and has six 11.25- by 22-foot-wide roller lift gates. The main section of the dam contains the outlet works that consist of two concrete conduits with two 48-inch-diameter valves in each conduit. The reservoir is used for flood control and for part of the municipal water supply for the city of Fort Worth. Capacities are based on a survey made in 1968. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08044500. For storage above the reservoir, see REMARKS for West Fork Trinity River near Boyd (station 08044500). Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	682.0	-
Crest of spillway.....	676.0	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 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 Apr. 26, 1942 (elevation, 659.9 ft); minimum observed since first appreciable storage in 1935, 57,690 acre-ft Nov. 19, 20, 1956.

EXTREMES (at 0700) FOR CURRENT YEAR.--Maximum contents observed, 178,600 acre-ft June 15, 16 (elevation, 647.79 ft); minimum observed, 158,300 acre-ft Sept. 30 (elevation, 645.37 ft).

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

645.0	155,300	647.0	171,700
646.0	163,300	648.0	180,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 0700

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	169000	169100	172700	173100	175600	173700	175100	168800	177600	173800	171600	171000
2	168800	169400	172700	173400	175700	173500	175200	169000	177600	173300	171600	170600
3	168800	169500	172800	173500	175700	173200	174900	169200	178000	172800	171500	170500
4	168600	169300	172700	173500	175800	173200	174700	169400	178300	172400	171500	170100
5	168500	169200	172700	173700	175900	173300	174500	169400	178200	172000	171500	169900
6	168500	169000	172700	173800	176000	173500	174200	169300	178400	171600	171200	169600
7	168200	168900	172500	174000	176000	174300	174000	169400	177700	171300	171100	169500
8	168200	169000	172300	174100	175700	174600	173700	169500	177400	171100	171500	169200
9	168200	169200	172100	174200	175700	174400	173500	169500	177000	171000	171500	168900
10	168100	169400	172700	174400	175700	174200	173400	169500	176600	171000	171400	168800
11	167900	169500	173300	174500	175600	174000	173300	169800	176400	170800	171300	168500
12	168100	169600	173500	174500	175400	173900	173100	170000	175800	170800	171200	168300
13	168000	169500	173500	174600	175200	173700	173100	170200	175400	170700	171100	168000
14	167800	169500	173600	174600	175000	173500	172800	170200	177900	170700	171000	167200
15	167700	169400	173500	174500	175000	173600	172500	170800	178600	173900	171000	166400
16	167800	169300	173300	174500	174800	173700	172000	170500	178600	174000	170900	165700
17	167800	169400	173200	174500	174600	173800	172000	170300	178400	173700	170700	165000
18	167800	169500	173200	174500	174700	173600	171900	170400	177900	173400	170600	164500
19	167700	169600	173100	174600	174600	173200	171600	170100	177600	172900	171100	164000
20	167600	169700	172900	174700	174500	173200	171300	170300	177200	172700	172800	163500
21	167800	169800	172700	174600	174800	173000	171000	171400	176700	172500	172700	162800
22	168200	170200	172600	174700	174900	172700	170800	172800	176400	172100	172400	162000
23	168500	170100	172500	174600	174600	172400	170800	175200	175900	172200	172000	161300
24	168600	170100	172700	174700	174500	172300	170500	175700	175700	172300	171900	160800
25	168700	170000	172700	174700	174300	172000	170200	175900	175600	172200	171900	160300
26	168500	170500	172300	174700	174100	173300	169700	176000	175300	172100	171800	159900
27	168400	172100	172600	174600	174000	173300	169500	176000	175200	172000	171600	159500
28	168500	172100	172700	174500	173800	173500	169200	175900	175100	171900	171500	159100
29	168700	172400	172800	174700	---	173600	169000	175700	174800	171800	171200	158700
30	168700	172500	172700	174700	---	174300	168900	175500	174200	171600	171100	158300
31	168900	---	172800	174700	---	174400	---	177200	---	171600	171000	---
MAX	169000	172500	173600	174700	176000	174600	175200	177200	178600	174000	172800	171000
MIN	167600	168900	172100	173100	173800	172000	168900	168800	174200	170700	170600	158300
(†)	646.67	647.09	647.13	647.35	647.24	647.31	646.66	647.63	647.29	646.99	646.91	645.37
(*)	-300	+3600	+300	+1900	-900	+600	-5500	+8300	-3000	-2600	-600	-12700
CAL YR 1982	MAX	215400	MIN	167600	+	-15600						
WTR YR 1983	MAX	178600	MIN	158300	+	-10900						

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

## TRINITY RIVER BASIN

08045400 LAKE WORTH ABOVE FORT WORTH, TX

LOCATION.--Lat 32°47'21", long 97°24'58", Tarrant County, Hydrologic Unit 12030102, on top of Lake Worth Dam on West Fork Trinity River, 240 ft to right of right end of uncontrolled concrete spillway, 2.9 mi upstream from Farmers Branch, 3.3 mi upstream from bridge on State Highway 183 crossing West Fork Trinity River, 5.3 mi northwest of Tarrant County Courthouse in Fort Worth, and at river mile 572.0.

DRAINAGE AREA.--2,064 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1981 to current year.

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

REMARKS.--The lake is formed by a rolled earthfill dam 3,200 ft long, with an uncontrolled concrete spillway 700 ft long near the center of the dam. Deliberate impoundment began in June 1914 and the dam was completed in October 1914. There is a 48-inch-diameter pipe controlled by a 36-inch valve, which may be used to make small releases through the dam. The dam is owned by the city of Fort Worth. Area-capacity curves are based on a survey made in 1968. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	606.3	-
Crest of concrete spillway.....	594.0	37,070
Lowest gated outlet (invert).....	584.25	12,290

COOPERATION.--Copies of the capacity table (prepared by the Corps of Engineers), area-capacity curves (prepared by Freese, Nichols, and Endress, Consulting Engineers), and record of observed elevations were furnished by Tarrant County Water Control and Improvement District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 53,900 acre-ft Oct. 15, 1981, at 0800 hours (elevation, 598.23 ft); minimum observed, 26,010 acre-ft Oct. 6, 1981 (elevation, 590.42 ft).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum contents observed, 52,080 acre-ft May 25, 1957 (elevation, 598.47 ft); minimum observed, 20,540 acre-ft June 30, 1955 (elevation, 589.45 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 31,480 acre-ft Dec. 28 at 0800 hours (elevation, 592.30 ft, from graph); minimum, 27,290 acre-ft May 9-10 (elevation, 590.89 ft).

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

590.0	24,860	592.0	30,540
591.0	27,600	593.0	33,690

CONTENTS, IN ACRE-WATER, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29270	29010	30360	31230	29360	29860	30330	27920	28630	29390	28180	28480
2	29240	28950	30240	31260	29150	29800	30130	27860	28330	29390	28150	28480
3	29210	28860	30010	31140	28920	29770	29830	27770	28040	29390	28150	28510
4	29180	28680	29770	31010	28770	30010	29890	27710	28120	29240	28150	28510
5	29150	28600	29570	31070	28770	30040	29890	27540	28480	29240	28180	28480
6	29240	28540	29450	30980	28630	30040	29770	27430	28420	29180	28180	28480
7	29360	28510	29480	30850	28630	29980	29600	27490	28300	29130	28270	28420
8	29510	28570	29510	30760	28650	29950	29450	27380	28070	29040	28330	28480
9	29710	28650	29660	30660	28770	29920	29360	27290	28040	28980	28540	28450
10	29770	28710	30070	30600	28770	29890	29270	27320	27920	28830	28650	28480
11	29830	28770	30240	30570	28800	29860	29070	27600	27860	28710	28740	28510
12	30010	28830	30300	30480	28800	29770	28830	27680	27800	28540	28650	28600
13	30210	28680	30240	30390	28800	29740	28860	27740	27830	28540	28630	28600
14	30360	28650	30270	30300	28830	29740	28890	28040	28390	29570	28600	28600
15	30480	28650	30330	30210	28920	29770	28650	28070	28570	29770	28540	28570
16	30600	28680	30390	30100	28950	30070	28420	28040	28630	29800	28450	28570
17	30730	28770	30450	30010	28980	29860	28210	28070	28650	29600	28270	28540
18	30390	28950	30540	29740	29100	29770	28070	28270	28650	29890	28390	28480
19	30240	29210	30630	29710	29150	29950	28330	28180	28630	29800	28770	28570
20	30270	29450	30700	29710	29510	29890	28300	28980	28600	29630	28650	28740
21	30330	29570	30760	29710	29660	29740	28300	29300	28510	29480	28450	28710
22	30180	29800	30790	29540	29660	29680	28510	28860	28480	29240	28240	28680
23	30070	29950	30850	29510	29660	29680	28390	28600	28510	29010	28240	28630
24	29980	30040	31040	29480	29680	29710	28300	29270	28800	28860	28300	28600
25	29800	30540	31230	29360	29710	29660	28210	29570	28830	28710	28390	28630
26	29710	30980	31390	29420	29680	30240	28070	29300	29210	28570	28420	28630
27	29570	30980	31450	29270	29710	30100	28070	29130	29360	28390	28330	28600
28	29480	30760	31420	29150	29740	30100	27980	29100	29540	28330	28330	28600
29	29270	30630	31330	29150	---	30040	27920	29210	29570	28210	28300	28570
30	29130	30480	31200	29130	---	30300	27860	29130	29480	28180	28300	28570
31	28980	---	31230	29570	---	30270	---	28920	---	28210	28240	---
MAX	30730	30980	31450	31260	29740	30300	30330	29570	29570	29890	28770	28740
MIN	28980	28510	29450	29130	28630	29660	27860	27290	27800	28180	28150	28420
(†)	591.47	591.98	592.22	591.67	591.73	591.91	591.09	591.45	591.64	591.21	591.22	591.33
(‡)	-320	+1500	+750	-1660	+170	+530	-2410	+1060	+560	-1270	+30	+330

CAL YR 1982 MAX 49150 MIN 28510 † -5260

WTR YR 1983 MAX 31450 MIN 27290 ‡ -730

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

TRINITY RIVER BASIN

283

08045400 LAKE WORTH ABOVE FORT WORTH, TX

LOCATION.--Lat 32°47'21", long 97°24'58", Tarrant County, Hydrologic Unit 12030102, 2.9 mi upstream from Farmers Branch, 3.3 mi upstream from bridge on State Highway 183, and 5.3 mi northwest of the Tarrant County Courthouse in Fort Worth.

DRAINAGE AREA.--2,064 mi<sup>2</sup>.

PERIOD OF RECORD.--Chemical analyses: January 1970 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
DEC 03...	0900	377	13.0	150	21	48	7.5	20

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
DEC 03...	.7	5.3	130	19	30	.30	6.1	214

## 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 downstream from Squaw Creek, 2.8 mi downstream from Lake Weatherford Dam on the Clear Fork Trinity River, 3.8 mi upstream from South Fork Trinity River, and 8.5 mi east of county courthouse in Weatherford.

DRAINAGE AREA.--121 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1980 to current year.

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 810.00 ft National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Records good. Flow is regulated by Lake Weatherford. The city of Weatherford diverts water from Lake Weatherford for municipal use and returns sewage effluent to the South Fork Trinity River, a tributary downstream from this station. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,080 ft<sup>3</sup>/s Nov. 1, 1981 (gage height, 21.58 ft); minimum, 0.29 ft<sup>3</sup>/s Aug. 27, 28, Sept. 1-6, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 145 ft<sup>3</sup>/s June 3 at 2000 hours (gage height, 10.86 ft); minimum daily, 0.47 ft<sup>3</sup>/s Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.93	1.0	.73	1.1	1.7	1.5	1.0	1.0	66	5.3	1.2	.96
2	.93	1.0	.61	1.1	1.7	1.5	1.2	.97	55	4.6	1.3	.96
3	.86	1.0	.61	1.2	1.7	1.4	1.2	.93	55	3.4	1.2	.89
4	.86	1.0	.61	1.2	1.7	2.0	1.3	.93	53	2.8	1.3	.89
5	.86	1.1	.61	1.2	1.8	1.5	1.4	.86	37	2.6	1.3	.83
6	1.0	1.1	.57	1.4	1.8	1.4	1.4	.86	33	2.6	1.2	.86
7	.93	1.0	.61	1.4	1.7	1.2	1.4	.83	26	2.6	1.2	.82
8	1.1	1.1	.57	1.4	1.7	1.2	1.4	.73	21	2.1	1.3	.82
9	1.5	1.1	.53	1.4	1.7	1.2	1.4	.73	18	1.9	1.3	.73
10	1.2	1.1	.73	1.4	1.7	1.1	1.5	.82	16	1.7	1.1	.73
11	1.1	1.2	.93	1.4	1.7	1.1	1.5	1.0	14	1.6	1.1	.69
12	1.8	1.1	1.2	1.4	1.7	1.1	1.5	.85	13	1.5	1.1	.68
13	1.5	1.1	1.2	1.4	1.7	1.1	1.5	.79	12	1.5	1.1	.60
14	1.4	1.1	1.2	1.4	1.7	1.1	1.2	.79	13	3.6	1.2	.59
15	1.4	1.1	1.1	1.4	1.7	1.1	1.2	.77	13	1.9	1.1	.58
16	1.4	1.1	1.0	1.4	1.7	1.2	1.3	.66	12	1.9	1.1	.58
17	1.4	1.1	1.0	1.4	1.7	1.0	1.2	.61	12	1.7	1.1	.53
18	1.2	1.1	1.0	1.4	1.7	1.0	1.3	.61	10	1.5	1.1	.53
19	1.0	1.2	1.0	1.4	1.7	1.1	1.4	.58	9.1	1.5	3.3	.52
20	.93	1.2	.93	1.4	2.3	1.2	1.4	3.7	8.4	1.2	.84	.57
21	1.7	1.2	.93	1.4	1.7	1.1	1.4	18	8.0	1.2	.73	.49
22	1.4	1.1	.93	1.4	1.7	1.0	1.4	3.2	7.7	1.2	.73	.47
23	1.2	1.1	.93	1.4	1.7	1.0	1.2	37	7.4	1.1	.73	.48
24	1.1	1.0	.93	1.8	1.6	1.1	1.2	93	7.4	1.1	.75	.52
25	1.1	1.0	1.0	1.5	1.5	1.1	1.1	79	7.4	1.0	.76	.51
26	1.1	2.0	1.1	1.5	1.5	4.9	1.1	56	7.4	.98	.70	.59
27	1.1	1.8	1.1	1.5	1.5	1.1	1.1	40	7.4	.96	.73	.55
28	1.1	.93	1.1	1.5	1.5	1.0	1.1	29	8.7	.93	.67	.55
29	1.1	.79	1.1	1.5	---	1.0	1.1	22	8.0	.95	.78	.59
30	1.1	.79	1.1	1.5	---	1.0	1.1	20	6.5	1.0	.92	.57
31	1.0	---	1.1	1.9	---	1.0	---	47	---	1.2	.96	---
TOTAL	36.30	33.51	28.06	43.7	47.5	40.3	38.5	463.22	572.4	59.12	33.90	19.68
MEAN	1.17	1.12	.91	1.41	1.70	1.30	1.28	14.9	19.1	1.91	1.09	.66
MAX	1.8	2.0	1.2	1.9	2.3	4.9	1.5	93	66	5.3	3.3	.96
MIN	.86	.79	.53	1.1	1.5	1.0	1.0	.58	6.5	.93	.67	.47
AC-FT	72	66	56	87	94	80	76	919	1140	117	67	39
CAL YR 1982	TOTAL	18974.30	MEAN	52.0	MAX	1390	MIN	.53	AC-FT	37640		
WTR YR 1983	TOTAL	1416.19	MEAN	3.88	MAX	93	MIN	.47	AC-FT	2810		



## 08046500 BENBROOK LAKE NEAR BENBROOK, TX

LOCATION.--Lat 32°39'02", long 97°26'54", Tarrant County, Hydrologic Unit 12030102, in intake structure of Benbrook Dam on Clear Fork Trinity River, 2.5 mi south of Benbrook, 3.5 mi upstream from Marys Creek, and 14.6 mi upstream from mouth.

DRAINAGE AREA.--429 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1952 to current year. Prior to October 1970, published as Benbrook Reservoir.  
Water-quality records.--Chemical analyses: October 1969 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

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

REMARKS.--The lake is formed by a rolled earthfill dam 9,130 ft long, including a 500-foot uncontrolled off-channel concrete-gravity spillway with a 100-foot notch in center of ogee weir section. The outlet works consist of a 13.0-foot-diameter concrete conduit controlled by two 6.5- by 13.0-foot broome-type gates and two 30-inch steel pipes controlled by slide gates. Deliberate impoundment began Sept. 29, 1952. From August 1950 to Sept. 28, 1952, the lake was operated as a detention basin only. The capacity table is based on a survey made in 1945. The lake was built for flood control, navigation, and low-flow regulation. Inflow is affected at times by the discharge from flood-detention pools of 12 floodwater-retarding structures with a combined detention capacity of 11,170 acre-ft. These structures control runoff from 37.6 mi<sup>2</sup>. 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 June 6, 1957 (elevation, 713.35 ft); minimum since lake first filled in 1957, 64,630 acre-ft Sept. 15, 1964 (elevation, 687.18 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 84,930 acre-ft June 28 at 1900 hours (elevation, 693.11 ft); minimum daily, 78,020 acre-ft Sept. 30 (elevation, 691.19 ft).

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

690.0	73,900
692.0	80,890
694.0	88,250

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84560	82960	80150	80570	81250	81650	82450	81760	83830	84820	82520	81110
2	84560	82960	80070	80570	81220	81650	82340	81840	83980	84750	82420	81040
3	84490	82820	80070	80640	81220	81690	82340	81760	84160	84670	82310	80930
4	84410	82780	80040	80640	81250	81910	82340	81730	84380	84520	82240	80780
5	84380	82740	79970	80640	81250	81940	82310	81650	84450	84450	82130	80640
6	84340	82670	79930	80640	81250	81940	82270	81620	84520	84380	82050	80540
7	84270	82630	79930	80640	81290	81940	82230	81470	84560	84310	81940	80430
8	84230	82600	79900	80680	81330	81910	82230	81440	84560	84230	82130	80320
9	84200	82560	79900	80680	81330	81910	82200	81360	84560	84160	82050	80220
10	84050	82560	80070	80680	81360	81870	82200	81510	84520	84090	81980	80110
11	83980	82600	80180	80640	81400	81870	82160	81540	84520	83980	81910	80040
12	84090	82520	80180	80640	81360	81870	82160	81510	84450	83910	81760	79970
13	84090	82420	80180	80640	81360	81830	82130	81510	84420	83910	81690	79900
14	84050	82270	80180	80640	81360	81830	82050	81470	84640	84050	81580	79760
15	83980	82230	80180	80640	81360	81830	82020	81440	84640	84020	81470	79620
16	83940	82130	80180	80610	81360	81870	82020	81360	84640	84020	81470	79510
17	83800	81910	80180	80610	81400	81830	81940	81330	84640	84020	81360	79440
18	83720	81690	80180	80610	81400	81830	81910	81330	84640	83940	81290	79330
19	83510	81470	80180	80640	81430	81870	81830	81330	84600	83870	81980	79260
20	83470	81250	80180	80640	81540	81830	81830	81360	84560	83800	81940	79010
21	83540	81000	80180	80640	81620	81800	81870	81910	84520	83690	81840	78940
22	83580	80780	80180	80640	81620	81800	81910	81940	84450	83620	81760	78840
23	83540	80390	80110	80640	81650	81800	81870	82310	84450	83510	81650	78590
24	83400	80110	80150	80640	81650	81800	81830	82710	84420	83400	81580	78590
25	83320	79930	80040	80640	81650	81870	81800	82960	84420	83320	81470	78480
26	83250	80180	80290	80610	81650	82270	81800	83110	84750	83180	81360	78440
27	83180	80290	80540	80610	81650	82270	81800	83180	84710	83030	81290	78340
28	83140	80320	80540	80610	81650	82310	81760	83220	84930	82920	81220	78270
29	83180	80220	80540	80640	---	82310	81800	83250	84900	82820	81070	78160
30	83180	80150	80500	80610	---	82420	81800	83510	84900	82740	81000	78020
31	83000	---	80500	81140	---	82490	---	83690	---	82630	80860	---
MAX	84560	82960	80540	81140	81650	82490	82450	83690	84930	84820	82520	81110
MIN	83000	79930	79900	80570	81220	81650	81760	81330	83830	82630	80860	78020
(†)	692.58	691.79	691.89	692.07	692.21	692.44	692.25	692.77	693.10	692.48	691.99	691.19
(‡)	-1670	-2850	+350	+640	+510	+840	-690	+1890	+1210	-2270	-1770	-2840
CAL YR 1982	MAX	134900	MIN	79900	†	-8660						
WTR YR 1983	MAX	84930	MIN	78020	†	-6650						

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



## TRINITY RIVER BASIN

08047000 CLEAR FORK TRINITY RIVER NEAR BENBROOK, TX

LOCATION.--Lat 32°39'54", long 97°26'30", Tarrant County, Hydrologic Unit 12030102, on left bank 1.5 mi downstream from Benbrook Dam, 1.7 mi southeast of Benbrook, 2.9 mi upstream from Marys Creek, and 13.1 mi upstream from mouth.

DRAINAGE AREA.--431 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1947 to current year.

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

GAGE.--Water-stage recorder. Datum of gage is 604.22 ft 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 upstream for Pecan Valley Golf Course. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--5 years (water years 1948-52) prior to regulation by Benbrook Lake, 105 ft<sup>3</sup>/s (76,070 acre-ft/yr); 31 years (water years 1953-83) regulated, unadjusted, 68.6 ft<sup>3</sup>/s (49,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,900 ft<sup>3</sup>/s May 17, 1949 (gage height, 28.72 ft), from rating curve extended above 11,000 ft<sup>3</sup>/s on basis of velocity-area studies and slope-area measurement of 82,900 ft<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 May 7, 1979 (gage height, 11.27 ft); maximum gage height, 12.20 ft Apr. 7, 1977.

Maximum stage since at least 1922, that of May 17, 1949.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 202 ft<sup>3</sup>/s May 21 at 1000 hours (gage height, 3.96 ft); minimum daily, 0.07 ft<sup>3</sup>/s June 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	9.4	22	9.6	8.5	10	8.8	14	11	1.4	11	14
2	4.7	5.8	22	10	8.5	11	8.9	14	10	5.7	11	13
3	4.0	.57	13	10	9.0	11	9.8	15	12	5.4	10	13
4	5.2	.34	6.0	10	9.0	12	9.2	14	10	5.4	12	13
5	5.4	.67	5.6	10	9.0	11	10	14	9.9	5.0	11	12
6	12	.33	5.6	10	9.0	11	10	14	9.5	5.1	12	12
7	12	.11	5.9	10	8.5	10	9.6	14	9.5	5.2	12	11
8	12	.14	6.0	10	8.5	9.9	9.8	13	9.6	5.6	11	11
9	12	7.7	6.4	10	8.5	9.8	9.9	13	9.6	5.5	11	12
10	11	6.9	7.7	10	9.0	9.8	11	15	9.2	5.7	7.5	12
11	11	7.5	7.9	10	9.5	10	14	15	9.6	5.2	4.6	11
12	12	6.3	6.8	9.9	9.5	10	11	15	11	7.5	14	10
13	11	5.4	6.8	9.0	9.5	11	12	15	11	9.3	15	11
14	9.9	5.5	6.8	9.5	9.5	10	14	15	14	11	16	11
15	9.8	6.0	6.8	9.5	9.5	11	14	15	7.4	10	15	9.8
16	9.8	42	6.8	9.5	9.9	11	14	15	.49	9.9	15	10
17	9.8	119	7.2	9.0	9.9	10	14	15	.23	9.6	16	11
18	9.9	128	7.6	8.1	10	11	14	15	.16	9.5	16	10
19	10	125	7.6	8.1	10	11	15	15	.23	10	21	10
20	10	126	7.2	8.5	11	11	15	25	.44	11	12	10
21	11	126	7.2	9.5	10	11	16	164	8.0	10	12	9.3
22	12	129	8.0	9.5	10	11	15	168	14	10	11	11
23	12	129	8.1	9.0	10	12	15	11	10	10	12	9.5
24	12	119	8.5	9.0	10	11	15	10	4.0	10	12	10
25	12	108	9.0	9.0	10	11	15	11	.07	10	12	11
26	10	117	11	8.5	10	12	14	10	.25	9.8	11	10
27	10	77	11	9.5	10	8.7	14	10	.95	9.0	12	11
28	10	21	9.5	8.5	10	8.7	13	10	.73	11	12	9.2
29	9.4	21	9.5	9.0	---	8.7	13	10	.21	9.5	12	10
30	9.3	21	9.5	10	---	8.9	14	12	.12	11	12	11
31	9.9	---	9.5	15	---	8.8	---	12	---	11	12	---
TOTAL	304.0	1470.66	272.5	297.2	265.8	323.3	378.0	728	193.18	254.3	383.1	328.8
MEAN	9.81	49.0	8.79	9.59	9.49	10.4	12.6	23.5	6.44	8.20	12.4	11.0
MAX	12	129	22	15	11	12	16	168	14	11	21	14
MIN	4.0	.11	5.6	8.1	8.5	8.7	8.8	10	.07	1.4	4.6	9.2
AC-FT	603	2920	541	589	527	641	750	1440	383	504	760	652
CAL YR 1982	TOTAL	63414.96	MEAN	174	MAX	2910	MIN	.11	AC-FT	125800		
WTR YR 1983	TOTAL	5198.84	MEAN	14.2	MAX	168	MIN	.07	AC-FT	10310		

## TRINITY RIVER BASIN

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## 08047500 CLEAR FORK TRINITY RIVER AT FORT WORTH, TX

LOCATION.--Lat 32°43'56", long 97°21'31", Tarrant County, Hydrologic Unit 12030102, at Fort Worth pumping station on left bank, 240 ft upstream from the Texas and Pacific Railway Co. bridge in Fort Worth, 830 ft upstream from East-West Expressway bridge, 2.5 mi upstream from mouth, 5 mi downstream from Marys Creek, and 10 mi downstream from Benbrook Dam.

DRAINAGE AREA.--518 mi<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 National Geodetic Vertical Datum of 1929. Prior to Apr. 3, 1970, various nonrecording and recording gages were located within 650 ft of present site at different datums.

REMARKS.--Records good. Flow largely regulated by Benbrook Lake (station 08046500). The city of Fort Worth diverted water from pool behind dam during the current year. The Benbrook Water and Sewage Authority diverted water from the river upstream from the station for municipal use. Several observations of water temperature were made during the year. Gage-height telemeter is located at station.

AVERAGE DISCHARGE.--28 years (water years 1925-52) prior to regulation by Benbrook Lake, 112 ft<sup>3</sup>/s (81,140 acre-ft/yr); 31 years (water years 1953-83) regulated, unadjusted, 99.3 ft<sup>3</sup>/s (71,940 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107,000 ft<sup>3</sup>/s May 17, 1949 (gage height, 28.20 ft, present datum), from rating curve extended above 16,000 ft<sup>3</sup>/s on basis of contracted-opening measurement of 107,000 ft<sup>3</sup>/s; no flow at times most years. Maximum stage since at least 1900, 28.20 ft May 17, 1949, present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 25, 1922, reached a stage of 27.5 ft, present datum (discharge, 74,300 ft<sup>3</sup>/s, by slope-area measurement of peak flow); data furnished by Fort Worth city engineer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,220 ft<sup>3</sup>/s May 22 at 2345 hours (gage height, 10.66 ft); no flow part of day Nov. 16, 28, Dec. 2, 4, 5, due to pumping from pool at gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	16	1.8	33	55	12	20	15	29	5.9	2.0	198
2	2.9	46	1.7	30	23	12	17	27	23	4.1	1.6	21
3	2.3	15	6.9	18	18	13	17	23	85	4.9	1.6	13
4	2.3	6.8	1.8	16	14	66	17	16	156	4.5	3.3	11
5	1.7	5.2	4.4	15	32	23	19	14	34	4.3	7.7	10
6	2.1	4.0	11	14	20	13	17	12	38	3.7	5.0	8.1
7	8.6	4.0	12	14	16	12	17	12	25	2.6	3.6	7.2
8	13	3.5	12	13	15	13	16	11	23	2.8	12	6.8
9	98	2.8	10	13	15	11	16	11	20	2.7	27	6.8
10	27	6.9	73	13	13	10	17	49	17	3.6	12	6.0
11	17	13	81	12	13	10	17	42	16	3.8	7.2	6.8
12	80	15	35	13	12	11	19	19	17	2.3	3.6	7.7
13	37	11	22	13	13	12	14	15	12	3.7	2.0	7.2
14	22	8.5	18	12	13	12	13	31	378	225	6.0	6.8
15	17	8.4	15	11	13	11	15	29	32	58	6.4	6.4
16	17	4.6	15	11	13	23	17	19	18	30	5.0	5.5
17	17	29	15	11	12	15	18	17	10	26	3.6	6.0
18	17	43	15	11	18	12	15	21	7.0	25	10	6.4
19	16	39	14	23	14	12	14	21	5.8	15	449	6.0
20	15	40	13	12	53	22	14	96	4.3	11	27	7.2
21	84	42	14	12	25	13	15	329	3.7	10	17	7.7
22	44	45	13	12	25	11	27	222	3.8	9.0	13	8.6
23	26	45	13	12	16	10	23	243	10	8.1	12	8.6
24	23	45	14	11	14	11	18	28	21	6.8	9.5	8.6
25	22	40	11	11	14	11	16	19	25	7.2	9.0	9.0
26	20	281	172	11	14	204	13	15	9.8	4.5	9.0	8.6
27	16	136	78	9.5	14	27	12	14	51	2.9	8.1	7.7
28	17	1.2	31	11	14	22	13	12	156	2.9	9.0	7.7
29	16	6.5	17	10	---	20	13	12	21	2.6	7.2	7.7
30	16	1.0	16	9.5	---	51	15	123	10	2.6	6.4	6.4
31	16	---	26	397	---	23	---	136	---	2.3	6.4	---
TOTAL	716.1	964.4	780.98	814.0	531	728	494	1653	1261.4	497.8	702.2	434.5
MEAN	23.1	32.1	25.2	26.3	19.0	23.5	16.5	53.3	42.0	16.1	22.7	14.5
MAX	98	281	172	397	55	204	27	329	378	225	449	198
MIN	1.7	1.0	1.8	9.5	12	10	12	11	3.7	2.3	1.6	5.5
AC-FT	1420	1910	1550	1610	1050	1440	980	3280	2500	987	1390	862
CAL YR 1982	TOTAL	76433.98	MEAN	209	MAX	3030	MIN	.18	AC-FT	151600		
WTR YR 1983	TOTAL	9577.38	MEAN	26.2	MAX	449	MIN	.18	AC-FT	19000		

## TRINITY RIVER BASIN

## 08048000 WEST FORK TRINITY RIVER AT FORT WORTH, TX

LOCATION.--Lat 32°45'39", long 97°19'56", Tarrant County, Hydrologic Unit 12030102, on left bank 125 ft upstream from Texas Electric Service Co.'s concrete dam, 980 ft downstream from centerline of Paddock Viaduct (North Main Street) at Fort Worth, 2,600 ft downstream from Clear Fork Trinity River, and at mile 556.8.

DRAINAGE AREA.--2,615 mi<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. Datum of gage is 519.24 ft Texas Reclamation Department datum. Prior to Aug. 22, 1954, at site 1,200 ft upstream at same datum. Aug. 22, 1954, to Oct. 15, 1955, at site 2,000 ft upstream at same datum.

REMARKS.--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. The city of Fort Worth diverts water upstream from station and diverts from Cedar Creek Reservoir for municipal and industrial uses. Many small diversions upstream from station. Gage-height telemeter is located at station.

AVERAGE DISCHARGE.--63 years, 373 ft<sup>3</sup>/s (270,200 acre-ft/yr, unadjusted).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 85,000 ft<sup>3</sup>/s, Apr. 25, 1922 (gage height, 23.95 ft), site then in use, by slope-area measurement of peak flow by city engineer of Fort Worth; maximum gage height, 25.91 ft May 17, 1949, site then in use (discharge, 64,300 ft<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, 4,600 ft<sup>3</sup>/s June 14 at 0730 hours (gage height, 3.40 ft); minimum daily, 8.4 ft<sup>3</sup>/s July 28, Aug. 17, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	25	11	61	126	28	31	27	49	20	10	307
2	11	85	10	53	38	27	25	50	41	15	11	28
3	11	31	12	33	32	27	24	43	99	13	10	18
4	11	19	12	30	35	153	25	30	264	13	9.3	15
5	10	16	9.5	29	83	38	28	27	50	13	12	13
6	9.7	15	15	29	34	25	25	22	114	13	13	11
7	14	13	21	31	28	22	23	20	42	12	13	11
8	23	14	22	29	27	22	24	18	35	11	13	12
9	287	14	22	29	27	22	23	17	34	11	41	12
10	43	14	194	29	26	18	24	120	31	11	25	11
11	29	24	206	29	25	20	24	109	29	13	18	12
12	181	29	51	30	26	21	25	33	28	11	13	13
13	67	23	33	35	25	22	23	26	28	11	9.2	14
14	36	19	32	32	26	22	21	79	971	518	9.2	13
15	31	17	28	30	26	22	21	52	59	120	11	13
16	28	18	24	30	25	43	23	31	36	43	9.5	11
17	27	37	23	31	24	30	26	27	32	37	8.4	10
18	26	50	23	33	33	23	25	29	29	41	13	11
19	24	47	23	55	30	22	22	33	24	31	896	11
20	21	46	21	38	145	35	23	182	21	26	37	13
21	176	51	22	35	38	25	26	628	20	22	24	15
22	79	50	22	35	40	21	42	303	20	19	19	16
23	36	49	21	35	29	25	37	586	23	17	15	17
24	31	50	22	36	28	25	27	45	117	15	13	17
25	28	48	19	35	29	22	24	35	79	14	11	19
26	27	579	395	36	29	435	23	32	52	12	10	20
27	24	303	200	32	29	41	21	28	161	9.9	9.9	17
28	25	23	48	33	28	31	22	26	404	8.4	11	15
29	25	14	32	35	---	30	23	26	42	9.9	10	14
30	25	13	29	32	---	99	28	225	28	10	8.8	13
31	26	---	48	784	---	34	---	309	---	10	8.4	---
TOTAL	1402.7	1736	1650.5	1824	1091	1430	758	3218	2962	1130.2	1321.7	722
MEAN	45.2	57.9	53.2	58.8	39.0	46.1	25.3	104	98.7	36.5	42.6	24.1
MAX	287	579	395	784	145	435	42	628	971	518	896	307
MIN	9.7	13	9.5	29	24	18	21	17	20	8.4	8.4	10
AC-FT	2780	3440	3270	3620	2160	2840	1500	6380	5880	2240	2620	1430

CAL YR 1982 TOTAL 391987.0 MEAN 1074 MAX 13800 MIN 8.1 AC-FT 777500  
WTR YR 1983 TOTAL 19246.1 MEAN 52.7 MAX 971 MIN 8.4 AC-FT 38170

## TRINITY RIVER BASIN

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08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX

LOCATION.--Lat 32°45'06", long 97°17'21", Tarrant County, Hydrologic Unit 12030102, at downstream side of bridge on Beach Street, 1,700 ft downstream from Sycamore Creek, 0.9 mi downstream from Riverside Drive bridge, 2.6 mi east of the Tarrant County Courthouse, and at mile 549.6.

DRAINAGE AREA.--2,685 mi<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 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. Gage-height telemeter is located at station.

AVERAGE DISCHARGE.--7 years, 432 ft<sup>3</sup>/s (313,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 ft<sup>3</sup>/s Oct. 13, 1981 (gage height, 36.26 ft); minimum, 0.84 ft<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, 5,320 ft<sup>3</sup>/s June 14 at 1000 hours (gage height, 17.84 ft); minimum daily, 12 ft<sup>3</sup>/s Aug. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	31	23	125	351	40	48	32	75	70	14	499
2	17	179	21	105	86	38	42	60	57	51	14	61
3	15	48	21	63	64	38	39	57	58	41	13	41
4	15	30	22	56	74	207	39	38	315	35	12	34
5	13	23	19	53	152	83	43	33	64	30	12	29
6	13	20	19	49	71	45	41	27	98	27	13	25
7	13	17	24	48	58	38	38	27	58	22	13	23
8	20	17	27	47	54	37	37	21	48	20	32	21
9	513	17	27	45	56	36	37	18	44	20	70	20
10	66	17	316	45	51	35	35	79	45	19	35	18
11	44	25	356	43	47	33	35	180	49	20	26	17
12	320	37	90	42	45	33	34	43	48	19	19	15
13	104	29	40	42	44	33	33	33	47	32	17	14
14	54	24	35	42	43	33	30	70	2190	943	15	14
15	43	21	31	40	42	33	30	74	119	189	16	14
16	39	21	24	40	42	81	30	39	56	69	14	14
17	36	31	22	40	40	54	30	34	43	55	13	15
18	35	48	20	43	55	40	30	51	38	50	25	16
19	34	48	19	74	47	38	28	38	35	39	1750	16
20	29	46	17	51	168	56	28	297	33	33	111	19
21	268	47	17	43	74	43	29	1100	32	33	54	21
22	137	46	17	42	78	38	49	211	31	27	44	24
23	54	45	17	40	51	42	55	1150	30	24	40	25
24	42	46	16	40	45	42	38	79	200	22	34	25
25	39	45	15	40	43	38	33	56	86	21	30	28
26	37	1020	1230	39	43	809	30	48	44	19	25	30
27	34	600	524	37	41	80	28	43	27	18	22	25
28	33	62	119	37	41	55	26	38	800	17	24	22
29	34	32	67	38	---	50	28	35	300	16	22	21
30	32	28	58	36	---	232	36	223	150	16	20	18
31	31	---	101	1140	---	61	---	684	---	15	18	---
TOTAL	2181	2700	3354	2625	2006	2521	1059	4918	5220	2012	2567	1164
MEAN	70.4	90.0	108	84.7	71.6	81.3	35.3	159	174	64.9	82.8	38.8
MAX	513	1020	1230	1140	351	809	55	1150	2190	943	1750	499
MIN	13	17	15	36	40	33	26	18	27	15	12	14
AC-FT	4330	5360	6650	5210	3980	5000	2100	9750	10360	3990	5090	2310
CAL YR 1982	TOTAL	416637	MEAN	1141	MAX	13700	MIN	11	AC-FT	826400		
WTR YR 1983	TOTAL	32327	MEAN	88.6	MAX	2190	MIN	12	AC-FT	64120		

## TRINITY RIVER BASIN

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1976 to current year.

pH: October 1976 to current year.

WATER TEMPERATURES: October 1976 to current year.

DISSOLVED OXYGEN: October 1976 to current year.

INSTRUMENTATION.--Beginning October 1976, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,000 micromhos Nov. 6, 1978; minimum, 102 micromhos June 7, 1982.

pH (1976-83): Maximum, 9.8 units Aug. 8, Sept. 2, 1980; minimum, 6.7 units Aug. 18, 1981.

WATER TEMPERATURES: Maximum, 38.0°C July 14, 16, 1978; minimum, 0.5°C Jan. 11, 19, 20, 1978, Jan. 8, 14, 1979.

DISSOLVED OXYGEN (1976-83): 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, 740 micromhos June 11; minimum, 140 micromhos June 26.

pH: Maximum, 9.2 units Sept. 30; minimum, 7.0 units Nov. 4-6.

WATER TEMPERATURES: Maximum, 36.5°C Aug. 15; minimum, 3.5°C Jan. 23.

DISSOLVED OXYGEN: Maximum, 18.5 mg/L Sept. 30; minimum, 2.9 mg/L Aug. 13.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L AS CACO3)
OCT 26...	1550	37	488	8.3	17.5	12.6	133	2.5	180	26
DEC 16...	1410	24	486	8.1	11.0	11.5	105	2.7	170	24
MAR 14...	1020	33	595	8.1	17.0	10.2	107	3.7	220	37
APR 25...	1520	33	584	8.4	22.0	11.6	135	2.1	210	39
JUL 19...	1520	39	434	8.6	34.0	14.4	206	2.2	130	23
SEP 15...	1050	14	496	8.1	25.0	9.4	116	2.1	160	21

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 26...	60	6.4	33	1.1	4.8	150	44	39	.40
DEC 16...	60	5.9	28	1.0	11	150	54	32	.30
MAR 14...	74	7.8	38	1.2	5.5	180	62	42	.40
APR 25...	70	8.2	39	1.2	7.7	170	64	48	.40
JUL 19...	45	5.0	26	1.0	13	110	48	31	.30
SEP 15...	54	6.3	39	1.4	5.7	140	52	44	.30

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
OCT 26...	5.5	283	.44	.060	.50	.170	1.1	1.30	.110
DEC 16...	5.1	286	.56	.040	.60	.200	.70	.90	.150
MAR 14...	1.6	339	.38	.020	.40	.160	.94	1.10	.110
APR 25...	3.4	343	.44	.060	.50	.150	.95	1.10	.160
JUL 19...	6.6	241	--	<.020	<.10	.050	1.5	1.50	.140
SEP 15...	6.4	292	.18	.020	.20	.050	.85	.90	.120



## TRINITY RIVER BASIN

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08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	2181	425	242	1420	29	170	42	245	150
NOV.	1982	2700	384	219	1600	24	178	37	273	140
DEC.	1982	3354	393	224	2030	25	229	38	348	140
JAN.	1983	2625	521	296	2100	43	308	52	371	170
FEB.	1983	2006	507	288	1560	41	222	51	275	170
MAR.	1983	2521	508	289	1970	41	281	51	346	170
APR.	1983	1059	577	328	937	52	148	58	167	180
MAY	1983	4918	388	221	2930	25	327	38	501	140
JUNE	1983	5329	350	200	2880	21	296	34	488	130
JULY	1983	2012	411	234	1270	27	149	40	218	150
AUG.	1983	2567	338	193	1340	20	137	33	227	130
SEPT	1983	1164	418	238	749	28	88	41	129	150
TOTAL		32436	**	**	20800	**	2530	**	3590	**
WTD. AVG.		89	417	237	**	29	**	41	**	150

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	606	590	600	474	458	465	612	570	586	464	382	415
2	612	588	604	468	172	357	624	604	613	478	422	443
3	618	592	608	452	430	438	624	612	620	538	482	518
4	622	594	608	482	452	465	634	604	619	570	538	554
5	618	594	606	516	484	498	624	604	612	620	578	589
6	630	588	614	536	518	528	638	610	626	638	594	608
7	630	580	614	552	534	544	610	542	571	620	596	606
8	658	570	617	574	546	561	548	524	538	632	582	601
9	568	216	387	572	548	559	550	530	542	594	572	585
10	470	436	457	572	550	562	538	322	410	582	556	574
11	500	470	487	670	528	571	400	304	366	588	570	581
12	520	198	410	532	482	503	446	402	429	612	588	598
13	404	312	377	516	490	504	464	446	457	624	598	610
14	472	404	419	542	518	532	464	446	454	628	596	614
15	468	436	443	556	540	546	492	460	472	642	618	629
16	452	436	445	576	558	567	496	490	494	656	626	641
17	464	446	453	568	496	544	518	492	500	642	616	628
18	472	448	464	494	476	481	516	498	508	642	620	629
19	466	448	459	496	482	487	542	518	527	700	558	601
20	500	456	474	508	498	504	542	520	532	626	570	600
21	494	200	393	510	470	489	552	534	544	652	622	635
22	394	316	354	486	470	475	556	538	548	634	614	624
23	434	396	416	484	460	468	570	538	554	622	606	615
24	464	436	448	470	466	468	580	544	563	616	588	604
25	480	466	474	468	460	465	584	564	575	616	598	605
26	494	478	487	476	230	310	586	170	348	622	612	617
27	500	482	490	406	282	346	374	300	328	626	616	620
28	492	480	488	522	410	466	442	350	399	638	620	629
29	502	458	478	552	504	527	488	446	471	630	598	616
30	482	448	465	568	544	553	504	488	497	626	600	614
31	468	442	458	---	---	---	524	406	468	630	258	451
MONTH	658	198	487	670	172	493	638	170	509	700	258	589

## TRINITY RIVER BASIN

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	438	302	396	600	570	584	564	548	556	580	562	570
2	464	440	452	614	574	598	580	562	575	602	464	549
3	484	460	473	652	578	628	588	580	585	538	512	525
4	508	404	472	682	370	544	594	578	587	556	542	550
5	456	388	419	582	472	535	602	566	584	576	550	566
6	506	450	485	612	584	600	590	568	580	582	548	567
7	514	506	511	604	590	597	592	560	576	622	530	561
8	528	514	520	616	592	604	610	572	588	592	534	563
9	560	528	545	644	606	626	600	560	580	598	558	584
10	558	544	550	612	594	604	584	544	564	600	394	503
11	562	548	551	618	584	605	584	546	561	518	492	503
12	584	564	577	604	572	589	582	544	563	544	520	531
13	574	570	573	594	542	573	572	544	562	564	544	557
14	584	566	575	584	544	557	584	560	575	588	444	537
15	580	558	570	586	550	573	586	562	576	528	482	509
16	592	570	582	622	494	544	580	564	573	528	508	519
17	614	584	598	634	522	589	576	560	568	544	512	530
18	670	582	610	642	620	631	578	558	569	584	418	495
19	588	562	575	632	596	622	594	570	582	504	358	484
20	566	376	521	620	540	564	616	594	608	---	---	397
21	586	514	564	590	544	563	622	614	618	---	---	334
22	564	516	534	614	594	602	650	568	601	---	---	416
23	600	568	586	638	596	616	566	528	538	---	---	332
24	602	596	598	608	586	595	570	542	559	---	---	433
25	602	574	589	616	592	603	588	570	580	---	---	436
26	594	564	577	608	190	419	604	582	591	456	444	452
27	590	562	574	538	178	473	604	566	589	462	442	454
28	586	564	575	538	520	528	588	544	570	452	426	440
29	---	---	---	560	520	536	640	564	588	454	422	439
30	---	---	---	558	304	433	614	564	586	524	144	398
31	---	---	---	546	510	526	---	---	---	366	258	334
MONTH	670	302	541	682	178	570	650	528	578	622	144	486

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	408	366	392	470	428	452	572	502	540	516	268	365
2	454	408	426	496	462	481	596	522	566	396	364	386
3	546	386	442	508	482	497	614	542	580	412	388	403
4	382	322	354	512	476	499	614	552	583	426	400	416
5	418	382	403	656	492	535	622	530	587	432	406	418
6	428	322	380	654	496	555	580	496	547	432	404	422
7	434	388	414	540	484	515	564	498	535	448	426	438
8	472	432	449	550	508	528	576	152	506	476	432	457
9	448	396	429	568	516	542	494	264	422	468	428	450
10	488	424	441	572	502	541	476	418	455	460	404	438
11	740	456	511	560	490	527	524	436	483	468	422	447
12	486	446	471	544	476	514	518	446	493	464	420	443
13	486	448	469	570	402	517	542	462	508	466	424	446
14	---	---	267	502	184	345	586	496	542	482	438	461
15	---	---	411	442	298	385	592	510	554	498	458	478
16	---	---	474	500	360	463	588	512	552	516	460	490
17	506	470	492	466	422	439	602	510	556	524	470	498
18	520	462	501	446	394	415	718	356	543	532	478	504
19	506	466	490	440	406	423	394	164	270	534	484	521
20	526	486	503	462	414	442	484	408	464	568	506	539
21	534	512	525	534	436	470	476	448	463	530	478	510
22	542	508	531	482	460	470	460	452	456	518	460	494
23	552	516	538	504	452	483	478	446	458	508	446	482
24	600	438	526	516	464	491	472	418	453	508	456	484
25	416	374	390	522	488	506	498	446	462	504	446	480
26	454	140	417	542	496	517	484	462	475	528	444	485
27	424	256	360	560	476	521	500	462	482	498	446	477
28	448	180	339	546	494	523	488	458	475	512	454	486
29	456	420	439	590	516	559	484	448	470	522	464	495
30	454	420	441	576	494	545	520	460	485	538	470	506
31	---	---	---	588	498	536	510	478	493	---	---	---
MONTH	740	140	441	656	184	491	718	152	499	568	268	464

## 08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.6	7.8	8.2	8.4	7.2	7.8	8.1	7.7	7.9	7.8	7.8	7.8
2	8.6	7.8	8.2	7.5	7.1	7.3	8.1	7.8	7.9	7.9	7.8	7.8
3	8.5	7.7	8.1	7.4	7.1	7.2	8.2	7.9	8.0	7.9	7.9	7.9
4	8.5	7.7	8.1	7.4	7.0	7.2	8.2	7.9	8.0	7.9	7.9	7.9
5	8.6	7.7	8.1	7.6	7.0	7.2	8.2	7.9	8.0	7.9	7.9	7.9
6	8.5	7.7	8.1	7.9	7.0	7.4	8.3	7.9	8.1	7.9	7.8	7.9
7	8.5	7.7	8.0	8.1	7.1	7.5	8.4	8.0	8.2	7.9	7.8	7.9
8	8.6	7.7	8.1	8.5	7.1	7.7	8.5	7.9	8.2	7.9	7.8	7.8
9	8.0	7.7	7.9	8.5	7.8	8.1	8.4	8.0	8.2	7.9	7.8	7.9
10	8.1	7.7	7.9	8.3	7.7	8.0	8.1	7.9	8.0	8.0	7.8	7.9
11	8.4	7.8	8.0	8.3	7.8	8.0	8.1	8.0	8.1	8.0	7.8	7.9
12	8.0	7.8	7.9	8.5	7.8	8.1	8.1	8.0	8.0	8.3	7.9	8.1
13	8.3	7.7	7.9	8.4	8.0	8.2	8.0	7.9	7.9	8.4	7.9	8.1
14	8.4	7.7	8.0	8.5	8.0	8.2	8.0	7.9	8.0	8.5	7.9	8.2
15	8.7	7.8	8.2	8.3	8.0	8.1	8.0	7.9	8.0	8.4	8.0	8.2
16	8.7	7.8	8.2	8.2	7.9	8.0	8.1	7.9	8.0	8.3	7.9	8.2
17	8.9	7.8	8.3	8.3	7.9	8.0	8.2	7.9	8.0	8.4	7.9	8.2
18	8.7	7.8	8.3	8.2	7.9	8.0	8.3	7.9	8.0	8.5	7.9	8.2
19	8.9	7.9	8.4	8.4	8.0	8.2	8.3	7.8	8.0	8.1	7.8	8.0
20	8.4	7.9	8.1	8.4	8.0	8.2	8.3	7.9	8.0	8.2	8.0	8.1
21	8.1	7.8	7.9	8.3	8.0	8.1	8.5	7.9	8.1	8.3	7.9	8.1
22	8.1	7.8	7.9	8.3	7.9	8.1	8.6	7.8	8.2	8.3	7.9	8.1
23	8.1	7.7	7.9	8.4	7.9	8.1	8.7	7.8	8.2	8.3	8.0	8.1
24	8.3	7.8	8.0	8.4	8.1	8.2	8.8	7.8	8.2	8.4	7.9	8.2
25	8.2	7.7	7.9	8.2	8.1	8.1	8.6	7.8	8.3	8.4	7.9	8.1
26	8.0	7.4	7.8	8.1	7.9	8.0	8.5	8.0	8.2	8.4	7.9	8.1
27	8.2	7.1	7.6	8.2	8.0	8.1	8.4	---	8.0	8.4	8.0	8.2
28	8.1	7.3	7.7	8.0	7.8	7.9	7.9	7.8	7.9	8.4	8.0	8.1
29	8.1	7.1	7.6	7.9	7.8	7.8	7.9	7.8	7.9	8.5	7.9	8.2
30	8.4	7.1	7.7	7.9	7.8	7.8	7.9	7.8	7.9	8.4	7.9	8.1
31	8.5	7.3	7.8	---	---	---	7.9	7.8	7.8	7.9	7.6	7.8
MONTH	8.9	7.1	8.0	8.5	7.0	7.9	8.8	7.7	8.0	8.5	7.6	8.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.8	7.7	7.7	8.6	7.9	8.2	8.5	7.9	8.1	8.5	7.6	8.1
2	7.8	7.7	7.7	8.6	7.9	8.2	8.3	8.1	8.2	7.9	7.6	7.7
3	7.7	7.7	7.7	8.4	7.8	8.1	8.4	7.8	8.2	8.4	7.6	8.0
4	8.0	7.7	7.8	8.0	7.6	7.9	8.4	7.9	8.1	8.4	7.6	7.9
5	7.9	7.9	7.9	8.2	7.8	8.0	8.6	7.8	8.2	8.5	7.6	8.0
6	7.9	7.9	7.9	8.3	7.9	8.1	8.6	8.0	8.3	8.8	7.8	8.2
7	7.9	7.9	7.9	8.4	7.9	8.1	8.6	8.1	8.3	8.7	7.6	8.1
8	7.9	7.9	7.9	8.4	7.9	8.1	8.5	8.0	8.3	8.7	7.6	8.0
9	8.0	7.8	7.9	8.6	7.9	8.2	8.6	7.8	8.3	8.6	7.6	8.0
10	8.0	7.8	7.9	8.5	8.1	8.3	8.6	7.9	8.3	8.0	7.5	7.6
11	8.1	7.8	8.0	8.5	8.1	8.3	8.6	7.8	8.2	8.1	7.6	7.9
12	8.2	7.9	8.0	8.6	8.0	8.3	8.6	7.9	8.2	8.4	7.6	8.0
13	8.2	7.9	8.0	8.6	7.8	8.3	8.6	7.8	8.2	8.4	7.6	8.0
14	8.3	7.8	8.1	8.6	7.9	8.2	8.6	7.8	8.2	8.4	7.6	7.8
15	8.4	7.8	8.1	8.6	7.8	8.2	8.6	7.8	8.2	8.0	7.7	7.8
16	8.5	7.9	8.2	8.2	7.6	7.9	8.6	7.8	8.2	8.3	7.6	8.0
17	8.6	7.9	8.2	8.6	8.0	8.3	8.6	7.8	8.2	8.5	7.6	8.0
18	8.4	7.8	8.1	8.5	8.1	8.3	8.7	7.6	8.2	8.5	7.6	8.0
19	8.6	7.8	8.2	8.3	7.9	7.9	8.7	7.6	8.2	8.6	7.4	8.1
20	8.1	7.7	7.9	8.3	7.8	8.1	8.5	7.8	8.2	---	---	---
21	8.1	7.8	8.0	8.4	8.1	8.2	8.4	7.8	8.0	---	---	---
22	8.1	7.8	7.9	8.4	8.0	8.2	8.0	7.6	7.9	---	---	---
23	8.3	7.9	8.0	8.2	7.8	8.0	8.4	7.6	8.0	---	---	---
24	8.4	7.9	8.1	8.4	7.8	8.1	8.5	7.8	8.1	---	---	---
25	8.6	7.9	8.2	8.4	7.8	8.1	8.6	7.6	8.1	---	---	---
26	8.7	7.9	8.3	8.4	7.8	8.2	8.7	7.8	8.2	---	---	---
27	8.6	7.9	8.3	8.2	7.8	8.0	8.7	7.8	8.2	8.7	7.6	8.1
28	8.6	7.9	8.3	7.9	7.8	7.9	8.6	7.6	8.1	8.8	7.8	8.3
29	---	---	---	8.1	7.8	7.9	8.2	7.6	7.9	8.7	7.6	8.2
30	---	---	---	8.1	7.8	7.9	8.6	7.6	8.0	8.1	7.6	7.8
31	---	---	---	7.9	7.6	7.9	---	---	---	7.9	7.6	7.8
MONTH	8.7	7.7	8.0	8.6	7.6	8.1	8.7	7.6	8.2	8.8	7.4	8.0

## TRINITY RIVER BASIN

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.9	7.6	7.8	8.7	7.6	8.2	8.5	7.4	7.9	7.9	7.6	7.7
2	8.1	7.6	7.8	8.6	7.6	8.1	8.7	7.3	7.9	8.2	7.4	7.8
3	8.6	7.6	8.1	8.5	7.7	8.1	8.8	7.6	8.1	8.5	7.4	7.9
4	8.2	7.6	7.9	8.5	7.6	8.1	8.8	7.6	8.1	8.6	7.5	8.0
5	8.2	7.6	7.9	8.5	7.6	8.0	8.9	7.6	8.2	8.6	7.5	8.1
6	8.1	7.6	7.9	8.6	7.4	8.0	8.9	7.4	8.1	8.8	7.5	8.2
7	8.3	7.6	7.9	8.5	7.6	8.0	8.9	7.4	8.0	8.7	7.5	8.1
8	8.8	7.6	8.2	8.4	7.6	8.0	8.8	7.5	8.0	8.6	7.5	8.0
9	8.8	7.8	8.3	8.4	7.6	7.9	8.4	7.5	7.8	8.5	7.5	8.0
10	8.8	7.7	8.3	8.4	7.5	7.9	8.5	7.5	8.0	8.6	---	8.0
11	8.7	7.8	8.3	8.3	7.5	7.9	8.6	7.4	7.9	8.6	7.6	8.0
12	8.7	7.8	8.2	8.1	7.4	7.7	8.5	7.4	7.8	9.0	7.6	8.2
13	8.7	7.9	8.0	8.0	7.4	7.6	8.1	7.3	7.7	8.7	7.6	8.1
14	8.3	7.8	---	7.7	7.2	7.5	7.9	7.4	7.6	8.8	7.7	8.2
15	---	---	---	7.6	7.4	7.5	8.4	7.4	7.7	9.1	7.7	8.4
16	---	---	---	7.6	7.4	7.5	8.2	7.3	7.7	8.9	7.6	8.3
17	8.6	7.6	8.0	7.6	7.4	7.5	9.1	7.4	8.7	8.9	7.6	8.2
18	8.6	7.6	8.1	8.6	7.4	8.0	8.6	7.4	7.9	8.7	7.6	8.1
19	8.5	7.6	8.1	8.2	7.8	8.0	7.9	7.5	7.7	8.4	7.6	8.0
20	8.6	7.6	7.9	8.6	8.0	8.3	7.9	7.6	7.9	8.5	7.6	8.0
21	8.5	7.6	8.0	8.7	7.6	8.1	8.1	7.7	7.9	8.7	7.8	8.2
22	8.5	7.6	8.0	8.9	7.6	8.2	8.5	7.7	8.0	8.8	7.6	8.2
23	8.5	7.6	8.0	8.8	7.6	8.1	8.7	7.7	8.1	8.8	7.7	8.2
24	8.5	7.6	8.0	8.7	7.6	8.1	8.9	7.7	8.3	8.8	7.7	8.2
25	8.5	7.6	8.0	8.6	7.4	8.0	9.0	7.8	8.3	8.8	7.7	8.2
26	8.6	7.6	8.1	8.8	7.4	8.1	8.8	7.7	8.2	8.8	7.6	8.1
27	8.2	7.6	7.8	8.7	7.4	8.0	8.8	7.5	8.2	8.8	7.6	8.1
28	8.1	7.6	7.8	8.6	7.5	8.0	8.8	7.7	8.2	8.9	7.4	8.2
29	8.5	7.6	8.0	8.7	7.5	8.0	8.8	7.6	8.2	9.1	7.6	8.2
30	8.7	7.8	8.2	8.7	7.4	7.9	8.9	7.6	8.2	9.2	7.6	8.3
31	---	---	---	8.4	7.4	7.8	8.9	7.5	8.2	---	---	---
MONTH	8.8	7.6	8.0	8.9	7.2	7.9	9.1	7.3	8.0	9.2	7.4	8.1

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	26.0	22.5	24.0	23.5	20.5	22.0	20.0	15.5	17.5	7.0	6.0	6.5
2	29.0	22.5	25.5	22.0	18.0	19.5	19.0	15.5	17.0	8.0	6.0	7.0
3	29.5	24.0	26.5	18.0	13.5	15.5	16.0	13.5	14.5	6.0	5.0	5.5
4	29.5	24.0	26.5	16.0	11.0	13.5	13.5	11.5	12.5	6.0	5.0	5.5
5	28.0	23.5	26.0	16.5	11.5	14.0	15.0	10.5	12.5	7.5	5.5	6.5
6	29.5	24.5	26.5	18.0	12.5	15.0	14.0	10.5	12.0	10.0	4.5	7.5
7	29.0	24.5	26.5	19.0	15.0	17.0	14.0	9.5	12.0	9.0	7.5	8.0
8	28.0	25.0	26.5	18.5	16.0	17.0	13.5	10.0	12.0	11.0	8.0	9.5
9	26.0	22.5	23.5	19.5	16.0	18.0	11.0	8.5	10.0	12.5	8.0	10.0
10	23.5	20.5	22.0	20.0	18.5	19.5	11.0	9.5	10.0	11.5	7.5	9.5
11	23.0	18.5	21.0	20.5	19.0	19.5	10.5	7.5	9.0	12.0	7.0	10.0
12	21.5	17.0	19.5	18.5	13.5	16.0	9.0	6.0	7.5	11.5	7.0	9.5
13	23.5	18.0	20.5	14.5	10.5	12.5	9.0	5.5	7.0	13.0	7.5	10.5
14	23.5	17.5	20.5	12.5	9.5	11.0	12.5	6.5	9.5	13.0	9.0	11.0
15	23.0	17.5	20.5	12.0	7.0	9.5	11.5	7.5	9.5	10.5	6.5	9.0
16	23.0	17.5	20.5	11.5	9.5	10.5	11.5	7.0	9.5	10.5	5.5	8.5
17	23.5	18.5	21.0	13.0	11.5	12.0	12.5	7.5	10.5	11.0	8.5	10.0
18	24.5	19.0	21.5	14.0	12.5	13.5	13.5	10.0	11.5	10.5	9.0	10.0
19	25.0	20.0	22.0	18.5	14.0	16.0	12.5	8.5	10.5	9.0	7.0	8.0
20	20.5	15.0	17.5	19.5	15.5	17.0	12.0	7.5	10.0	7.0	6.0	6.5
21	17.0	14.0	15.5	18.5	13.5	16.0	14.0	8.0	11.5	7.5	6.5	7.0
22	17.5	16.0	16.5	21.0	16.5	18.5	16.0	12.0	14.0	6.5	5.0	5.5
23	19.0	14.5	17.0	18.5	10.0	15.0	17.5	14.0	15.5	9.0	3.5	6.5
24	19.0	13.5	16.5	10.0	8.0	9.0	17.0	14.0	16.0	10.5	5.5	8.0
25	17.5	13.0	15.5	11.0	9.5	10.0	13.5	9.0	11.0	11.0	6.5	9.0
26	18.0	12.5	15.5	10.5	9.0	9.5	9.0	5.5	7.0	10.0	6.5	8.0
27	19.5	14.5	17.0	10.0	9.0	9.5	8.0	6.5	7.5	7.0	5.5	6.0
28	21.0	18.0	19.0	13.0	8.5	10.5	9.0	6.5	7.5	9.0	5.0	7.0
29	20.0	15.0	17.5	14.5	10.0	12.5	8.0	5.0	6.5	13.0	8.0	10.5
30	21.5	16.5	19.0	15.5	11.5	13.5	6.5	4.5	5.5	12.0	8.0	10.5
31	23.5	19.5	21.5	---	---	---	6.5	5.5	6.0	12.5	11.0	11.5
MONTH	29.5	12.5	21.0	23.5	7.0	14.5	20.0	4.5	10.5	13.0	3.5	8.5

## 08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

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

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



## TRINITY RIVER BASIN

08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	11.0	6.4	8.7	13.2	6.3	9.4	9.5	7.3	8.1	10.5	10.2	10.4
2	11.4	6.4	8.8	8.8	6.8	7.9	9.7	6.7	8.1	10.7	10.2	10.4
3	11.4	5.3	8.3	10.1	7.3	8.6	10.9	7.9	9.4	10.7	10.4	10.6
4	11.2	5.6	8.5	10.9	8.4	9.5	11.5	8.5	10.1	11.0	10.4	10.7
5	11.3	6.1	8.7	11.6	8.1	9.7	11.8	8.9	10.3	11.0	10.3	10.7
6	11.5	5.7	8.4	12.0	7.8	9.7	13.0	9.0	11.2	10.9	10.1	10.5
7	11.5	5.4	8.2	12.6	6.9	9.7	13.5	9.6	11.3	10.4	9.5	10.0
8	10.4	5.2	7.3	13.5	6.5	9.7	13.6	8.8	11.2	10.7	9.1	9.9
9	7.5	5.8	6.9	13.1	6.6	9.8	13.7	9.3	11.4	11.0	9.2	10.0
10	8.6	6.5	7.4	11.1	5.8	8.4	10.8	9.0	9.5	12.0	9.0	10.4
11	9.7	7.2	8.3	10.4	5.5	7.6	10.0	9.2	9.6	12.4	9.2	10.6
12	8.3	7.1	7.5	11.6	5.8	8.6	10.4	9.9	10.2	14.4	9.1	11.4
13	8.7	7.1	7.8	12.4	8.2	10.1	10.6	10.0	10.3	14.6	10.0	12.1
14	9.4	7.3	8.2	12.7	8.6	10.6	10.5	9.8	10.2	15.0	9.2	11.9
15	10.5	7.3	8.7	12.5	9.5	10.9	10.7	9.4	10.0	15.4	9.6	12.4
16	10.6	7.2	8.8	11.8	8.8	10.1	11.6	9.6	10.5	16.0	10.1	12.9
17	10.8	7.1	8.8	11.1	8.1	9.4	12.0	9.6	10.5	15.3	9.7	12.6
18	9.8	6.8	8.2	10.1	7.9	8.9	12.3	8.9	10.3	14.7	8.8	11.6
19	10.0	6.5	8.1	10.5	7.8	8.8	13.1	9.0	10.9	11.3	8.5	10.1
20	9.8	7.0	8.4	10.4	7.5	8.7	13.6	9.3	11.2	13.0	9.9	11.1
21	8.3	7.2	7.7	10.0	7.8	8.7	14.3	9.0	11.3	13.6	9.6	11.5
22	8.1	7.3	7.7	9.6	7.5	8.2	14.5	8.1	10.5	14.1	9.9	11.8
23	8.5	7.1	7.7	9.8	7.0	8.4	14.3	7.4	10.4	14.9	10.4	12.5
24	9.1	7.3	8.1	11.1	9.3	10.2	15.2	6.8	10.3	15.2	9.9	12.4
25	9.1	7.2	8.0	10.6	9.4	9.9	14.4	8.0	10.8	15.1	9.6	12.1
26	12.3	7.3	9.0	10.2	8.9	9.9	11.2	9.5	10.4	13.8	8.8	11.0
27	12.9	8.0	10.0	10.1	9.7	9.9	10.3	10.1	10.2	15.1	9.8	12.1
28	13.1	7.1	9.9	9.6	8.9	9.4	10.3	10.1	10.2	14.9	10.4	12.2
29	14.4	7.7	10.6	9.1	8.3	8.8	10.6	10.2	10.4	15.0	9.1	11.9
30	14.2	7.7	10.3	9.1	8.0	8.5	10.9	10.3	10.6	14.8	9.1	11.8
31	14.2	6.6	9.9	---	---	---	10.5	10.2	10.3	10.0	7.8	9.0
MONTH	14.4	5.2	8.5	13.5	5.5	9.3	15.2	6.7	10.3	16.0	7.8	11.3

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	9.7	9.3	9.5	13.2	7.9	10.6	10.3	7.3	9.0	10.9	5.4	8.0
2	10.3	9.7	10.0	13.0	7.5	10.2	10.9	9.1	10.0	6.9	4.8	5.8
3	10.2	9.7	9.9	11.0	6.5	8.4	11.4	8.3	9.9	9.9	5.7	7.6
4	11.3	9.7	10.3	8.0	5.5	6.8	11.8	7.3	9.4	10.6	6.2	8.0
5	11.1	10.8	11.0	8.3	6.9	7.5	12.7	7.3	10.1	11.1	5.9	8.1
6	11.0	10.6	10.8	9.7	6.9	8.3	12.9	8.5	10.5	12.3	6.4	9.0
7	11.3	10.8	11.0	10.6	7.1	8.7	13.4	8.9	11.0	13.7	5.9	9.4
8	11.1	9.9	10.6	11.1	7.2	9.0	13.0	8.7	10.8	13.2	5.8	9.7
9	10.4	9.2	9.7	11.6	7.1	9.4	13.8	8.8	11.2	11.9	6.0	9.0
10	10.9	9.1	9.9	12.3	8.3	10.2	14.5	8.4	11.3	9.1	4.6	6.5
11	11.5	9.3	10.4	12.4	8.4	10.4	13.4	7.4	10.1	8.0	5.7	7.0
12	12.8	9.5	11.0	12.4	8.4	10.3	12.6	6.8	9.6	9.5	5.9	7.3
13	13.2	9.5	11.2	12.3	7.6	10.0	11.6	6.4	8.6	9.7	5.5	7.2
14	13.4	9.1	11.0	13.3	6.8	9.9	11.8	6.8	9.3	7.9	4.8	6.2
15	14.5	8.5	11.4	12.4	6.9	9.6	12.2	7.7	9.9	8.0	5.9	6.9
16	15.3	8.7	12.0	8.4	6.0	7.6	12.4	7.6	9.8	9.3	6.0	7.5
17	16.0	9.2	12.5	11.5	7.8	9.5	12.2	6.9	9.3	9.9	6.0	7.8
18	14.0	7.6	11.0	12.0	8.8	10.3	12.6	6.4	9.4	10.1	5.3	7.5
19	14.8	8.2	11.3	11.7	8.4	9.8	11.7	6.5	8.4	11.0	6.2	8.3
20	9.3	7.2	8.4	11.0	7.9	9.5	11.4	6.4	9.0	8.5	5.7	7.1
21	10.1	8.0	8.8	12.2	9.3	10.7	11.3	6.9	8.8	8.7	7.2	7.7
22	11.0	8.3	9.5	12.5	9.3	10.8	8.6	5.9	7.2	8.5	6.3	7.6
23	11.8	8.7	9.9	11.5	8.9	10.1	9.9	6.1	8.0	9.3	5.8	6.8
24	12.2	7.8	9.8	12.4	8.5	10.2	11.5	6.6	8.8	7.8	5.1	6.5
25	13.1	7.8	10.4	12.0	8.8	10.2	11.9	6.6	8.5	7.6	4.2	6.5
26	13.5	8.2	11.0	9.4	8.5	9.1	12.5	6.7	9.3	8.5	6.9	7.6
27	13.7	8.3	11.1	9.5	8.7	9.1	12.8	6.4	9.2	10.3	6.3	8.0
28	13.6	8.5	11.0	9.8	8.8	9.2	13.0	6.0	9.3	10.7	6.4	8.5
29	---	---	---	10.2	8.6	9.2	9.3	5.3	7.3	10.8	5.9	8.4
30	---	---	---	9.5	8.1	8.8	11.4	4.3	7.5	8.0	5.9	6.9
31	---	---	---	9.1	7.9	8.5	---	---	---	7.5	6.7	7.2
MONTH	16.0	7.2	10.5	13.3	5.5	9.4	14.5	4.3	9.4	13.7	4.2	7.6

## TRINITY RIVER BASIN

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08048543 WEST FORK TRINITY RIVER AT BEACH STREET, FORT WORTH, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.8	6.9	7.3	12.0	5.6	8.5	12.2	4.8	8.9	7.4	4.3	6.1
2	8.2	6.8	7.4	11.3	5.4	8.3	10.8	4.2	7.6	9.5	5.2	6.8
3	10.3	5.6	7.8	11.3	5.2	8.2	10.9	4.8	8.1	13.4	5.5	8.5
4	8.5	6.2	7.2	11.3	5.1	8.2	11.3	4.7	8.2	14.5	5.5	9.1
5	8.1	6.0	6.9	10.7	4.7	7.3	12.8	4.6	8.9	14.5	5.5	9.2
6	8.2	5.7	6.8	11.7	4.3	7.8	12.9	3.6	8.8	15.2	5.3	9.3
7	8.7	6.5	7.5	11.8	4.9	8.5	12.1	3.5	8.1	15.1	4.9	9.1
8	11.2	6.6	8.6	11.3	5.2	8.4	12.4	3.8	7.8	15.2	4.8	9.3
9	12.4	7.0	9.4	11.9	5.3	8.7	10.7	3.9	7.1	15.0	5.3	9.5
10	11.1	6.5	8.8	12.4	4.7	8.8	12.4	4.4	8.1	15.1	5.2	9.4
11	10.5	6.3	8.2	12.8	4.5	9.0	12.5	4.1	8.2	15.7	5.0	9.5
12	10.5	6.3	8.3	12.4	4.1	8.8	12.7	3.6	8.1	14.8	5.0	9.4
13	10.9	6.3	8.4	12.2	4.5	7.7	13.0	2.9	8.3	14.6	4.3	9.1
14	---	---	---	6.4	3.8	5.7	12.4	3.5	8.2	15.0	5.5	9.8
15	---	---	---	7.0	6.1	6.4	12.2	3.4	7.9	16.9	5.1	10.3
16	---	---	---	7.3	6.3	6.7	11.8	3.5	8.0	14.9	4.5	9.3
17	10.3	6.1	7.9	8.1	6.4	7.2	14.3	3.7	11.7	14.5	4.0	9.0
18	12.1	6.2	8.8	10.8	6.4	8.2	11.1	3.6	6.2	13.1	4.2	8.4
19	11.9	5.8	8.8	9.5	6.6	7.5	6.9	4.7	6.1	10.9	4.2	7.5
20	11.6	5.4	7.5	11.8	7.2	9.8	7.1	6.1	6.5	11.7	4.1	7.7
21	11.4	5.1	8.3	11.7	5.4	8.2	8.8	6.0	7.1	14.9	6.5	10.7
22	11.3	4.9	8.1	11.9	5.0	8.3	11.9	6.0	8.2	15.2	5.8	10.3
23	11.1	4.7	7.9	12.1	4.8	8.4	14.4	6.1	9.3	14.9	5.1	9.6
24	10.6	4.8	7.4	11.9	4.8	8.4	16.3	5.7	10.2	14.8	4.8	9.0
25	9.1	5.1	7.0	11.7	4.7	8.4	15.6	5.6	10.1	15.0	4.6	9.1
26	10.2	5.6	7.7	11.8	4.6	8.4	15.8	5.1	9.8	14.1	4.2	8.5
27	8.3	5.7	6.7	12.5	4.4	8.6	14.9	4.8	9.4	14.1	4.0	8.5
28	7.0	5.3	6.2	12.3	4.9	8.9	14.7	4.7	9.3	13.8	3.4	8.2
29	9.5	5.3	7.0	12.6	5.1	9.0	15.5	4.9	9.6	17.4	3.5	9.5
30	11.3	6.0	8.2	12.5	4.5	8.8	14.9	4.8	9.2	18.5	4.4	10.9
31	---	---	---	12.0	4.5	8.6	14.2	4.0	8.9	---	---	---
MONTH	12.4	4.7	7.8	12.8	3.8	8.2	16.3	2.9	8.5	18.5	3.4	9.0

## TRINITY RIVER BASIN

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 upstream from The Texas and Pacific Railway Co. bridge, and 7 mi upstream from mouth.

DRAINAGE AREA.--143 mi<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 long. The service spillway is a 10-foot-diameter uncontrolled circular drop inlet. The emergency spillway is an 882-foot-wide cut through natural ground near the right end of dam. The dam was completed and storage began Mar. 31, 1957. Capacities are based on a 1955 survey. The dam was built by city of Arlington to impound water for municipal and industrial uses. Water is diverted from Cedar Creek Reservoir (station 08063010) into Lake Arlington. Water is pumped from lake to generating plant of Texas Electric Service Co. Figures given here in represent total contents. Data regarding the dam and lake are 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.--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 May 4, 1979 (elevation, 556.20 ft); minimum since lake first filled in April 1957, 18,110 acre-ft Oct. 17, 1971 (elevation, 534.27 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 44,400 acre-ft June 28 at 1600 hours (elevation, 549.40 ft); minimum, 29,550 acre-ft Oct. 20 (elevation, 541.77 ft).

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

541.0	28,210	547.0	39,380
544.0	35,570	550.0	45,710

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29720	30160	30480	33660	33330	33850	36190	38020	41720	44190	41290	38860
2	29690	30570	30400	33570	33350	33830	36210	38140	41810	44120	41000	38760
3	29630	30570	30290	33510	33330	33930	36320	38160	41890	44080	40710	38640
4	29670	30500	30220	33390	33370	34210	36400	38200	41930	43950	40500	38480
5	29690	30400	30090	33290	33420	34230	36480	38220	42000	44230	40240	38300
6	29720	30270	29970	33200	33420	34210	36520	38220	41980	44190	40090	38140
7	29690	30160	29950	33090	33390	34300	36580	38100	41960	44100	39970	37980
8	29690	30040	29910	32980	33390	34420	36630	38080	42060	44100	40440	37790
9	29740	29900	29880	32890	33440	34420	36690	38100	41930	43990	40540	37630
10	29670	29810	30200	32800	33480	34280	36610	38340	41750	43910	40500	37490
11	29600	29840	30560	32690	33440	34170	36750	38400	41640	43840	40400	37350
12	29670	29770	30700	32650	33480	34080	36750	38460	41330	43690	40300	37200
13	29700	29770	30640	32500	33500	34100	36810	38500	41120	43650	40110	37080
14	29690	29810	30590	32540	33570	34130	36850	38520	43860	43910	39990	36920
15	29690	29810	30630	32600	33570	34150	36910	38580	43970	44060	39790	36750
16	29670	29770	30630	32610	33570	34320	36960	38600	44060	44080	39560	36610
17	29670	29700	30660	32670	33570	34320	37000	38660	44080	44120	39320	36420
18	29630	29740	30750	32710	33610	34380	37000	38940	44100	44080	39180	36270
19	29600	29810	30820	32600	33630	34450	37060	39080	44140	44060	40610	36170
20	29560	29860	30880	32560	33720	34510	37120	39400	44100	43950	40500	36040
21	29790	29970	30970	32500	33800	34510	37200	40180	44140	43860	40300	35900
22	29840	30070	31090	32500	33850	34530	37690	40670	44120	43760	40110	35770
23	29990	30070	31240	32500	33830	34620	37690	41040	44080	43560	39990	35630
24	30090	30130	31200	32560	33850	34700	37730	41100	44080	43390	39930	35400
25	30150	30130	31020	32600	33830	34800	37750	41160	44060	43120	39810	35210
26	30160	30570	31890	32630	33830	35420	37790	41180	44360	42900	39770	35000
27	30200	30860	33760	32690	33830	35460	37890	41220	44360	42690	39620	34780
28	30220	30730	33760	32720	33810	35520	37870	41220	44380	42440	39500	34550
29	30180	30630	33700	32690	---	35650	37960	41200	44380	42120	39340	34340
30	30230	30540	33630	32650	---	35940	38000	41510	44300	41830	39140	34130
31	30200	---	33630	33150	---	36130	---	41700	---	41560	38940	---
MAX	30230	30860	33760	33660	33850	36130	38000	41700	44380	44230	41290	38860
MIN	29560	29700	29880	32500	33330	33830	36190	38020	41120	41560	38940	34130
(†)	542.14	542.33	544.03	543.77	544.13	545.35	546.31	548.13	549.35	548.06	546.78	544.30
(*)	+480	+340	+3090	-480	+660	+2320	+1870	+3700	+2600	-2740	-2620	-4810
CAL YR 1982	MAX	48900	MIN	29490	+	-6750						
WTR YR 1983	MAX	44380	MIN	29560	+	+4410						

† Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

08049200 LAKE ARLINGTON AT ARLINGTON, TX--Continued

## WATER-QUALITY RECORDS

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

3243097113601 LAKE ARLINGTON SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

							OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CaCO3)		
DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)			
JAN										
12...	1110	1.00	311	7.7	9.5	.70	10.2	89		
12...	1111	10.0	311	7.6	9.0	--	10.0	87		
12...	1112	20.0	311	7.6	9.0	--	10.0	87		
12...	1113	30.0	311	7.6	9.0	--	9.9	86		
12...	1114	40.0	311	7.6	9.0	--	9.9	86		
MAY										
12...	0955	1.00	316	8.1	23.0	.80	7.6	91		
12...	0956	10.0	316	8.0	23.0	--	7.6	91		
12...	0957	20.0	316	8.0	23.0	--	7.6	91		
12...	0958	30.0	321	8.0	22.5	--	7.4	88		
12...	0959	37.0	321	7.8	22.5	--	7.0	83		
AUG										
04...	0830	1.00	297	8.1	31.0	1.50	5.6	77		
04...	0831	10.0	297	8.0	31.0	--	5.4	74		
04...	0832	15.0	297	7.9	31.0	--	5.3	73		
04...	0833	20.0	311	7.1	28.5	--	.2	3		
04...	0834	30.0	317	7.9	26.5	--	.2	3		
04...	0835	40.0	335	6.9	24.5	--	.2	2		
04...	0836	45.0	338	6.9	24.5	--	.2	2		
DATE		HARD- NESS, NONCAR- BONATE (MG/L CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)
JAN										
12...	21	37	5.0	20	.9	4.8	92	29	21	
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	23	38	4.9	20	.8	4.7	92	30	21	
MAY										
12...	20	36	4.9	20	.9	4.9	90	32	22	
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	24	36	5.0	20	.9	4.6	87	31	21	
AUG										
04...	15	32	4.7	19	.9	4.8	84	25	20	
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	0	37	4.9	18	.8	4.1	120	14	19	
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										
12...	.30	1.7	174	.10	.70	.80	.020	150	.47	
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	.10	.70	.80	.020	230	40	
12...	--	--	--	--	--	--	--	--	--	--
12...	--	1.8	176	.10	.70	.80	.030	210	60	
MAY										
12...	.20	2.3	176	.20	.70	.90	.020	8	<1	
12...	--	--	--	.20	.80	1.0	.030	10	10	
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	.20	.70	.90	.020	20	<10	
12...	--	2.3	172	.20	.80	1.0	.040	14	2	
AUG										
04...	.30	3.3	160	<.10	.80	--	.050	42	33	
04...	--	--	--	<.10	1.00	--	.050	20	80	
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	<.10	1.10	--	.070	80	500	
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
04...	--	7.3	178	<.10	2.40	--	.150	440	1600	

TRINITY RIVER BASIN  
LAKE ARLINGTON AT ARLINGTON, TX--Continued

331519091101 LAKE ARLINGTON SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
12...	1130	1.00	311	7.8	9.0	10.1	88
12...	1131	10.0	311	7.7	9.0	10.0	87
12...	1132	20.0	311	7.7	8.5	9.9	85
12...	1133	34.0	311	7.7	8.5	9.8	84
MAY							
12...	1020	1.00	315	8.0	23.0	7.4	89
12...	1021	10.0	315	8.0	23.0	7.4	89
12...	1022	20.0	315	8.0	23.0	7.4	89
12...	1023	28.0	315	8.0	23.0	7.4	89
AUG							
04...	0929	1.00	296	8.1	31.0	5.5	75
04...	0930	10.0	296	7.9	31.0	5.3	73
04...	0931	20.0	308	7.2	29.0	.2	3
04...	0932	30.0	315	7.0	26.5	.2	3
04...	0933	38.0	326	6.9	25.0	.2	2

324253097121801 LAKE ARLINGTON SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
12...	1145	1.00	309	7.8	9.0	10.3	90
12...	1146	10.0	309	7.8	8.5	9.9	85
12...	1147	20.0	309	7.8	8.5	9.8	84
12...	1148	30.0	309	7.7	8.5	9.8	84
12...	1149	34.0	309	7.7	8.5	9.8	84
MAY							
12...	1035	1.00	315	8.1	23.0	7.6	91
12...	1036	10.0	315	8.0	23.0	7.5	90
12...	1037	20.0	317	8.0	22.5	7.2	86
12...	1038	30.0	317	7.8	22.0	6.3	74
12...	1039	34.0	319	7.7	22.0	5.7	67
AUG							
04...	0949	1.00	287	8.1	32.0	5.5	77
04...	0950	10.0	288	8.0	31.5	5.0	69
04...	0951	20.0	300	7.3	29.5	.2	3
04...	0952	30.0	312	7.0	26.5	.2	3
04...	0953	40.0	323	6.9	25.0	.2	2

324301097123301 LAKE ARLINGTON SITE BL

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
12...	1155	1.00	309	7.9	9.0	10.3	90
12...	1156	10.0	309	7.8	8.5	9.9	85
12...	1157	20.0	309	7.8	8.5	9.9	85
12...	1158	27.0	309	7.8	8.5	9.8	84
MAY							
12...	1045	1.00	315	8.0	23.0	7.6	91
12...	1046	10.0	315	8.0	23.0	7.5	90
12...	1047	20.0	315	8.0	23.0	7.3	88
12...	1048	26.0	315	8.0	23.0	7.2	87
AUG							
04...	0957	1.00	287	8.1	32.0	5.6	78
04...	0958	10.0	287	8.1	31.5	5.4	75
04...	0959	20.0	300	7.3	29.5	.2	3
04...	1000	30.0	309	7.1	27.0	.2	3
04...	1001	34.0	314	7.0	26.5	.2	3



## TRINITY RIVER BASIN

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## LAKE ARLINGTON AT ARLINGTON, TX--Continued

## 324257097130301 LAKE ARLINGTON SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
12...	1220	1.00	309	7.8	9.0	10.5	91
12...	1221	5.00	309	7.8	9.0	10.5	91
12...	1222	10.0	309	7.8	9.0	10.5	91
MAY							
12...	1110	1.00	313	7.8	26.5	7.1	91
12...	1111	10.0	313	7.9	26.5	7.2	92
12...	1112	12.0	313	7.9	26.5	7.2	92
AUG							
04...	1016	1.00	295	8.1	33.5	5.4	77
04...	1017	10.0	295	8.1	33.5	5.4	77

## 324228097130301 LAKE ARLINGTON SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
12...	1205	1.00	309	7.8	9.0	10.2	89
12...	1206	5.00	309	7.8	9.0	10.2	89
12...	1207	10.0	309	7.8	9.0	10.0	87
12...	1208	14.0	309	7.8	8.5	9.8	84
MAY							
12...	1140	1.00	313	7.9	24.5	7.2	89
12...	1141	10.0	313	8.0	22.5	7.3	87
12...	1142	17.0	313	8.0	22.5	7.2	86
AUG							
04...	1005	1.00	295	8.1	32.5	5.3	75
04...	1006	10.0	295	8.1	32.0	5.4	75
04...	1007	15.0	296	7.9	31.5	4.8	66
04...	1008	19.0	305	7.1	30.5	.2	3

## 324143097132201 LAKE ARLINGTON SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CaCO3)
JAN									
12...	1245	1.00	316	7.9	9.0	.50	10.4	90	120
12...	1246	10.0	320	7.9	9.0	--	10.2	89	--
12...	1247	21.0	320	7.8	9.0	--	10.1	88	120
MAY									
12...	1200	1.00	316	8.0	22.5	.50	7.5	89	110
12...	1201	10.0	312	8.0	22.0	--	7.4	87	--
12...	1202	20.0	312	7.9	22.0	--	7.0	83	--
12...	1203	22.0	312	7.9	22.0	--	7.0	83	110
AUG									
04...	1035	1.00	294	8.2	31.5	.80	5.7	79	100
04...	1036	10.0	294	8.2	31.5	--	5.5	76	--
04...	1037	20.0	295	8.0	31.0	--	5.1	70	--
04...	1038	25.0	304	7.3	29.5	--	2.7	36	100

## TRINITY RIVER BASIN

## LAKE ARLINGTON AT ARLINGTON, TX--Continued

324143097132201 LAKE ARLINGTON SITE EC--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
12...	21	38	4.9	20	.8	4.8	94	29	21
12...	--	--	--	--	--	--	--	--	--
12...	21	38	4.9	20	.8	4.6	94	29	20
MAY									
12...	18	35	4.9	19	.8	4.6	90	31	21
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	18	35	4.8	19	.8	4.5	89	31	21
AUG									
04...	16	32	4.8	19	.9	4.8	84	27	20
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	10	32	4.8	19	.9	4.4	90	24	20

DATE	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								
12...	1.6	176	.20	1.30	1.5	.040	79	19
12...	--	--	--	--	--	--	--	--
12...	1.6	175	.20	.80	1.0	.030	34	9
MAY								
12...	2.4	172	.20	.70	.90	.030	6	<1
12...	--	--	.20	.80	1.0	.030	50	10
12...	--	--	--	--	--	--	--	--
12...	2.7	171	.30	.80	1.1	.050	18	2
AUG								
04...	3.4	161	<.10	.90	--	.050	72	43
04...	--	--	--	--	--	--	--	--
04...	--	--	<.10	.90	--	.060	340	180
04...	6.4	166	<.10	1.50	--	.090	1100	680

324133097130601 LAKE ARLINGTON SITE EL

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
12...	1300	1.00	316	7.9	9.0	10.4	90
12...	1301	13.0	320	7.9	9.0	10.2	89
MAY							
12...	1240	1.00	310	8.1	22.5	7.7	92
12...	1241	10.0	310	8.1	22.5	7.5	89
12...	1242	14.0	310	8.0	22.5	7.4	88
AUG							
04...	1045	1.00	294	8.2	31.5	5.7	79
04...	1046	10.0	294	8.2	31.5	5.5	76
04...	1047	18.0	294	8.0	29.5	5.2	69

## TRINITY RIVER BASIN

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## LAKE ARLINGTON AT ARLINGTON, TX--Continued

324041097134601 LAKE ARLINGTON SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
12...	1315	1.00	325	7.9	9.0	.40	10.3	90	120
12...	1316	10.0	342	7.9	8.5	--	9.9	85	120
MAY									
12...	1220	1.00	313	8.0	22.5	.40	7.5	89	110
12...	1221	5.00	314	8.0	22.0	--	7.4	87	--
12...	1222	11.0	315	8.0	22.0	--	7.2	85	100
AUG									
04...	1100	1.00	297	8.1	30.0	.60	5.4	73	100
04...	1101	10.0	297	8.1	30.0	--	5.3	71	--
04...	1102	15.0	297	8.1	30.0	--	5.2	70	97

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
12...	21	40	5.1	20	.8	4.8	100	31	20
12...	24	41	5.1	21	.9	4.7	100	31	22
MAY									
12...	18	35	4.8	19	.8	4.5	89	30	21
12...	--	--	--	--	--	--	--	--	--
12...	15	34	4.7	19	.8	4.5	89	30	21
AUG									
04...	18	33	4.9	19	.9	4.7	85	26	21
04...	--	--	--	--	--	--	--	--	--
04...	12	31	4.7	19	.9	4.8	85	26	21

DATE	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								
12...	2.1	183	.20	.40	.60	.040	220	51
12...	2.3	187	.20	1.10	1.3	.050	190	46
MAY								
12...	2.6	170	.20	1.00	1.2	.050	4	1
12...	--	--	--	--	--	--	--	--
12...	2.6	169	.20	1.10	1.3	.050	20	4
AUG								
04...	4.0	164	<.10	.90	--	.080	210	49
04...	--	--	--	--	--	--	--	--
04...	3.5	161	<.10	.80	--	.080	41	27

## TRINITY RIVER BASIN

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°45'46", long 96°59'42", Dallas County, Hydrologic Unit 12030102, on left bank at upstream side of bridge on Belt Line Road, 1.3 mi northeast of Grand Prairie, 3.7 mi upstream from Bear Creek, 6.5 mi upstream from Mountain Creek, and at mile 514.6.

DRAINAGE AREA.--3,065 mi<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 405.42 ft (revised) National Geodetic Vertical Datum of 1929. Prior to Dec. 6, 1933, nonrecording gage at bridge on old channel 2,500 ft southeast of present site at datum 7.56 ft higher. Dec. 6, 1933, to May 24, 1956, water-stage recorder at site 440 ft downstream from site of nonrecording gage at datum 7.56 ft higher than present datum. May 25, 1956, to Apr. 18, 1957, nonrecording gage at site 1.5 mi downstream at different datum. Apr. 19 to Aug. 13, 1957, nonrecording gage on bridge at present site and at datum 5.00 ft higher than present datum. Aug. 14, 1957, to Sept. 30, 1982, water-stage recorder at present site and at datum 5.00 ft higher than present datum.

REMARKS.--Water-discharge records good. Flow is affected at times by three upstream reservoirs with a combined capacity of 248,600 acre-ft, of which 76,550 acre-ft is for flood control. During the current year, the city of Fort Worth discharged sewage effluent into the river upstream from this station. There are many diversions upstream from this station for municipal, industrial, and other uses. The river channel at this station was relocated and rectified in 1956. Gage-height telemeter at station.

AVERAGE DISCHARGE.--58 years (water years 1926-83), 561 ft<sup>3</sup>/s (406,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,000 ft<sup>3</sup>/s May 17, 1949 (gage height, 28.00 ft, site and datum then in use), from rating curve extended above 36,000 ft<sup>3</sup>/s; minimum observed, 3.2 ft<sup>3</sup>/s June 6, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 30.6 ft in May 1908 (former site and datum), from information by local resident. Flood in April 1922 reached a stage of 29.0 ft (former site and datum), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,050 ft<sup>3</sup>/s June 15 at 0115 hours (gage height, 18.58 ft); minimum daily, 101 ft<sup>3</sup>/s Nov. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	163	179	431	2370	219	365	199	689	257	125	372
2	121	1130	211	530	622	208	291	226	336	224	136	585
3	127	573	169	386	362	202	258	301	281	195	128	261
4	130	203	142	290	306	411	241	245	373	168	120	212
5	143	139	133	261	405	646	239	195	442	169	124	182
6	180	113	125	243	461	328	233	184	286	364	119	197
7	215	107	121	231	330	247	218	171	336	260	215	186
8	174	105	128	214	296	221	209	168	250	210	180	176
9	614	121	134	215	271	209	192	161	222	184	804	177
10	593	101	373	216	270	203	195	228	210	158	304	167
11	221	156	1050	203	254	196	194	404	204	165	183	176
12	292	178	798	191	228	187	197	327	217	177	149	175
13	592	153	367	189	222	185	189	209	216	167	137	184
14	281	129	247	190	221	181	184	180	2800	358	116	168
15	192	114	211	177	220	185	175	308	3080	1210	104	158
16	160	120	185	174	226	310	166	256	523	560	114	162
17	151	106	178	170	212	379	175	185	385	335	110	157
18	154	130	156	171	301	238	180	430	294	271	126	155
19	153	181	145	209	269	195	182	255	249	252	2220	157
20	150	180	133	257	346	228	175	752	221	215	2100	192
21	312	176	135	210	490	230	174	1580	217	197	338	172
22	622	179	125	172	507	199	243	1640	202	173	240	155
23	311	185	141	171	365	202	305	1850	194	167	219	158
24	206	172	130	168	279	222	244	1090	186	158	198	155
25	184	169	114	167	249	204	196	396	374	154	181	157
26	176	826	526	163	229	1280	191	306	430	160	176	158
27	166	2190	2760	158	224	961	178	263	809	144	160	163
28	163	756	1020	156	219	365	178	233	744	137	159	160
29	161	290	439	151	---	289	181	207	891	130	174	164
30	152	209	309	170	---	1290	201	244	325	125	151	163
31	157	---	311	979	---	658	---	1200	---	127	153	---
TOTAL	7380	9354	11195	7613	10754	11078	6349	14393	15986	7571	9763	5804
MEAN	238	312	361	246	384	357	212	464	533	244	315	193
MAX	622	2190	2760	979	2370	1290	365	1850	3080	1210	2220	585
MIN	121	101	114	151	212	181	166	161	186	125	104	155
AC-FT	14640	18550	22210	15100	21330	21970	12590	28550	31710	15020	19360	11510
CAL YR 1982	TOTAL	541533	MEAN	1484	MAX	17400	MIN	100	AC-FT	1074000		
WTR YR 1983	TOTAL	117240	MEAN	321	MAX	3080	MIN	101	AC-FT	232500		

## TRINITY RIVER BASIN

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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.--Beginning November 1976, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,320 micromhos Dec. 12, 1978; minimum, 154 micromhos Aug. 19, 1983.

pH: Maximum, 8.6 units July 2, 1981, June 27, 1982, and Mar. 26, 1983; minimum, 6.6 units Jan. 6, 1979.

WATER TEMPERATURES: Maximum, 35.0°C Aug. 8, 1982; minimum, 3.0°C Jan. 9, 1973.

DISSOLVED OXYGEN: Maximum, 13.9 mg/L Jan. 26, 27, 1982; minimum, 0.0 mg/L on several days each year.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 954 micromhos Apr. 22; minimum, 154 micromhos Aug. 19.

pH: Maximum, 8.6 units Mar. 26; minimum, 7.3 units Oct. 7-9, Dec. 11, 15, Sept. 9.

WATER TEMPERATURES: Maximum, 33.0°C Aug. 13-15; minimum, 9.0°C Dec. 13, Feb. 7.

DISSOLVED OXYGEN: Maximum, 12.0 mg/L Apr. 20; minimum, 2.0 mg/L July 15.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT 27...	1355	166	734	7.7	20.0	5.3	59	3.5	160	0
DEC 15...	1050	211	685	7.8	13.0	7.7	73	14	180	8
MAR 14...	1355	181	840	7.6	20.0	7.6	85	4.6	200	20
APR 27...	0930	178	824	7.5	20.5	6.1	69	4.1	200	28
JUL 21...	1600	197	784	7.8	31.0	6.5	89	6.4	160	0
SEP 15...	0930	158	826	7.6	28.0	5.4	70	4.0	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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 27...	53		7.0	85	3.0	10	170	66	72	.80
DEC 15...	59		7.4	67	2.3	12	170	75	61	.60
MAR 14...	66		8.4	90	2.9	9.5	180	100	76	.70
APR 27...	64		9.1	91	2.9	9.6	170	90	81	.70
JUL 21...	54		7.0	89	3.2	14	180	74	81	.70
SEP 15...	50		7.4	110	4.0	12	170	74	110	.80



## TRINITY RIVER BASIN

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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)
OCT 27...	11	407	6.4	.670	7.1	.830	2.4	3.20	2.10
DEC 15...	9.3	393	3.1	.280	3.4	.840	2.0	2.80	3.10
MAR 14...	7.7	466	6.0	.330	6.3	.390	1.9	2.30	2.30
APR 27...	7.4	455	7.1	.150	7.2	.280	2.7	3.00	3.10
JUL 21...	11	439	1.5	.110	1.6	.440	6.9	7.30	1.60
SEP 15...	11	477	4.3	.280	4.6	.380	1.8	2.20	1.50

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	7380	654	371	7400	53	1050	72	1430	170
NOV.	1982	9354	539	306	7740	41	1040	57	1450	150
DEC.	1982	11195	598	340	10300	47	1410	64	1950	170
JAN.	1983	7613	718	408	8380	60	1230	80	1650	180
FEB.	1983	10754	625	355	10300	50	1450	68	1980	170
MAR.	1983	11078	642	365	10900	51	1540	70	2100	170
APR.	1983	6349	828	469	8040	72	1240	95	1640	190
MAY	1983	14393	607	345	13400	48	1870	66	2570	160
JUNE	1983	15986	540	307	13200	42	1790	58	2490	150
JULY	1983	7571	663	376	7690	54	1100	73	1500	170
AUG.	1983	9763	556	316	8330	44	1150	60	1580	150
SEPT	1983	5804	754	428	6700	64	999	85	1330	180
TOTAL		117240	**	**	112000	**	15900	**	21700	**
WTD. AVG.		321	625	355	**	50	**	68	**	170

## 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 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	838	808	825	814	770	794	718	662	693	---	---	632
2	838	816	829	768	198	477	738	612	697	---	---	566
3	846	828	834	484	384	438	800	732	773	---	---	598
4	846	810	833	570	486	512	794	724	770	---	---	532
5	816	804	810	674	580	643	786	766	778	---	---	631
6	812	544	778	754	256	632	800	780	794	---	---	685
7	796	462	702	772	296	628	790	768	781	---	---	725
8	784	712	761	798	346	748	814	768	784	---	---	759
9	768	332	625	786	756	770	812	794	802	---	---	766
10	666	408	463	792	748	766	806	492	673	---	---	772
11	588	498	538	790	700	767	630	408	517	814	784	798
12	656	388	577	804	752	788	444	410	437	906	800	817
13	664	478	584	794	760	781	576	440	505	854	832	844
14	588	396	481	790	764	780	644	580	602	846	818	833
15	684	594	653	792	774	785	---	---	664	824	810	817
16	732	682	715	772	756	768	---	---	692	930	824	851
17	758	704	740	766	748	756	---	---	698	912	806	832
18	794	730	764	772	750	763	---	---	732	886	782	810
19	772	736	756	804	772	786	---	---	726	896	782	807
20	770	740	759	790	770	777	---	---	712	838	804	823
21	812	416	681	804	782	796	---	---	712	806	782	797
22	760	514	641	812	734	781	---	---	726	808	798	802
23	532	400	466	754	706	733	---	---	766	826	804	814
24	648	542	601	754	716	738	---	---	766	816	778	805
25	726	662	695	764	740	754	---	---	720	780	768	775
26	750	678	714	754	354	517	---	---	638	812	780	801
27	748	682	729	426	306	344	---	---	617	828	816	824
28	756	738	749	440	336	387	---	---	390	832	814	823
29	776	742	764	578	446	504	---	---	492	834	822	827
30	796	762	786	658	582	613	---	---	565	838	816	830
31	802	778	793	---	---	---	---	---	605	818	292	579
MONTH	846	332	698	814	198	678	814	408	672	930	292	760

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	598	328	398	764	742	754	700	580	630	896	874	883
2	522	358	439	774	748	761	790	710	759	884	808	861
3	---	---	580	796	772	785	798	754	779	882	814	823
4	712	648	686	796	504	697	810	776	791	820	778	795
5	726	694	712	750	612	643	796	778	787	826	802	815
6	696	600	626	648	558	604	826	794	813	846	822	835
7	664	598	628	720	652	682	828	808	817	834	830	832
8	692	642	665	728	702	718	848	816	835	878	840	871
9	748	698	727	756	722	743	858	834	844	886	848	872
10	766	746	756	782	758	771	854	836	844	880	804	841
11	772	744	758	802	778	789	890	854	867	850	734	811
12	786	760	773	800	776	788	866	820	841	806	644	696
13	796	776	788	806	774	791	868	830	844	764	692	735
14	790	756	775	824	790	806	884	864	874	808	766	790
15	774	750	764	820	788	805	892	870	881	834	800	815
16	810	770	786	846	552	764	884	860	871	780	700	715
17	812	790	802	818	714	773	888	864	874	732	706	720
18	804	664	765	762	726	748	892	850	870	744	374	601
19	824	772	793	798	752	780	874	836	850	---	---	795
20	780	672	745	802	774	786	876	844	860	---	---	576
21	766	578	684	798	742	770	904	870	877	---	---	462
22	622	586	602	778	760	770	954	872	892	---	---	456
23	666	608	633	890	776	801	884	800	840	---	---	440
24	718	672	703	820	806	813	848	810	827	---	---	515
25	756	722	747	816	792	806	856	834	843	---	---	650
26	772	754	763	798	352	531	862	806	828	724	656	691
27	788	768	776	514	392	455	860	814	841	774	726	750
28	796	752	776	676	522	593	870	852	861	810	766	784
29	---	---	---	726	666	690	884	856	874	846	810	827
30	---	---	---	610	254	471	896	878	888	870	506	812
31	---	---	---	572	442	511	---	---	---	664	332	511
MONTH	824	328	702	890	254	716	954	580	837	896	332	728

## TRINITY RIVER BASIN

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	534	380	447	722	640	679	882	844	862	802	406	655
2	684	542	611	766	728	744	866	780	820	766	462	551
3	764	684	716	802	772	790	854	778	802	634	484	554
4	802	744	770	806	784	799	860	848	854	702	642	685
5	744	566	596	786	206	494	880	856	865	748	704	740
6	702	586	627	552	390	466	876	536	848	768	736	753
7	716	648	691	650	542	578	864	714	809	770	734	749
8	762	652	701	724	660	694	840	272	751	782	734	759
9	788	756	773	782	730	763	746	180	492	806	784	800
10	790	768	781	864	788	833	684	346	556	806	794	799
11	828	798	817	892	840	868	704	660	682	802	790	797
12	848	796	826	844	780	807	750	708	728	806	796	801
13	822	784	805	812	784	800	786	722	761	854	770	796
14	824	236	435	864	370	767	792	754	773	884	818	842
15	432	262	325	688	376	441	810	794	802	830	822	828
16	642	440	547	546	432	507	814	752	787	828	816	822
17	652	578	621	634	532	575	788	752	768	846	820	836
18	758	654	711	684	622	643	880	740	816	858	824	839
19	788	762	777	726	676	694	760	154	387	868	828	848
20	804	778	790	770	724	743	404	302	342	830	654	776
21	824	800	812	798	760	778	608	412	510	816	750	771
22	868	816	843	842	798	816	684	614	640	822	792	807
23	888	856	874	812	782	798	722	686	698	830	808	821
24	904	872	890	840	788	826	780	720	756	836	824	828
25	902	544	841	828	784	814	802	782	790	886	824	841
26	764	520	689	780	750	766	820	792	809	916	874	893
27	642	404	532	824	750	792	834	804	825	874	788	830
28	558	372	454	836	822	830	844	822	838	798	782	788
29	492	340	411	842	828	836	824	808	816	812	792	802
30	634	450	539	850	826	836	808	760	792	822	798	813
31	---	---	---	878	842	855	790	756	773	---	---	---
MONTH	904	236	675	892	206	730	882	154	734	916	406	781

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.6	7.5	7.5	7.4	7.4	7.4	7.5	7.5	7.5	---	---	---
2	7.6	7.5	7.5	8.1	7.4	7.6	7.5	7.4	7.4	---	---	---
3	7.5	7.4	7.5	7.5	7.5	7.5	7.4	7.4	7.4	---	---	---
4	7.5	7.4	7.5	7.5	7.5	7.5	7.5	7.4	7.4	---	---	---
5	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.5	---	---	---
6	7.5	7.4	7.4	7.7	7.5	7.5	7.5	7.4	7.4	---	---	---
7	7.5	7.3	7.4	7.9	7.5	7.6	7.4	7.4	7.4	---	---	---
8	7.3	7.3	7.3	7.9	7.4	7.5	7.5	7.4	7.4	---	---	---
9	7.6	7.3	7.4	7.6	7.5	7.6	7.5	7.5	7.5	---	---	---
10	7.5	7.4	7.4	7.7	7.5	7.6	7.6	7.5	7.5	7.6	7.6	7.6
11	7.5	7.4	7.4	7.6	7.5	7.6	7.5	7.3	7.4	7.6	7.6	7.6
12	7.6	7.4	7.5	7.6	7.5	7.6	7.5	7.4	7.4	7.5	7.5	7.5
13	7.5	7.4	7.5	7.6	7.6	7.6	7.5	7.4	7.4	7.5	7.5	7.5
14	7.4	7.4	7.4	7.6	7.6	7.6	7.5	7.4	7.4	7.5	7.5	7.5
15	7.4	7.4	7.4	7.7	7.6	7.6	7.4	7.3	7.4	7.5	7.5	7.5
16	7.4	7.4	7.4	7.7	7.6	7.7	---	---	---	7.5	7.5	7.5
17	7.4	7.4	7.4	7.7	7.6	7.6	---	---	---	7.5	7.5	7.5
18	7.4	7.4	7.4	7.6	7.6	7.6	---	---	---	7.6	7.5	7.5
19	7.4	7.4	7.4	7.6	7.6	7.6	---	---	---	7.5	7.5	7.5
20	7.5	7.4	7.5	7.6	7.6	7.6	---	---	---	7.6	7.5	7.5
21	7.8	7.4	7.5	7.6	7.5	7.6	---	---	---	7.6	7.6	7.6
22	7.5	7.4	7.5	7.6	7.5	7.5	---	---	---	7.6	7.6	7.6
23	7.5	7.4	7.4	7.5	7.5	7.5	---	---	---	7.6	7.5	7.5
24	7.4	7.4	7.4	7.6	7.5	7.5	---	---	---	7.5	7.5	7.5
25	7.4	7.4	7.4	7.6	7.6	7.6	---	---	---	7.5	7.5	7.5
26	7.4	7.4	7.4	7.8	7.6	7.7	---	---	---	7.5	7.5	7.5
27	7.4	7.4	7.4	7.7	7.6	7.7	---	---	---	7.5	7.5	7.5
28	7.5	7.4	7.4	7.7	7.6	7.7	---	---	---	7.5	7.5	7.5
29	7.5	7.4	7.5	7.7	---	---	---	---	---	7.5	7.5	7.5
30	7.5	7.4	7.5	7.7	7.5	7.6	---	---	---	7.5	7.4	7.5
31	7.5	7.4	7.4	---	---	---	---	---	---	8.3	7.4	7.6
MONTH	7.8	7.3	7.4	8.1	7.4	7.6	7.6	7.3	7.4	8.3	7.4	7.5

## 08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.7	7.4	7.6	7.6	7.5	7.5	7.6	7.5	7.6	7.6	7.5	7.5
2	7.6	7.5	7.5	7.6	7.5	7.5	7.7	7.6	7.7	7.6	7.5	7.6
3	---	---	---	7.6	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.5
4	7.6	7.6	7.6	7.6	7.5	7.5	7.7	7.6	7.6	7.7	7.6	7.6
5	7.6	7.5	7.6	7.6	7.4	7.5	7.7	7.6	7.6	7.6	7.6	7.6
6	7.6	7.6	7.6	7.5	7.4	7.5	7.7	7.6	7.6	7.6	7.6	7.6
7	7.6	7.6	7.6	7.5	7.5	7.5	7.7	7.6	7.6	7.7	7.6	7.6
8	7.6	7.5	7.6	7.5	7.5	7.5	7.7	7.7	7.7	7.7	7.6	7.6
9	7.6	7.5	7.5	7.6	7.5	7.6	7.7	7.6	7.7	7.7	7.6	7.7
10	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.6	7.6	7.7	7.7	7.7
11	7.5	7.5	7.5	7.6	7.5	7.5	7.7	7.6	7.6	7.7	7.5	7.6
12	7.6	7.5	7.5	7.6	7.5	7.5	7.9	7.6	7.6	7.7	7.6	7.6
13	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.6	7.6	7.7	7.6	7.7
14	7.6	7.5	7.5	7.7	7.6	7.6	7.7	7.6	7.6	7.7	7.6	7.7
15	7.5	7.5	7.5	7.7	7.6	7.7	7.7	7.6	7.6	7.7	7.6	7.6
16	7.5	7.5	7.5	7.8	7.7	7.7	7.6	7.6	7.6	7.7	7.6	7.7
17	7.5	7.5	7.5	7.7	7.5	7.6	7.7	7.6	7.6	7.7	7.7	7.7
18	7.6	7.4	7.5	7.6	7.6	7.6	7.7	7.6	7.6	7.7	7.7	7.7
19	7.5	7.5	7.5	7.6	7.6	7.6	7.7	7.6	7.7	---	---	---
20	7.6	7.5	7.5	7.6	7.6	7.6	7.7	7.7	7.7	---	---	---
21	7.6	7.4	7.5	7.7	7.6	7.7	7.8	7.7	7.7	---	---	---
22	7.6	7.5	7.5	7.8	7.7	7.7	7.7	7.6	7.7	---	---	---
23	7.6	7.5	7.5	7.8	7.7	7.7	7.6	7.5	7.6	---	---	---
24	7.6	7.5	7.5	7.7	7.6	7.7	7.7	7.6	7.6	---	---	---
25	7.5	7.5	7.5	7.7	7.6	7.7	7.7	7.6	7.6	---	---	---
26	7.5	7.5	7.5	8.6	7.6	7.7	7.7	7.6	7.6	7.7	7.6	7.7
27	7.6	7.5	7.5	7.7	7.6	7.6	7.6	7.5	7.5	7.7	7.6	7.7
28	7.6	7.5	7.5	7.8	7.5	7.7	7.5	7.5	7.5	7.8	7.7	7.7
29	---	---	---	7.7	7.6	7.6	7.6	7.5	7.5	7.7	7.7	7.7
30	---	---	---	8.1	7.6	7.7	8.3	7.5	7.5	7.8	7.7	7.7
31	---	---	---	7.6	7.5	7.5	---	---	---	7.7	7.4	7.6
MONTH	7.7	7.4	7.5	8.6	7.4	7.6	8.3	7.5	7.6	7.8	7.4	7.6

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.6	7.5	7.5	7.7	7.6	7.6	8.1	7.7	7.9	7.8	7.5	7.6
2	7.9	7.6	7.7	7.7	7.6	7.6	8.2	7.7	7.9	7.5	7.4	7.5
3	7.8	7.6	7.6	7.6	7.6	7.6	7.9	7.7	7.8	7.6	7.5	7.5
4	7.8	7.5	7.6	7.8	7.6	7.7	7.9	7.7	7.8	7.6	7.5	7.6
5	7.7	7.5	7.6	7.9	7.4	7.7	8.0	7.7	7.8	7.7	7.6	7.6
6	7.7	7.6	7.6	7.6	7.5	7.5	8.0	7.6	7.8	7.8	7.6	7.7
7	7.7	7.6	7.6	7.7	7.6	7.6	7.8	7.5	7.7	7.7	7.6	7.6
8	7.7	7.6	7.7	7.7	7.6	7.6	7.8	7.5	7.6	7.8	7.6	7.7
9	7.7	7.6	7.6	7.7	7.6	7.6	8.1	7.4	7.6	7.8	7.3	7.7
10	7.7	7.6	7.7	7.7	7.6	7.6	7.7	7.5	7.6	7.7	7.6	7.7
11	7.8	7.7	7.7	7.7	7.6	7.6	7.6	7.6	7.6	7.7	7.6	7.6
12	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.6	7.6	7.7	7.6	7.6
13	7.9	7.7	7.8	7.8	7.7	7.7	7.7	7.6	7.6	7.8	7.6	7.7
14	8.0	7.6	7.8	7.7	7.5	7.7	7.7	7.6	7.7	7.8	7.7	7.7
15	7.8	7.4	7.6	7.6	7.4	7.5	7.8	7.7	7.7	7.7	7.6	7.6
16	7.5	7.4	7.5	7.5	7.5	7.5	7.8	7.7	7.8	7.8	7.6	7.6
17	7.6	7.5	7.6	7.6	7.5	7.5	7.8	7.7	7.7	7.8	7.5	7.7
18	7.7	7.6	7.6	7.7	7.6	7.6	7.7	7.6	7.7	7.8	7.5	7.7
19	7.7	7.6	7.6	7.7	7.6	7.7	8.1	7.5	7.7	7.7	7.6	7.6
20	7.7	7.6	7.7	7.8	7.6	7.7	7.8	7.5	7.6	7.7	7.6	7.6
21	7.7	7.7	7.7	7.8	7.6	7.7	7.6	7.5	7.5	7.7	7.6	7.7
22	7.8	7.7	7.7	7.8	7.5	7.7	7.6	7.5	7.6	7.8	7.7	7.7
23	7.8	7.7	7.8	7.8	7.6	7.7	7.6	7.6	7.6	7.8	7.7	7.8
24	7.8	7.7	7.8	7.9	7.7	7.8	7.6	7.6	7.6	7.9	7.7	7.8
25	7.8	7.6	7.7	8.1	7.7	7.8	7.6	7.6	7.6	7.8	7.6	7.8
26	7.7	7.5	7.6	8.1	7.7	7.9	7.6	7.5	7.6	7.8	7.6	7.7
27	7.6	7.4	7.5	8.0	7.7	7.8	7.6	7.5	7.6	7.7	7.6	7.6
28	7.5	7.4	7.5	7.9	7.8	7.8	7.6	7.5	7.6	7.7	7.5	7.6
29	7.5	7.4	7.5	8.0	7.7	7.8	7.7	7.5	7.6	7.8	7.6	7.7
30	7.6	7.5	7.6	8.0	7.7	7.8	7.8	7.6	7.7	7.8	7.6	7.7
31	---	---	---	8.0	7.8	7.9	7.7	7.6	7.6	---	---	---
MONTH	8.0	7.4	7.6	8.1	7.4	7.7	8.2	7.4	7.7	7.9	7.3	7.7

## TRINITY RIVER BASIN

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	27.0	26.0	26.5	24.0	23.0	23.5	19.5	17.0	18.0	---	---	12.5
2	28.0	26.0	27.0	23.5	18.0	20.5	19.5	18.0	18.5	---	---	12.0
3	28.0	26.5	27.0	19.5	18.0	19.0	18.5	17.5	18.0	---	---	12.0
4	28.5	26.5	27.5	18.0	17.0	17.5	17.5	16.5	17.0	---	---	11.0
5	28.0	26.5	27.0	18.0	16.5	17.5	17.0	16.0	16.5	---	---	11.0
6	28.0	26.5	27.0	19.5	17.5	18.5	17.0	15.5	16.0	---	---	12.0
7	28.0	26.5	27.0	21.0	18.5	20.0	16.5	15.0	16.0	---	---	13.0
8	28.0	27.0	27.5	21.0	19.5	20.5	17.0	15.5	16.0	---	---	13.5
9	27.5	23.5	25.5	21.0	20.0	20.5	15.5	15.0	15.5	---	---	---
10	24.5	23.0	23.5	22.0	21.0	21.5	15.0	12.0	13.5	14.0	13.0	13.5
11	23.0	22.0	22.5	22.0	21.0	21.5	14.0	10.5	12.0	13.5	12.5	13.0
12	23.0	20.0	22.0	21.5	19.0	20.5	10.5	9.5	10.0	14.0	12.5	13.0
13	22.0	20.5	21.5	19.0	16.5	18.0	11.0	9.0	10.0	14.0	13.0	13.5
14	21.5	19.0	20.5	16.5	15.5	16.5	13.0	11.0	12.0	15.0	13.5	14.0
15	22.5	21.0	22.0	16.0	15.0	15.5	---	---	13.0	14.0	12.5	13.5
16	23.0	21.5	22.5	15.5	15.0	15.5	---	---	13.5	13.0	12.0	12.5
17	23.5	22.0	22.5	17.0	15.5	16.5	---	---	12.5	13.5	12.5	13.0
18	24.0	22.5	23.0	18.0	17.0	17.5	---	---	14.5	14.0	13.0	13.5
19	24.5	23.0	24.0	20.0	18.0	19.0	---	---	13.5	13.0	12.0	12.5
20	23.0	21.5	22.0	20.5	19.5	19.5	---	---	12.5	12.0	11.0	11.5
21	21.0	16.0	19.0	20.0	19.0	19.5	---	---	13.0	11.0	10.5	11.0
22	20.0	17.5	19.0	20.5	19.5	20.0	---	---	15.0	11.0	10.5	10.5
23	18.0	16.0	17.0	20.5	17.0	19.5	---	---	16.5	11.5	10.0	11.0
24	19.0	17.5	18.5	17.0	15.0	16.0	---	---	17.5	12.5	11.0	11.5
25	19.0	18.0	18.5	15.0	14.5	15.0	---	---	15.0	13.0	11.5	12.5
26	20.0	18.5	19.0	14.5	11.0	12.5	---	---	12.5	13.0	11.5	12.0
27	20.5	19.0	19.5	11.5	10.0	10.5	---	---	12.0	11.5	11.0	11.5
28	21.5	20.0	21.0	12.0	10.5	11.5	---	---	9.5	12.0	11.0	11.5
29	21.5	20.0	20.5	14.5	12.0	13.0	---	---	11.0	13.5	11.5	12.5
30	21.5	20.0	21.0	17.0	14.5	15.5	---	---	12.0	14.0	13.0	13.5
31	23.5	21.5	22.5	---	---	---	---	---	12.5	14.0	12.0	13.5
MONTH	28.5	16.0	22.5	24.0	10.0	17.5	19.5	9.0	14.0	15.0	10.0	12.5

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



## TRINITY RIVER BASIN

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08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

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

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	3.7	2.9	3.3	9.6	3.8	6.0	6.7	5.5	6.1	---	---	---
2	7.9	2.7	4.1	8.6	3.7	5.8	6.2	5.1	5.5	---	---	---
3	7.8	2.7	4.0	9.3	5.1	5.9	5.3	5.1	5.2	---	---	---
4	7.2	2.7	3.6	---	---	---	5.9	5.3	5.5	---	---	---
5	5.9	2.6	3.3	---	---	---	5.9	5.4	5.7	---	---	---
6	4.8	2.8	3.4	---	---	---	5.8	5.4	5.5	---	---	---
7	5.3	3.1	3.5	---	---	---	6.2	5.5	5.8	---	---	---
8	3.6	3.1	3.3	---	---	---	6.0	5.5	5.7	---	---	---
9	5.9	2.3	3.6	---	---	---	6.5	5.6	6.0	---	---	---
10	3.9	2.5	3.3	---	---	---	8.5	6.0	7.4	7.7	7.2	7.5
11	4.5	4.0	4.3	4.8	4.0	4.3	9.0	6.0	8.0	7.7	7.3	7.5
12	6.7	3.9	4.7	4.9	4.1	4.5	9.1	8.7	8.9	7.5	7.2	7.3
13	5.1	4.3	4.7	5.7	4.8	5.4	9.2	8.8	9.0	7.3	6.8	7.1
14	5.0	4.2	4.7	6.2	5.3	5.7	8.7	7.9	8.4	7.2	6.8	7.0
15	4.3	3.7	4.1	6.4	5.9	6.1	7.9	7.6	7.8	7.4	6.9	7.1
16	8.5	3.5	5.1	6.7	6.1	6.4	---	---	---	7.4	6.9	7.2
17	8.5	3.4	5.3	6.3	5.1	5.8	---	---	---	7.6	7.1	7.3
18	8.5	3.5	5.6	5.3	4.8	5.0	---	---	---	7.6	7.0	7.2
19	8.5	3.5	5.1	4.9	4.6	4.7	---	---	---	7.7	7.2	7.4
20	8.9	3.8	5.6	4.8	4.5	4.7	---	---	---	8.2	7.3	7.7
21	8.5	3.6	5.2	4.7	4.3	4.4	---	---	---	8.1	7.8	8.0
22	5.8	4.1	5.1	4.6	4.1	4.3	---	---	---	8.0	7.6	7.8
23	5.9	5.2	5.5	5.0	4.3	4.6	---	---	---	7.8	7.1	7.4
24	8.2	4.7	5.4	5.8	5.1	5.5	---	---	---	7.4	6.9	7.2
25	8.3	4.5	5.3	6.2	5.7	5.9	---	---	---	7.4	6.8	7.0
26	8.7	4.7	5.7	8.8	6.0	7.9	---	---	---	6.7	6.2	6.5
27	9.4	4.9	6.1	8.6	7.9	8.3	---	---	---	7.0	6.5	6.7
28	9.3	4.5	5.9	8.5	7.9	8.2	---	---	---	6.9	6.3	6.5
29	9.5	4.3	6.2	7.9	7.2	7.6	---	---	---	6.3	5.7	6.0
30	9.4	4.4	6.4	7.3	6.7	7.0	---	---	---	6.1	5.3	5.7
31	9.2	4.2	6.4	---	---	---	---	---	---	8.4	5.0	6.7
MONTH	9.5	2.3	4.8	9.6	3.7	5.8	9.2	5.1	6.7	8.4	5.0	7.1

## TRINITY RIVER BASIN

08049500 WEST FORK TRINITY RIVER AT GRAND PRAIRIE, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	8.3	6.0	7.5	7.0	6.4	6.6	7.0	6.7	6.8	5.7	5.2	5.4
2	9.5	8.2	8.6	6.8	6.0	6.4	7.2	7.0	7.1	5.7	5.2	5.4
3	---	---	---	6.3	5.5	5.8	7.1	6.8	6.9	6.3	5.6	6.0
4	---	---	---	7.3	5.4	5.9	7.2	6.6	7.0	6.3	5.8	6.0
5	8.8	8.4	8.7	6.4	5.4	6.0	7.5	6.9	7.3	6.2	5.7	5.9
6	9.1	8.5	8.9	5.8	5.0	5.5	7.5	7.2	7.4	6.6	5.7	6.1
7	9.0	8.5	8.8	6.1	5.6	5.8	7.5	7.2	7.4	7.0	5.7	6.2
8	8.7	8.2	8.5	6.2	5.9	6.0	7.7	7.3	7.4	6.8	5.6	6.1
9	8.1	7.2	7.6	6.7	6.1	6.4	11.4	7.4	8.2	6.9	5.8	6.3
10	7.3	7.0	7.1	6.8	6.1	6.5	11.2	7.2	8.3	6.7	6.4	6.5
11	7.3	6.8	7.1	6.6	5.8	6.2	10.6	7.0	7.8	6.6	5.8	6.3
12	7.2	6.8	7.0	6.4	5.8	6.1	10.8	6.7	7.9	6.1	5.2	5.7
13	7.1	6.6	6.9	6.8	5.9	6.3	9.8	6.4	7.2	6.3	5.7	6.0
14	7.1	6.0	6.7	7.5	5.7	6.4	10.1	6.3	7.2	6.1	5.8	5.9
15	7.1	6.2	6.6	8.1	6.8	7.3	11.2	6.6	7.9	6.7	5.9	6.3
16	6.7	5.8	6.2	7.5	6.8	7.0	11.4	6.3	8.5	6.7	6.1	6.4
17	6.2	5.8	6.0	6.9	5.6	6.2	11.2	6.5	8.3	6.7	6.4	6.5
18	7.2	5.6	6.3	6.5	6.0	6.2	10.9	6.5	8.1	7.2	6.4	6.8
19	6.9	5.6	6.2	6.5	6.0	6.3	11.7	6.6	8.5	---	---	---
20	6.9	6.0	6.3	7.2	6.4	7.0	12.0	7.1	8.7	---	---	---
21	7.4	6.0	6.5	8.2	7.1	7.7	11.7	7.1	8.6	---	---	---
22	7.4	6.8	7.1	8.5	7.7	8.1	7.3	6.5	7.0	---	---	---
23	7.4	6.9	7.2	8.2	7.3	7.6	6.5	5.6	6.1	---	---	---
24	6.9	6.4	6.6	7.3	6.9	7.1	6.9	6.3	6.6	---	---	---
25	6.5	6.1	6.2	7.2	6.7	7.0	7.0	6.5	6.7	---	---	---
26	6.6	5.9	6.3	9.2	5.9	7.6	6.9	6.3	6.6	6.6	6.4	6.5
27	7.0	6.4	6.7	7.9	5.2	7.1	6.4	5.5	6.0	6.6	6.3	6.4
28	7.2	6.4	6.7	8.1	6.7	7.8	6.1	5.2	5.6	6.6	6.2	6.4
29	---	---	---	7.8	7.3	7.7	5.7	5.5	5.5	6.4	6.1	6.2
30	---	---	---	9.6	7.4	8.2	5.9	5.4	5.6	7.8	6.2	6.5
31	---	---	---	7.7	6.8	7.3	---	---	---	8.2	4.5	6.5
MONTH	9.5	5.6	7.1	9.6	5.0	6.8	12.0	5.2	7.3	8.2	4.5	6.2

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.1	5.8	6.7	5.9	5.3	5.6	9.8	5.8	7.6	6.7	4.6	5.2
2	7.4	7.0	7.2	5.8	5.1	5.5	9.9	6.2	7.7	5.0	2.8	4.2
3	7.1	6.7	6.9	5.1	4.1	4.6	9.7	6.3	7.7	5.3	4.5	5.0
4	6.6	5.8	6.4	7.0	4.2	5.7	9.7	5.8	7.4	5.8	5.2	5.5
5	6.3	5.6	5.9	7.4	4.7	6.0	9.6	5.6	7.2	8.8	5.5	6.4
6	6.7	6.0	6.3	5.5	4.3	5.0	9.6	5.8	7.3	7.2	5.9	6.5
7	7.3	6.7	6.9	6.1	5.5	5.9	7.0	4.4	5.5	7.0	6.0	6.4
8	7.2	6.3	6.7	6.2	5.6	5.9	6.1	4.0	5.1	8.7	6.0	6.4
9	6.8	6.2	6.5	6.1	5.4	5.7	6.7	3.8	5.3	8.9	5.7	6.3
10	7.3	6.4	6.8	6.4	5.4	5.7	5.9	4.3	5.2	8.6	5.3	6.1
11	7.1	6.3	6.6	6.9	5.0	5.8	5.5	5.1	5.2	8.5	5.1	6.2
12	7.6	6.5	7.0	7.9	5.9	6.8	5.4	4.9	5.1	6.5	4.9	5.5
13	8.7	6.6	7.5	7.2	6.0	6.5	8.7	4.9	6.0	6.8	5.4	6.0
14	8.2	6.3	7.3	6.7	5.7	6.1	8.7	5.2	6.3	8.9	6.0	6.9
15	8.4	4.3	6.0	5.6	2.0	4.1	9.0	5.3	6.7	8.8	5.1	5.8
16	6.3	5.5	6.0	5.6	5.0	5.4	9.1	5.8	6.9	8.8	4.8	5.8
17	6.5	6.1	6.3	6.0	5.5	5.7	---	5.8	6.8	8.7	5.1	6.3
18	6.2	5.9	6.0	6.1	5.4	5.8	6.3	4.9	5.7	8.8	5.4	6.5
19	5.9	5.6	5.7	6.9	5.7	6.2	7.4	4.6	6.3	8.9	5.1	5.8
20	6.5	5.7	6.1	6.7	5.8	6.3	7.4	3.8	5.2	6.2	5.2	5.7
21	7.2	6.2	6.7	6.7	4.9	6.1	5.4	5.2	5.3	7.3	5.9	6.6
22	7.4	6.3	6.8	7.3	3.1	5.6	5.4	5.1	5.2	10.2	6.4	7.5
23	7.0	6.4	6.7	7.6	5.0	6.1	5.7	5.3	5.4	10.2	6.9	7.8
24	7.6	6.2	6.8	8.4	5.3	6.6	5.5	4.9	5.2	10.1	7.1	7.9
25	6.7	5.7	6.3	9.1	5.7	7.2	5.7	4.8	5.1	9.9	7.0	7.8
26	6.1	4.6	5.5	9.3	6.0	7.5	5.9	4.5	5.0	9.5	6.0	7.0
27	6.1	4.2	5.3	8.7	6.0	7.3	5.9	4.3	5.0	9.4	5.8	7.0
28	5.0	3.1	4.4	8.5	6.1	7.1	6.0	4.2	4.9	9.2	5.5	6.5
29	4.8	3.8	4.4	9.5	5.8	7.1	6.5	4.5	5.4	7.6	5.6	6.4
30	5.9	4.8	5.3	9.8	5.8	7.6	7.2	5.4	6.1	7.4	5.4	6.2
31	---	---	---	9.8	5.9	7.7	6.7	4.7	5.6	---	---	---
MONTH	8.7	3.1	6.3	9.8	2.0	6.1	9.9	3.8	6.0	10.2	2.8	6.3

## TRINITY RIVER BASIN

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08049565 TRIGG BRANCH AT DALLAS-FORT WORTH AIRPORT NEAR EULESS, TX

LOCATION.--Lat 32°52'02", long 97°02'20", Tarrant County, Hydrologic Unit 12030102, at left end of upstream headwall of box culvert under International Parkway Road, near south toll booth entrance plaza to Dallas-Fort Worth Airport, 2.0 mi upstream from Bear Creek, and 2.2 miles north of intersection of Airport Freeway (State Highway 183) and International Parkway.

DRAINAGE AREA.--1.73 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1982 to September 1983.

GAGE.--Water-stage recorder. Datum of gage is 516.20 ft National Geodetic Vertical Datum of 1929.

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

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 2	0330	572	4.42
May 21	0700	428	4.05

Minimum daily discharge, 0.02 ft<sup>3</sup>/s Oct. 18, 19, May 3-5, July 12.DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.28	.07	1.1	2.2	.09	.36	.09	.11	.09	.09	.08
2	.05	40	.63	.55	1.4	.09	.17	.76	.09	.07	.09	.09
3	.05	.36	.09	.07	1.4	.17	.28	.02	.14	.07	.14	.05
4	.07	.09	.09	.17	1.9	8.0	.76	.02	2.6	.07	.10	.16
5	.05	.07	.07	.17	2.1	.36	.15	.02	.09	12	.13	.05
6	.03	.07	.07	.17	.55	.28	.07	.03	.90	.09	.07	.06
7	.03	.07	.09	.17	.36	.28	.10	.05	.17	.06	6.6	.18
8	4.0	.07	.07	.28	.36	.28	.21	.05	.18	.05	.35	.07
9	.50	.07	.05	.28	.36	.28	.17	.07	.17	.08	.71	.19
10	.36	.09	4.4	.36	.36	.17	.09	2.8	.28	.07	.06	.09
11	.17	.55	5.1	.36	.17	.09	.09	.07	.17	.04	.03	.23
12	.09	.36	.07	.36	.17	.09	.17	.07	.17	.02	.04	.08
13	.07	.17	.05	.28	.09	.09	.17	.07	.17	.03	.05	.08
14	.07	.09	.05	.28	.09	.09	.28	.37	16	1.3	.05	.25
15	.05	.09	.05	.28	.17	.09	.17	.17	.51	.19	.04	.13
16	.05	.09	.05	.28	.17	8.0	.09	.09	.36	.28	.04	.38
17	.05	.09	.05	.28	.17	.17	.07	.09	.36	.11	.07	.14
18	.02	.07	.05	.66	1.8	.09	.09	.54	.17	.07	1.6	.32
19	.02	.07	.05	.66	.28	.50	.09	.17	.28	.08	37	.31
20	.05	.05	.05	.36	2.7	.45	.07	15	.28	.32	.67	.77
21	9.3	.05	.07	.28	4.1	.07	.07	35	.28	.17	.17	.44
22	.66	.05	.09	.28	1.1	.07	2.4	3.6	.28	.25	.06	.21
23	.28	.05	.07	.17	.55	.55	.07	21	.28	.10	.03	.09
24	.28	.05	.07	.17	.55	.09	.07	.45	.28	.19	.04	.04
25	.17	.05	.07	.28	.55	.09	.07	.36	.17	.09	.04	.20
26	.28	20	6.6	.36	.36	20	.11	.28	.85	.09	.09	.05
27	.55	5.7	5.0	.36	.28	.09	.17	.17	.84	.17	.05	.03
28	.55	.28	.09	.45	.17	.09	.18	.09	1.8	.09	.13	.13
29	.28	.09	.05	.55	---	.09	1.0	.09	.17	.20	.05	.04
30	.17	.07	.03	.66	---	21	.05	13	.17	.09	.03	.05
31	.28	---	.55	55	---	.28	---	.99	---	.18	.08	---
TOTAL	18.63	69.19	23.89	65.68	24.46	62.08	7.84	95.58	28.32	16.71	48.70	4.99
MEAN	.60	2.31	.77	2.12	.87	2.00	.26	3.08	.94	.54	1.57	.17
MAX	9.3	40	6.6	55	4.1	21	2.4	35	16	12	37	.77
MIN	.02	.05	.03	.07	.09	.07	.05	.02	.09	.02	.03	.03
AC-FT	37	137	47	130	49	123	16	190	56	33	97	9.9

WTR YR 1983 TOTAL 466.07 MEAN 1.28 MAX 55 MIN .02 AC-FT 924

## TRINITY RIVER BASIN

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 downstream from Texas and New Orleans Railroad Co. bridge, 4.5 mi southwest of Cedar Hill, and 12 mi upstream from Mountain Creek Lake Dam.

DRAINAGE AREA.--119 mi<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 National Geodetic Vertical Datum of 1929. Prior to Nov. 25, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Flow is affected at times by discharge from flood-detention pools of three floodwater-retarding structures with combined detention capacity of 5,560 acre-ft. These structures control runoff from 14.2 mi<sup>2</sup>. Gage-height telemeter is located at station.

AVERAGE DISCHARGE.--23 years, 46.3 ft<sup>3</sup>/s (33,540 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,300 ft<sup>3</sup>/s May 7, 1969 (gage height, 25.10 ft), from rating curve extended above 14,000 ft<sup>3</sup>/s; maximum gage height, 25.11 ft May 3, 1979; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 30 ft May 25, 1922, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,050 ft<sup>3</sup>/s June 14 at 1900 hours (gage height, 22.39 ft), no other peak above base of 1,500 ft<sup>3</sup>/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	7.8	8.7	519	5.6	16	.38	91	.84	.01	158
2	.00	.02	9.8	11	100	4.9	7.9	.38	39	.34	.00	88
3	.00	.00	13	9.0	67	4.2	5.1	.21	18	.30	.00	55
4	.00	.18	7.3	7.6	48	28	4.8	.21	49	.27	.00	25
5	.00	2.1	4.9	6.5	54	121	3.7	.27	36	170	.00	18
6	.03	1.4	3.7	5.7	40	44	2.5	.34	195	81	.00	16
7	74	.90	3.0	5.2	22	23	2.1	.42	164	15	.00	15
8	4.3	.40	2.6	4.7	6.7	12	2.0	.27	55	4.7	.00	14
9	17	.05	2.2	4.7	4.4	8.7	1.7	.12	22	.52	.00	6.8
10	4.4	.13	3.0	4.4	5.3	6.0	1.5	.10	12	.16	.01	2.3
11	.99	.24	58	3.6	8.8	4.5	1.2	.18	8.1	.06	.01	1.3
12	.39	.35	78	3.2	4.9	3.7	1.3	.30	5.7	.06	.01	2.8
13	.34	.69	29	3.2	4.3	3.1	1.3	.24	3.7	.03	.00	2.1
14	.31	.60	16	3.2	5.1	2.9	.83	5.0	3410	.02	.00	.39
15	.27	.44	10	2.6	3.6	2.7	.76	246	1290	.16	.00	.25
16	.22	.37	7.3	2.2	2.9	2.9	.58	55	111	3.0	.00	.17
17	.17	.41	6.0	1.9	2.6	4.1	.62	19	96	22	.00	.09
18	.13	.48	5.2	2.2	2.4	3.2	.54	11	80	8.7	.00	.05
19	.08	.58	4.2	2.5	2.0	2.7	.55	6.5	76	2.2	99	.04
20	.00	2.3	3.6	2.5	6.1	2.5	.36	5.2	71	.70	122	.02
21	.00	1.7	3.0	2.2	72	1.8	.29	10	65	.21	18	.01
22	.00	1.2	3.0	2.2	65	1.2	.55	43	61	.16	6.2	.00
23	.00	1.0	3.0	1.9	38	1.3	.50	44	58	.07	1.3	.00
24	.00	.92	3.0	1.9	12	1.5	.47	35	54	.05	.64	.00
25	.00	.91	2.6	1.7	11	1.5	.39	14	42	.04	.34	.00
26	.00	15	2.5	1.6	10	66	.42	7.1	37	.04	.24	.00
27	.00	144	47	1.5	7.9	74	.34	4.7	34	.04	.16	.00
28	.00	49	52	1.3	6.3	27	.36	2.5	17	.03	.07	.00
29	.00	22	21	1.8	---	14	.39	2.0	6.2	.03	.04	.00
30	.00	12	11	1.8	---	18	.42	2.4	2.2	.02	.01	.00
31	.00	---	8.4	319	---	22	---	76	---	.01	.01	---
TOTAL	102.63	259.37	431.1	431.5	1131.3	518.0	59.47	591.82	6208.9	310.76	248.05	405.32
MEAN	3.31	8.65	13.9	13.9	40.4	16.7	1.98	19.1	207	10.0	8.00	13.5
MAX	74	144	78	319	519	121	16	246	3410	170	122	158
MIN	.00	.00	2.2	1.3	2.0	1.2	.29	.10	2.2	.01	.00	.00
AC-FT	204	514	855	856	2240	1030	118	1170	12320	616	492	804
CAL YR 1982	TOTAL	7391.76	MEAN	20.3	MAX	774	MIN	.00	AC-FT	14660		
WTR YR 1983	TOTAL	10698.22	MEAN	29.3	MAX	3410	MIN	.00	AC-FT	21220		

## TRINITY RIVER BASIN

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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 September 1982.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM-FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
DEC 03...	1133	15	1250	8.0	16.0	60	67	7.8	82	3.2	200
JAN 24...	1600	1.8	1490	8.4	6.0	10	25	11.3	93	1.8	240
MAR 10...	1200	6.0	1100	8.5	8.0	15	43	11.4	97	3.9	280
APR 21...	1030	.27	1400	7.8	13.0	10	6.1	7.4	72	2.6	400
JUN 09...	1240	21	900	7.9	24.0	25	72	6.5	79	4.2	200
SEP 12...	1240	1.0	897	7.9	26.0	10	48	6.0	75	2.0	180

DATE	HARDNESS, NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SiO2)
DEC 03...	16	69	5.6	150	4.9	72	180	230	120	.80	9.2
JAN 24...	14	85	7.6	220	6.4	49	230	380	110	.90	3.3
MAR 10...	130	97	8.2	120	3.3	37	150	300	78	.60	3.9
APR 21...	210	140	11	150	3.4	25	190	420	88	.60	3.4
JUN 09...	83	71	6.1	86	2.8	34	120	240	51	.70	9.0
SEP 12...	47	62	5.4	91	3.1	55	130	200	74	.80	7.5

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, SUSPENDED (MG/L)	NITROGEN, NITRATE TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
DEC 03...	765	94	24	--	<.020	.70	<.060	--	2.40	.160	11
JAN 24...	994	24	15	.17	.030	.20	.070	1.8	1.90	.060	5.4
MAR 10...	735	32	15	.17	.030	.20	.120	1.5	1.60	.110	9.7
APR 21...	952	9	<1	--	<.020	<.10	.170	1.2	1.40	.060	5.7
JUN 09...	570	90	19	.32	.080	.40	.110	1.6	1.70	.130	10
SEP 12...	574	60	8	--	.040	<.10	.080	.92	1.00	.060	7.7



## TRINITY RIVER BASIN

08049600 MOUNTAIN CREEK NEAR CEDAR HILL, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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)
DEC 03...	1133	2	68	<1	<10	3	26
JAN 24...	1600	1	60	<1	<10	3	360
APR 21...	1030	2	86	<1	<10	1	6
JUN 09...	1240	2	52	<1	10	2	18

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)
DEC 03...	<1	8	<.1	1	<1	6
JAN 24...	<1	76	<.1	1	<1	5
APR 21...	<1	160	<.1	1	<1	9
JUN 09...	2	2	<.1	1	<1	5

## TRINITY RIVER BASIN

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08049700 WALNUT CREEK NEAR MANSFIELD, TX

LOCATION.--Lat 32°34'51", long 97°06'06", Tarrant County, Hydrologic Unit 12030102, on right bank at downstream side of bridge on county road, 2.6 mi northeast of Mansfield, 3.3 mi downstream from Texas and New Orleans Railroad Co. bridge, and 10.2 mi upstream from mouth.

DRAINAGE AREA.--62.8 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 531.08 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. The city of Mansfield diverts water from the Cedar Creek Reservoir pipeline to Fort Worth for municipal use and discharges sewage effluent into a tributary 2.5 mi upstream from station. Several observations of water temperature were made during the year. Gage-height telemeter at this station.

AVERAGE DISCHARGE.--23 years, 14.8 ft<sup>3</sup>/s (3.20 in/yr), 10,720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,570 ft<sup>3</sup>/s May 3, 1979 (gage height, 29.7 ft, from floodmark); no flow at times in 1960-74, 1976-83.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 6	2045	1,290	16.84
June 4	1030	*2,280	20.63
July 5	1630	750	13.88

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.40	1.7	14	.69	2.0	.29	.61	.30	.04	26
2	.00	49	1.4	3.2	2.2	.68	1.1	.74	.19	.38	.04	.41
3	.00	2.6	.76	1.1	1.1	.57	.88	.64	.42	.16	.03	.12
4	.00	.23	.37	.69	.86	8.9	.78	.31	1.6	.13	.04	.08
5	.00	.10	.28	.57	1.3	2.8	.60	.24	.20	138	.04	.04
6	140	.09	.25	.50	.92	.97	.53	.22	.31	16	.03	.03
7	12	.09	.27	.50	.73	.61	.53	.20	1.2	.94	.02	.03
8	.05	.09	.23	.46	.71	.53	.53	.18	.14	.36	3.0	.03
9	4.4	.10	.22	.38	.60	.48	.50	.17	.08	.16	3.6	.04
10	.01	.10	10	.36	.58	.44	.50	1.9	.07	.12	.10	.04
11	.00	.11	27	.33	.53	.37	.47	1.2	.06	.11	.05	.03
12	.47	.14	5.6	.62	.49	.35	.44	.44	.06	.09	.03	.03
13	.10	.09	1.1	.52	.47	.37	.50	.27	.05	.09	.01	.02
14	.00	.07	.66	.33	.48	.40	.47	.19	731	.11	.00	.00
15	.00	.05	.50	.28	.50	.41	.44	7.0	40	12	.00	.00
16	.00	.05	.41	.26	.47	1.3	.36	3.5	6.2	12	.00	.00
17	.00	.06	.38	.26	.47	1.3	.36	2.0	2.7	6.6	.00	.00
18	.00	.07	.37	.28	.73	.48	.33	1.0	1.3	3.2	.00	.00
19	.00	.08	.35	.28	.63	.44	.38	.80	1.1	.94	108	.15
20	.00	.08	.30	.28	2.2	.43	.41	.60	.78	.38	5.2	.07
21	.39	.08	.33	.28	1.4	.37	.41	2.9	.94	.20	.72	.04
22	.07	.08	.37	.28	1.8	.33	.39	2.0	.73	.13	.42	.02
23	.00	.09	.36	.28	2.6	.36	.36	1.4	.60	.10	.30	.00
24	.00	.06	.35	.28	2.4	.36	.29	1.1	2.6	.08	.26	.00
25	.00	.07	.29	.27	1.4	.36	.28	.90	2.6	.06	.25	.00
26	.00	67	5.9	.27	1.0	47	.29	.63	3.0	.05	.26	.00
27	.00	46	27	.26	.82	5.3	.28	.50	13	.50	.25	.00
28	.30	4.0	8.3	.26	.73	1.5	.27	.43	.94	.50	.26	.00
29	.02	.88	1.4	.26	---	1.0	.29	.37	.36	.24	.27	.00
30	.00	.53	.66	.24	---	7.5	.29	3.7	.33	.11	.25	.00
31	.00	---	1.3	87	---	3.5	---	6.8	---	.08	.24	---
TOTAL	157.81	171.99	97.11	102.58	42.12	90.10	15.26	42.62	813.17	194.12	123.71	27.18
MEAN	5.09	5.73	3.13	3.31	1.50	2.91	.51	1.37	27.1	6.26	3.99	.91
MAX	140	67	27	87	14	47	2.0	7.0	731	138	108	26
MIN	.00	.00	.22	.24	.47	.33	.27	.17	.05	.05	.00	.00
CFSM	.08	.09	.05	.05	.02	.05	.008	.02	.43	.10	.06	.01
IN.	.09	.10	.06	.06	.02	.05	.01	.03	.48	.11	.07	.02
AC-FT	313	341	193	203	84	179	30	85	1610	385	245	54
CAL YR 1982	TOTAL	3837.54	MEAN	10.5	MAX	638	MIN	.00	CFSM	.17	IN	2.27
WTR YR 1983	TOTAL	1877.77	MEAN	5.14	MAX	731	MIN	.00	CFSM	.08	IN	1.11
									AC-FT	7610		
									AC-FT	3720		



## TRINITY RIVER BASIN

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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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
DEC 03...	1530	828	7.8	15.0	50	45	7.1	73	2.5	190	69
JAN 26...	1115	1310	8.4	7.0	<1	17	11.2	94	2.1	270	69
MAR 10...	1325	1030	8.3	14.0	20	85	10.8	106	3.7	270	130
APR 21...	1200	1050	7.9	15.0	10	37	6.4	65	3.7	290	140
JUN 09...	1350	864	7.8	23.0	25	120	7.6	90	3.4	220	86
SEP 12...	1450	826	8.4	31.0	10	35	9.4	129	4.1	170	57

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
DEC 03...	66	5.9	83	2.7	32	120	180	65	.60	8.1	513
JAN 26...	94	8.3	170	4.7	40	200	350	98	.70	3.7	885
MAR 10...	95	8.4	100	2.8	28	140	290	68	.60	5.4	679
APR 21...	100	10	99	2.6	19	150	280	57	.50	3.5	659
JUN 09...	76	6.3	82	2.5	27	130	230	46	.60	8.8	555
SEP 12...	58	5.2	84	3.0	42	110	200	68	.70	8.4	532

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)
DEC 03...	52	19	--	<.020	1.0	<.060	--	2.00	.110	8.0
JAN 26...	19	11	--	<.020	<.10	.060	1.2	1.30	.060	5.2
MAR 10...	121	20	.28	.020	.30	.830	.67	1.50	.110	9.5
APR 21...	36	<1	--	<.020	<.10	.170	1.3	1.50	.090	5.3
JUN 09...	130	21	.54	.060	.60	.130	1.3	1.40	.150	9.7
SEP 12...	38	<1	--	.040	<.10	.120	1.3	1.40	.060	10

## TRINITY RIVER BASIN

08049900 MOUNTAIN CREEK NEAR DUNCANVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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)
DEC 03...	1530	2	49	<1	<10	4	24
JAN 26...	1115	1	68	<1	<10	1	120
APR 21...	1200	1	63	<1	<10	1	4
JUN 09...	1350	2	51	<1	<10	2	13

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)
DEC 03...	<1	12	.1	1	<1	11
JAN 26...	<1	60	<.1	1	<1	8
APR 21...	<1	78	.1	1	<1	10
JUN 09...	8	4	<.1	1	<1	5



## 08050050 MOUNTAIN CREEK LAKE NEAR GRAND PRAIRIE, TX

LOCATION.--Lat 32°43'55", long 96°56'35", Dallas County, Hydrologic Unit 12030102, at right end of spillway in Mountain Creek Dam on Mountain Creek, 2.5 mi upstream from Texas and Pacific Railway Co. bridge, and 3.7 mi southeast of Grand Prairie.

DRAINAGE AREA.--295 mi<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, non-recording gage at powerplant at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,800 ft long, including a controlled spillway six 34- by 27-foot tainter gates. The dam was completed in December 1936 and deliberate impoundment began on Mar. 24, 1937. The lake was built and is operated by Dallas Power and Light Co. to supply cooling water for their generating plant. The capacity curve is based on a survey made in 1963. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08049600. Figures given herein represent total contents. Gage-height telemeter located at station. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	467.0	-
Top of gates.....	458.0	25,720
Top of dry weather conservation pool.....	457.0	22,840
Top of wet weather conservation pool.....	456.0	20,260
Crest of spillway (sill of tainter gates).....	431.0	0

COOPERATION.--The capacity curve was furnished by the Dallas Power and Light Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 27,440 acre-ft Mar. 27, 1977 (elevation, 458.52 ft); minimum, 14,120 acre-ft Oct. 18, 1972 (elevation, 453.25 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 24,830 acre-ft Aug. 19 at 1800 hours (elevation, 457.69 ft); minimum, 18,530 acre-ft Oct. 6 (elevation, 455.27 ft).

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

455.0	17,890	457.0	22,840
456.0	20,260	458.0	25,720

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18720	19190	21830	23470	23240	23500	22660	21940	23390	22980	22270	23270
2	18670	19860	22010	23010	23190	23500	22480	21990	23500	22870	22200	23560
3	18650	19860	22070	23070	23440	23530	22450	21960	23420	22760	22090	23730
4	18600	19810	22120	23130	22870	22660	22500	21910	23390	22630	22040	23700
5	18550	19830	22120	23130	23100	23100	22480	21940	23270	23560	21990	23650
6	18620	19810	22120	23160	23210	22690	22450	21810	23270	23470	21940	23590
7	18810	19790	22120	23190	23330	22710	22480	21680	23530	23590	21940	23500
8	18960	19760	22040	23210	22740	22740	22480	21630	23730	23590	22220	23440
9	19050	19760	22070	23210	22740	22790	22500	21600	23330	23560	22980	23360
10	19030	19790	22480	23240	22760	22760	22530	21650	23300	23500	23040	23300
11	19000	19860	23010	23210	22740	22690	22480	21680	23270	23420	23010	23240
12	19190	19710	23420	23240	22740	22710	22480	21650	23190	23360	22900	23190
13	19170	19690	22930	23270	22790	22790	22430	21650	23130	23300	22840	23040
14	19150	19620	22980	23210	22790	22760	22350	21520	20880	23270	22740	23010
15	19100	19620	23040	23210	22760	22790	22300	21830	23210	23270	22690	22930
16	19050	19620	23100	23210	22810	22790	22300	21960	23130	23330	22610	22870
17	19000	19620	23190	23190	22810	23100	22250	22270	23500	23330	22530	22790
18	19000	19640	23100	23190	22840	22740	22200	22740	23560	23360	22450	22740
19	18840	19620	23130	23210	23100	22710	22120	22980	23530	23330	24310	22710
20	18840	19600	23130	23210	23130	22710	22120	23270	23590	23270	23730	22560
21	19150	19570	23240	23240	22760	22710	22140	22930	23700	23190	24190	22500
22	19170	19670	23240	23240	23010	22660	22120	22660	23760	23160	24310	22450
23	19150	19430	23270	23270	23270	22660	22090	22840	23850	23040	24310	22430
24	19120	19450	23210	23240	23390	22660	22070	22980	23790	22980	24280	22380
25	19100	19450	23010	23270	23420	22710	22040	23100	22810	22870	24220	22320
26	19080	20260	23440	23240	23440	22710	22040	23100	22980	22790	24160	22300
27	19080	21160	23130	23270	23440	22760	22040	23040	23130	22690	24110	22270
28	19190	21550	23130	23360	23470	23040	22010	23010	23130	22580	24050	22220
29	19190	21680	23240	23300	---	23190	22040	22900	23130	22480	23990	22170
30	19190	21760	23300	23270	---	22930	22040	23040	23010	22430	23930	22140
31	19190	---	23470	22810	---	22810	---	23270	---	22350	23790	---
MAX	19190	21760	23470	23470	23470	23530	22660	23270	23850	23590	24310	23730
MIN	18550	19190	21830	22810	22740	22660	22010	21520	20880	22350	21940	22140
(†)	455.55	456.58	457.22	456.99	457.22	456.99	456.69	457.15	457.06	456.81	457.33	456.73
(#)	+450	+2570	+1710	-660	+660	-660	-770	+1230	-260	-660	+1440	-1650

CAL YR 1982 MAX 23730 MIN 18550 # +1040  
WTR YR 1983 MAX 24310 MIN 18550 # +3400

† 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 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 19...	1250	486	17.0	140	50	50	4.9	41

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LILITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 19...	1.6	8.9	95	100	22	.60	3.2	288

## TRINITY RIVER BASIN

323

## 08050100 MOUNTAIN CREEK AT GRAND PRAIRIE, TX

LOCATION.--Lat 32°44'52", long 96°55'33", Dallas County, Hydrologic Unit 12030102, on right bank at downstream side of downstream bridge on Jefferson Street, 1,000 ft upstream from bridge on U.S. Highway 80, 1.2 mi upstream from Texas and Pacific Railroad Co. bridge, 1.5 mi downstream from Mountain Creek Lake Dam, and 4.4 mi east of Grand Prairie.

DRAINAGE AREA.--298 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 407.31 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow regulated by Mountain Creek Lake (station 08050050). Gage-height telemeters are located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years, 97.5 ft<sup>3</sup>/s (70,640 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,100 ft<sup>3</sup>/s Apr. 19, 1976 (gage height, 24.21 ft); maximum gage height, 24.62 ft May 7, 1969; no flow in 1964, 1972-74.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,780 ft<sup>3</sup>/s June 14 at 1645 hours (gage height, 14.18 ft); minimum daily, 0.06 ft<sup>3</sup>/s Mar. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.22	.68	1.1	2.6	648	.06	251	1.3	117	21	.20	660
2	.24	28	20	493	583	1.1	4.3	1.0	19	20	.67	157
3	.20	7.9	7.7	2.3	4.4	652	3.7	2.3	20	18	1.4	9.7
4	.17	2.3	2.0	1.6	560	15	2.5	1.2	13	16	3.3	5.9
5	.13	2.1	1.6	1.2	8.3	325	1.6	1.1	2.2	61	2.7	12
6	.19	1.8	.69	.90	3.7	178	2.0	2.3	17	554	1.9	9.3
7	.98	1.4	1.2	.49	2.6	2.5	2.0	4.5	8.5	33	3.6	4.9
8	.95	1.0	.96	.38	425	1.8	1.9	.31	9.4	13	7.5	5.0
9	2.1	.74	1.6	.15	5.1	1.7	2.0	.66	340	7.6	43	8.0
10	1.6	.80	8.3	.13	2.3	1.9	.85	2.8	17	4.0	3.6	5.4
11	2.4	1.4	40	.11	2.0	1.9	.51	3.3	9.4	2.2	2.1	4.2
12	17	1.2	15	.07	1.8	1.8	1.7	.79	7.3	1.9	1.6	13
13	13	1.5	425	.09	1.9	1.5	.47	.46	7.5	2.1	1.3	7.8
14	6.2	2.3	9.4	.10	1.7	1.4	.63	.75	3070	2.6	1.1	15
15	4.6	2.5	6.8	.07	1.6	1.2	1.5	3.0	2520	3.3	1.0	5.1
16	2.1	3.9	5.7	.11	1.2	3.1	1.3	1.9	1030	4.0	1.0	2.0
17	3.0	1.9	3.6	.12	1.3	343	.81	1.4	46	2.9	1.1	1.1
18	2.4	1.0	4.1	.09	3.2	4.3	.77	44	135	1.1	1.4	.95
19	2.5	.84	3.1	.12	2.7	1.9	.54	6.4	237	.21	1250	28
20	2.5	.64	1.3	.25	436	2.0	1.1	45	106	.39	1250	7.3
21	14	.36	.21	.28	15	1.9	2.2	939	32	2.1	15	4.0
22	14	.52	1.4	.19	14	2.0	1.1	41	29	12	3.5	1.1
23	6.7	.33	2.6	.18	6.1	1.9	.75	482	28	12	2.4	.51
24	4.8	1.8	2.3	.13	4.1	1.9	.89	16	106	11	1.9	.35
25	2.1	5.3	.77	.10	1.3	1.6	.99	4.6	682	8.3	1.7	.33
26	1.6	23	1.0	.09	.46	670	.83	3.0	85	.57	1.8	.32
27	1.0	35	585	.13	2.5	6.3	1.2	2.5	39	.61	1.9	.30
28	7.6	9.7	155	.16	1.5	4.4	.73	2.4	27	.62	2.0	.29
29	12	4.9	3.1	.96	---	464	.62	2.9	23	.41	7.3	.29
30	1.6	1.6	2.4	.38	---	715	.64	8.1	20	.29	7.4	.28
31	.81	---	2.1	1030	---	265	---	43	---	.18	1.3	---
TOTAL	128.69	146.41	1315.03	1536.48	2740.76	3675.16	291.13	1668.97	8802.3	816.38	2624.67	969.42
MEAN	4.15	4.88	42.4	49.6	97.9	119	9.70	53.8	293	26.3	84.7	32.3
MAX	17	35	585	1030	648	715	251	939	3070	554	1250	660
MIN	.13	.33	.21	.07	.46	.06	.47	.31	2.2	.18	.20	.28
AC-FT	255	290	2610	3050	5440	7290	577	3310	17460	1620	5210	1920
CAL YR 1982	TOTAL	25481.61	MEAN	69.8	MAX	2700	MIN	.04	AC-FT	50540		
WTR YR 1983	TOTAL	24715.40	MEAN	67.7	MAX	3070	MIN	.06	AC-FT	49020		

## TRINITY RIVER BASIN

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 downstream from Spring Creek, 5.0 mi upstream from Isle du Bois Creek, and 5.4 mi northeast of Sanger.

DRAINAGE AREA.--381 mi<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: October 1969 to September 1982. Sediment records: January 1966 to September 1976.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 548.72 ft (revised) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1982, at datum 5.00 ft higher. Prior to May 7, 1955, at site 500 ft downstream at 5.00 ft higher datum.

REMARKS.--Records good. Flow is affected at times by the discharge from the flood-detention pools of 41 floodwater-retarding structures with a combined capacity of 26,720 acre-ft. These structures control runoff from 94.7 mi<sup>2</sup> in the Elm Fork Trinity River watershed. Records furnished by the city of Gainesville discharged sewage effluent into the river upstream from this station. Gage-height telemeter is located at station.

AVERAGE DISCHARGE.--34 years, 159 ft<sup>3</sup>/s (115,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 150,000 ft<sup>3</sup>/s Oct. 13, 1981 (gage height, 33.50 ft); no flow at times.

Maximum stage since at least 1903, that of Oct. 13, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1908 reached a stage of 30.7 ft, from information by local residents. Flood of May 18, 1935, reached a stage of 29.7 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,980 ft<sup>3</sup>/s June 28 at 1830 hours (gage height, 20.73 ft), no peak above base of 4,000 ft<sup>3</sup>/s; minimum, 0.38 ft<sup>3</sup>/s Aug. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	9.7	17	23	2040	54	147	29	26	76	1.4	2.2
2	4.3	79	16	103	605	48	129	28	18	51	1.3	1.6
3	4.5	38	15	99	129	51	109	33	15	15	.87	1.1
4	4.5	13	13	56	88	96	87	29	12	16	.93	1.2
5	4.5	8.4	12	42	74	780	76	21	20	77	.72	1.3
6	5.1	7.1	12	33	67	240	71	19	722	214	.44	1.4
7	7.4	8.0	11	29	69	160	66	18	59	54	.69	1.2
8	7.0	8.0	10	28	68	112	62	14	40	12	.93	1.2
9	5.1	8.0	9.7	26	63	94	59	13	28	9.2	1.5	1.3
10	6.3	8.0	11	25	61	76	55	14	23	6.7	.87	1.4
11	6.3	7.9	239	23	59	66	52	60	22	5.3	1.1	1.4
12	5.1	8.2	229	19	56	61	48	25	20	3.7	1.4	1.7
13	5.1	6.5	78	19	52	65	47	17	19	3.8	.65	2.0
14	7.4	7.9	49	20	50	65	58	16	19	4.5	.77	1.6
15	6.3	6.3	40	18	47	62	65	16	18	7.3	.43	1.4
16	5.7	6.4	31	17	39	58	54	16	16	9.2	.40	1.7
17	5.1	7.8	24	17	39	53	47	15	16	9.6	.38	2.4
18	3.8	9.7	21	18	41	48	43	15	15	23	.40	2.6
19	3.1	12	20	20	40	45	40	15	14	18	2.0	2.3
20	5.4	12	20	23	230	44	37	14	14	6.5	34	2.1
21	7.1	9.1	19	21	257	42	38	20	13	3.8	8.5	1.5
22	8.9	8.9	19	20	182	38	48	40	12	2.7	3.8	1.5
23	8.3	9.7	19	19	131	38	44	87	12	2.2	2.2	1.8
24	7.5	8.1	17	18	99	37	41	50	12	2.9	2.0	2.1
25	7.0	8.8	15	18	79	37	38	29	15	2.4	1.8	1.9
26	6.5	17	15	17	64	296	35	84	25	1.4	1.7	1.8
27	6.7	270	99	19	56	285	34	41	29	.88	1.6	2.1
28	6.7	134	121	18	52	111	34	42	1080	1.1	1.7	2.0
29	7.2	45	54	18	---	75	33	21	713	.96	1.6	2.0
30	8.0	25	32	19	---	488	31	16	270	1.1	1.5	2.0
31	9.7	---	23	385	---	256	---	27	---	.99	1.7	---
TOTAL	190.1	807.5	1310.7	1230	4837	3981	1728	884	3317	642.23	79.28	51.8
MEAN	6.13	26.9	42.3	39.7	173	128	57.6	28.5	111	20.7	2.56	1.73
MAX	9.7	270	239	385	2040	780	147	87	1080	214	34	2.6
MIN	3.1	6.3	9.7	17	39	37	31	13	12	.88	.38	1.1
AC-FT	377	1600	2600	2440	9590	7900	3430	1750	6580	1270	157	103
CAL YR 1982	TOTAL	116211.30	MEAN	318	MAX	13600	MIN	3.1	AC-FT	230500		
WTR YR 1983	TOTAL	19058.61	MEAN	52.2	MAX	2040	MIN	.38	AC-FT	37800		

## TRINITY RIVER BASIN

325

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 downstream from Wolf Creek, 3.0 mi west of Pilot Point, and 6.3 mi upstream from mouth.

DRAINAGE AREA.--266 mi<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 National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Feb. 8, 1958, water-stage recorder at site 1.0 mi upstream at datum 4.22 ft higher.

REMARKS.--Records fair. No known diversion above station. Data collection platform located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--34 years (water years 1950-83), 123 ft<sup>3</sup>/s (6.28 in/yr), 89,110 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft<sup>3</sup>/s Oct. 31, 1974 (gage height, 29.43 ft), present site and datum; maximum gage height, 29.84 ft Oct. 16, 1981; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 30.4 ft in May 1908, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,370 ft<sup>3</sup>/s Feb. 1 at 1100 hours (gage height, 16.10 ft), no peak above base of 2,500 ft<sup>3</sup>/s; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.66	27	208	2160	13	211	3.8	11	125	.02	.00
2	.00	680	18	192	1440	12	93	2.9	7.9	46	.08	.74
3	.00	1000	14	770	242	21	44	6.8	5.7	27	.09	2.2
4	.00	80	17	494	78	163	33	5.3	4.1	18	.03	.83
5	.00	13	21	249	48	621	22	3.7	3.9	38	.00	.00
6	.00	6.0	20	145	35	129	16	2.0	143	91	.00	.00
7	.10	3.3	15	108	32	33	18	3.8	258	68	.00	.00
8	.35	2.2	13	85	26	19	16	5.6	39	18	.10	.00
9	.59	1.6	11	47	23	18	7.3	7.4	16	11	.37	.00
10	.30	1.2	10	25	22	16	7.3	8.3	10	7.9	.41	.00
11	.30	1.2	48	14	20	16	6.2	11	7.0	7.6	.49	.00
12	.00	1.1	238	11	19	16	8.9	7.0	5.7	7.3	.61	.00
13	.05	.97	241	9.5	18	16	11	3.2	4.1	7.1	2.2	.00
14	.10	.80	235	8.5	15	16	11	5.7	3.3	6.9	2.2	.00
15	.05	.73	175	7.6	15	16	12	7.7	2.9	9.7	2.2	.00
16	.00	.73	147	7.0	14	16	11	7.6	2.2	4.8	2.2	.00
17	.00	.80	132	6.5	17	16	10	7.2	2.2	4.1	1.6	.00
18	.00	.88	117	6.2	14	16	11	6.7	1.6	2.5	1.4	.00
19	.00	.97	103	6.2	13	15	9.2	6.2	1.3	2.1	4.4	.00
20	.07	1.3	89	6.5	15	13	8.2	5.5	.97	1.9	7.2	.00
21	.05	1.6	79	6.7	32	12	10	11	.88	1.4	4.0	.00
22	.10	1.9	73	7.6	46	12	9.1	34	.73	1.2	3.6	.00
23	.59	2.2	66	7.3	33	12	9.1	101	.28	1.1	2.7	.00
24	.59	1.9	62	6.5	28	12	12	182	.20	.96	1.9	.00
25	.53	2.1	58	6.2	31	15	9.5	60	.53	.77	1.2	.00
26	.53	9.5	57	6.2	22	537	7.6	15	1.2	.63	.99	.00
27	.42	850	640	7.9	16	199	6.3	8.2	1.8	.53	.64	.00
28	.47	1450	1240	8.2	14	39	5.2	6.0	300	.52	.26	.00
29	.47	295	535	6.2	---	25	4.0	5.2	1830	.65	.00	.00
30	.53	47	312	5.5	---	195	2.8	3.9	1310	.31	.00	.00
31	.53	---	242	246	---	687	---	11	---	.03	.00	---
TOTAL	6.72	4458.64	5055	2720.3	4488	2946	641.7	554.7	3975.49	512.00	40.89	3.77
MEAN	.22	149	163	87.8	160	95.0	21.4	17.9	133	16.5	1.32	.13
MAX	.59	1450	1240	770	2160	687	211	182	1830	125	7.2	2.2
MIN	.00	.66	10	5.5	13	12	2.8	2.0	.20	.03	.00	.00
CFSM	.001	.56	.61	.33	.60	.36	.08	.07	.50	.06	.005	.000
IN.	.00	.62	.71	.38	.63	.41	.09	.08	.56	.07	.01	.00
AC-FT	13	8840	10030	5400	8900	5840	1270	1100	7890	1020	81	7.5
CAL YR 1982	TOTAL	106882.25	MEAN	293	MAX	27400	MIN	.00	CFSM	1.10	IN	14.95
WTR YR 1983	TOTAL	25403.21	MEAN	69.6	MAX	2160	MIN	.00	CFSM	.26	IN	3.55
									AC-FT	212000	AC-FT	50390



## 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 downstream from Duck Creek, 1.3 mi upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 1.7 mi south of Sanger.

DRAINAGE AREA.--295 mi<sup>2</sup>.

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

Water-quality records.--Specific conductance, water temperature, and sediment records: May 1968 to September 1976.

REVISED RECORDS.--WSP 1512: 1950, 1955. WSP 1922: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 582.23 ft National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Apr. 18, 1975, water-stage recorder at site 950 ft downstream at datum 5.00 ft 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. These structures control runoff from 149 mi<sup>2</sup> in the Clear Creek watershed. Several observations of water temperature were made during the year. Gage-height telemeter located at this station.

AVERAGE DISCHARGE.--31 years (water years 1950-80) prior to regulation, 74.3 ft<sup>3</sup>/s (53,830 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 104,000 ft<sup>3</sup>/s Oct. 13, 1981 (gage height, 35.70 ft, site and datum then in use); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 36.5 ft in May 1908, from information by Gulf, Colorado, and Santa Fe Railway Co. Flood in May 1935 reached a stage of 34.0 ft, from information by State Department of Highways and Public Transportation. Both peaks now referenced to present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 401 ft<sup>3</sup>/s Mar. 5 at 0030 hours (gage height, 9.59 ft); no flow Aug. 9-18 and Aug. 26 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	11	15	15	245	28	87	19	22	13	.10	.00
2	3.9	30	13	23	127	27	76	18	16	7.7	.09	.00
3	4.3	35	12	25	72	25	63	20	12	4.0	.08	.00
4	7.6	16	12	23	53	65	56	16	11	2.2	.06	.00
5	7.5	12	11	21	45	267	53	14	9.4	2.1	.05	.00
6	6.6	11	10	20	42	132	49	12	15	1.8	.04	.00
7	5.1	10	8.9	21	37	85	43	19	37	3.7	.03	.00
8	7.1	10	8.4	22	35	66	41	19	19	2.1	.02	.00
9	7.6	9.4	8.3	22	33	57	41	22	12	1.4	.00	.00
10	8.4	8.8	11	22	32	54	40	15	7.7	.78	.00	.00
11	6.8	9.4	41	20	30	46	38	23	5.4	.61	.00	.00
12	6.0	11	60	18	27	39	36	19	4.6	.37	.00	.00
13	10	11	32	18	25	38	34	15	4.9	.39	.00	.00
14	13	9.2	24	18	24	38	42	20	3.3	1.2	.00	.00
15	9.8	7.9	22	17	25	38	37	20	2.8	1.9	.00	.00
16	8.3	6.9	19	15	23	36	32	14	2.8	7.0	.00	.00
17	6.9	6.7	16	14	24	35	29	12	2.2	8.1	.00	.00
18	6.1	7.7	15	13	23	32	28	10	2.1	6.8	.00	.00
19	5.9	8.5	14	14	23	30	27	9.4	1.4	4.3	.16	.00
20	5.4	8.8	13	14	33	30	27	10	1.3	1.8	.07	.00
21	6.6	7.9	11	15	65	30	27	18	1.0	.46	.05	.00
22	13	7.8	12	15	62	28	34	23	.73	.37	.81	.00
23	19	6.9	12	16	55	26	37	67	.62	.22	.38	.00
24	13	5.8	13	15	49	27	30	40	.45	.18	.09	.00
25	11	5.1	12	13	40	29	25	24	.94	.17	.02	.00
26	9.5	15	12	12	35	110	22	17	33	.15	.00	.00
27	8.3	53	28	13	31	156	22	13	40	.14	.00	.00
28	8.0	52	24	13	29	82	21	10	35	.13	.00	.00
29	8.5	26	20	13	---	61	20	8.8	58	.12	.00	.00
30	12	19	15	13	---	105	19	8.8	31	.11	.00	.00
31	12	---	13	63	---	120	---	22	---	.11	.00	---
TOTAL	261.4	438.8	537.6	576	1344	1942	1136	578.0	392.64	73.41	2.05	.00
MEAN	8.43	14.6	17.3	18.6	48.0	62.6	37.9	18.6	13.1	2.37	.066	.000
MAX	19	53	60	63	245	267	87	67	58	13	.81	.00
MIN	-3.9	5.1	8.3	12	23	25	19	8.8	.45	.11	.00	.00
AC-FT	518	870	1070	1140	2670	3850	2250	1150	779	146	4.1	.00

CAL YR 1982 TOTAL 77700.00 MEAN 213 MAX 6330 MIN 3.9 AC-FT 154100  
WTR YR 1983 TOTAL 7281.90 MEAN 20.0 MAX 267 MIN .00 AC-FT 14440

## TRINITY RIVER BASIN

327

08052700 LITTLE ELM CREEK NEAR AUBREY, TX

LOCATION.--Lat 33°17'00", long 96°53'33", Denton County, Hydrologic Unit 12030103, on left bank at downstream side of bridge on Farm Road 1385, 1.5 mi upstream from Mustang Creek, 5.5 mi east of Aubrey, and 18 mi upstream from Lewisville Dam on the Elm Fork Trinity River.

DRAINAGE AREA.--75.5 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1956 to September 1976, October 1979 to current year.

Water-quality records.--Chemical analyses: January 1968. Specific conductance: December 1966 to September 1975. Water temperatures: February 1966 to September 1975. Sediment records: February 1966 to September 1975.

REVISED RECORDS.--WRD TX-70-1: 1969.

GAGE.--Water-stage recorder. Datum of gage is 534.76 ft National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench mark).

REMARKS.--Records good. Some small diversions for irrigation above station. Flow is affected at times by discharge from the flood-detention pools of 17 floodwater-retarding structures with a combined detention capacity of 10,460 acre-ft. These structures control runoff from 36.4 mi<sup>2</sup> above station. Several observations of water temperature were obtained during the year.

AVERAGE DISCHARGE.--24 years (water year 1957-76, 1980-1983), 48.5 ft<sup>3</sup>/s (35,140 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,300 ft<sup>3</sup>/s May 13, 1982 (gage height, 17.80 ft); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1900, 18.2 ft in May 1941, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 790 ft<sup>3</sup>/s Feb. 1 at 0730 hours (gage height, 13.45 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	4.0	17	555	2.3	22	.20	1.6	.00	.00	.00
2	.00	.00	4.5	51	151	2.1	16	.27	1.3	.00	.00	.00
3	.00	.00	23	78	77	1.8	9.7	.23	.95	.00	.00	.00
4	.00	.00	7.0	37	49	2.3	6.8	.23	.89	.00	.00	.00
5	.00	.00	5.8	25	32	9.1	5.2	.22	59	.00	.00	.00
6	.00	.00	5.2	17	21	8.6	4.3	.18	48	.00	.00	.00
7	.00	.00	4.4	12	15	5.9	3.3	.07	28	.00	.00	.00
8	.00	.00	3.8	9.2	11	4.4	2.6	.03	16	.00	.00	.00
9	.00	.00	3.4	7.2	9.0	3.4	2.0	.00	8.6	.00	.00	.00
10	.00	.00	3.8	5.5	8.9	2.7	1.6	.00	5.6	.00	.00	.00
11	.00	.00	263	4.2	7.7	2.3	1.2	.00	4.1	.00	.00	.00
12	.00	.00	162	3.4	6.3	1.8	1.0	.00	3.3	.00	.00	.00
13	.00	.00	52	3.4	5.2	1.5	.86	.00	2.7	.00	.00	.00
14	.00	.00	32	2.8	4.4	1.4	.77	.02	2.3	.00	.00	.00
15	.00	.00	23	2.4	3.9	1.2	.70	.25	2.0	.00	.00	.00
16	.00	.00	16	2.4	3.3	1.2	.66	1.1	1.8	.00	.00	.00
17	.00	.00	11	2.0	2.8	1.2	.58	1.2	1.6	.00	.00	.00
18	.00	.00	7.9	1.7	2.5	1.2	.43	.85	1.3	.00	.00	.00
19	.00	.00	5.8	1.7	2.3	1.2	.34	.72	1.1	.00	4.8	.00
20	.00	.00	4.5	1.8	3.0	1.2	.32	.96	1.1	.00	44	.00
21	.00	.00	3.8	1.7	5.9	1.0	.32	4.4	.93	.00	14	.00
22	.00	.00	3.3	1.5	6.5	.89	.42	6.7	.78	.00	5.3	.00
23	.00	.00	2.9	1.4	6.0	.90	.46	18	.65	.00	2.2	.00
24	.00	.00	2.6	1.3	5.4	.94	.34	11	.40	.00	1.0	.00
25	.00	.00	2.1	1.2	4.5	.87	.28	3.2	.50	.00	.65	.00
26	.00	.00	40	1.1	3.7	210	.30	1.9	.66	.00	.39	.00
27	.00	37	269	1.0	3.1	104	.28	3.0	.36	.00	.25	.00
28	.00	19	125	1.1	2.6	47	.27	1.1	.28	.00	.19	.00
29	.00	7.7	50	.95	---	29	.24	.78	.22	.00	.12	.00
30	.00	6.0	31	.82	---	84	.25	.54	.15	.00	.05	.00
31	.00	---	22	135	---	39	---	1.2	---	.00	.00	---
TOTAL	.00	69.70	1193.8	431.77	1008.0	574.40	83.52	58.35	196.17	.00	72.95	.00
MEAN	.000	2.32	38.5	13.9	36.0	18.5	2.78	1.88	6.54	.000	2.35	.000
MAX	.00	37	269	135	555	210	22	18	59	.00	44	.00
MIN	.00	.00	2.1	.82	2.3	.87	.24	.00	.15	.00	.00	.00
AC-FT	.00	138	2370	856	2000	1140	166	116	389	.00	145	.00
CAL YR 1982	TOTAL	39691.50	MEAN	109	MAX	10400	MIN	.00	AC-FT	78730		
WTR YR 1983	TOTAL	3688.66	MEAN	10.1	MAX	555	MIN	.00	AC-FT	7320		

## 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 upstream from bridge on State Highway 121, 2.4 mi northeast of Lewisville, 12 mi upstream from Denton Creek, and 30.0 mi upstream from mouth.

DRAINAGE AREA.--1,660 mi<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, non-recording gage at site 4,000 ft upstream at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 32,888 ft long, including a 560-foot uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 1, 1954, and the dam was completed in August 1955. The controlled low-flow outlet works consist of a 16.0-foot-diameter conduit that is controlled by three 6.5- by 13.0-foot broome-type gates and two 60-inch steel pipes with service valves. The lake was built for flood control and water conservation. The city of Dallas obtains most of its municipal water supply from this lake. The capacity table is based on a survey made in 1965. Inflow is affected at times by discharge from the flood-detention pools of 118 floodwater-retarding structures with a combined detention capacity of 81,670 acre-ft. These structures control runoff from 298 mi<sup>2</sup> in the Elm Fork Trinity River, Clear, Little Elm, and Hickory Creeks watersheds. Gage-height telemeter at station. An unknown amount of water was diverted for municipal and industrial uses. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	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, 1,168,000 acre-ft Nov. 1, 1981 (elevation, 536.46 ft); minimum since initial filling in 1957, 184,700 acre-ft Sept. 28, 1980 (elevation, 498.65 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 485,400 acre-ft Feb. 4 at 1200 hours (elevation, 516.17 ft); minimum daily, 371,600 acre-ft Sept. 30 (elevation, 511.05 ft).

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

510.0	351,900	516.0	481,200
512.0	391,000	518.0	530,800
514.0	434,700		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	443800	429700	432200	452700	476500	460400	471700	453400	459500	453000	425500	400500
2	443600	431300	433800	453200	483400	459900	471700	453900	458800	452100	424200	399400
3	442400	431100	433600	454400	485100	459900	471200	453000	459500	450400	422800	398200
4	441500	431100	433300	455100	485100	461600	470700	452300	458800	449800	421300	397100
5	440600	431100	433100	455800	483900	462500	469100	450400	459000	451100	420200	395800
6	439700	430400	432000	456700	482700	463900	467400	448800	459900	450700	419300	394800
7	438600	430000	431300	456700	480300	463700	465800	450400	459900	449800	418600	393700
8	439200	430200	431800	456900	479100	463900	464600	449100	459900	448800	417500	392400
9	439700	429700	430600	456700	478100	463900	463700	448400	459500	447900	416800	391400
10	438800	428800	432900	456900	476500	463700	463000	447900	458500	447000	416200	390300
11	438100	429700	435400	456900	475500	462700	461300	447700	457800	445900	415300	389500
12	438300	428800	436300	456700	473400	462300	460600	447700	457100	444900	413800	388400
13	437600	428400	437000	456500	471500	462000	461100	447000	456000	444300	412700	387400
14	437200	427700	438600	456900	469800	461800	459900	449100	456500	443800	411600	386000
15	436500	426400	438300	456700	468400	462300	459200	448800	455800	442700	410300	384900
16	435800	426600	438600	456700	466700	463900	458500	447900	454300	442200	409200	383900
17	434900	426600	438600	456700	466300	462000	457800	447200	454100	442000	408100	382700
18	434000	426400	438300	456700	466000	461600	457400	447000	453400	441300	407400	381600
19	434200	425300	437600	456700	465100	461800	457400	446500	452500	440400	411100	380600
20	436700	425500	437600	456700	466700	461600	456500	449300	451300	439500	410700	380400
21	435600	425500	437000	456900	467400	460200	456200	453000	450900	438600	409800	379000
22	435800	425500	437000	456700	467400	459500	457600	456000	450000	437400	408900	377800
23	432900	425300	436300	456900	467000	459900	456900	460400	449300	436100	408100	377000
24	432400	424200	437000	456700	466300	459500	456500	460900	447900	434900	407200	376000
25	431800	423500	437400	456700	464800	458100	455500	460600	449800	433600	406300	375400
26	431100	427900	440600	457600	463700	465100	454600	460600	447900	432400	405500	374600
27	430400	429300	445600	456700	462500	468400	454400	459900	448600	431300	404600	374000
28	429700	430000	450000	456700	461300	469300	454400	460200	448400	430000	403500	373200
29	429300	432000	450900	456700	---	470700	453900	459700	449800	429100	402700	372400
30	429300	432700	451100	456700	---	471900	453200	460600	452800	427700	401600	371600
31	429100	---	452100	466000	---	472200	---	459900	---	426600	400700	---
MAX	443800	432700	452100	466000	485100	472200	471700	460900	459900	453000	425500	400500
MIN	429100	423500	430600	452700	461300	458100	453200	446500	447900	426600	400700	371600
(†)	513.75	513.91	514.76	515.36	515.16	515.62	514.81	515.10	514.79	513.64	512.46	511.05
(‡)	-28300	+3600	+19400	+13900	-4700	+10900	-19000	+6700	-7100	-26200	-25900	-29100

CAL YR 1982 MAX 1115000 MIN 423500 † -171300  
WTR YR 1983 MAX 485100 MIN 371600 ‡ -85800

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## TRINITY RIVER BASIN

329

08052800 LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1969 to September 1982 (discontinued).

330419096575401 LEWISVILLE LAKE SITE AC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TRANSPAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
JAN												
10...	1320	1.00	330	8.0	9.0	1.30	9.5	83	K1	<1	130	21
10...	1322	10.0	330	8.0	8.5	--	9.4	82	--	--	--	--
10...	1323	20.0	330	8.0	8.0	--	9.3	79	--	--	--	--
10...	1324	30.0	330	7.9	8.0	--	9.2	79	--	--	--	--
10...	1325	40.0	330	7.9	8.0	--	9.2	79	--	--	--	--
10...	1326	50.0	330	7.9	8.0	--	9.2	79	--	--	--	--
10...	1327	57.0	330	7.8	8.0	--	9.2	79	--	--	130	20
MAR												
22...	1020	1.00	351	7.9	11.5	.80	9.5	88	K2	K9	140	22
22...	1022	10.0	351	7.9	11.5	--	9.5	88	--	--	--	--
22...	1023	20.0	351	7.9	11.5	--	9.5	88	--	--	--	--
22...	1024	30.0	351	7.9	11.5	--	9.5	88	--	--	--	--
22...	1025	40.0	351	7.9	11.5	--	9.5	88	--	--	--	--
22...	1026	50.0	351	7.9	11.5	--	9.5	88	--	--	--	--
22...	1027	59.0	351	7.8	11.5	--	9.5	88	--	--	140	22
AUG												
02...	1010	1.00	318	8.2	30.0	2.10	7.1	96	<1	K2	110	29
02...	1012	10.0	318	7.9	29.5	--	6.9	92	--	--	--	--
02...	1013	20.0	328	7.6	28.5	--	4.9	64	--	--	--	--
02...	1014	25.0	349	7.1	27.0	--	.2	3	--	--	--	--
02...	1015	30.0	358	7.1	26.5	--	.2	3	--	--	--	--
02...	1016	40.0	378	7.0	23.0	--	.2	2	--	--	--	--
02...	1017	50.0	389	7.0	21.5	--	.2	2	--	--	--	--
02...	1018	59.0	395	7.0	21.5	--	.2	2	--	--	150	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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)
JAN												
10...	46	3.8	15	.6	4.3	110	23	18	.20	3.5	180	13
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
10...	46	3.7	15	.6	4.2	110	23	18	--	3.4	179	12
MAR												
22...	50	4.0	17	.7	4.2	120	27	19	.20	2.4	196	8
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	50	4.0	17	.7	4.2	120	28	19	--	2.4	197	17
AUG												
02...	38	4.5	22	.9	4.5	85	31	25	.30	2.3	179	3
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--	--
02...	51	4.4	19	.7	3.5	140	24	23	--	6.4	217	25

## TRINITY RIVER BASIN

## LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330419096575401 LEWISVILLE LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
10...	--	<.020	.40	<.060	--	.40	.80	.010	<.010	3	<1
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	<.020	.40	.060	.14	.20	.60	.010	.010	30	10
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	<.020	.40	<.060	--	.70	1.1	.010	<.010	<3	1
MAR											
22...	.48	.020	.50	.130	.97	1.10	1.6	.020	.030	3	2
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	.48	.020	.50	.180	.82	1.00	1.5	.030	.040	20	<10
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	.48	.020	.50	.130	1.2	1.30	1.8	.030	.040	<3	8
AUG											
02...	--	<.020	<.10	.080	.82	.90	--	.020	.050	8	5
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	<.020	<.10	.070	.83	.90	--	<.010	.070	80	40
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	<.020	<.10	.080	.62	.70	--	.010	.030	140	200
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	<.020	<.10	.060	.74	.80	--	.010	.040	1100	1100

330410096584501 LEWISVILLE LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
10...	1350	1.00	330	8.1	9.0	9.4	82
10...	1351	10.0	330	8.1	8.5	9.4	82
10...	1352	20.0	330	8.1	8.5	9.4	82
10...	1353	30.0	330	8.1	8.0	9.4	80
10...	1354	40.0	330	8.1	8.0	9.4	80
10...	1355	47.0	330	8.1	8.0	9.4	80
MAR							
22...	1055	1.00	351	7.9	11.5	9.5	88
22...	1056	10.0	351	7.9	11.5	9.5	88
22...	1057	20.0	351	7.9	11.5	9.5	88
22...	1058	30.0	351	7.9	11.5	9.5	88
22...	1059	40.0	351	7.9	11.5	9.5	88
22...	1100	50.0	351	7.9	11.5	9.5	88
AUG							
02...	0930	1.00	318	8.1	30.5	7.0	95
02...	0931	10.0	320	7.9	30.0	6.6	89
02...	0932	20.0	332	7.4	29.0	4.1	54
02...	0933	25.0	351	7.2	27.5	.2	3
02...	0934	30.0	361	7.2	26.5	.2	3
02...	0935	40.0	381	7.2	23.0	.2	2
02...	0936	50.0	395	7.2	22.0	.2	2



## TRINITY RIVER BASIN

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## LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330450096560501 LEWISVILLE LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
10...	1410	1.00	332	8.2	8.5	9.9	86
10...	1411	10.0	335	8.2	8.0	9.6	82
10...	1412	20.0	359	8.2	7.5	9.5	81
10...	1413	31.0	359	8.2	7.5	9.5	81
MAR							
22...	1101	1.00	372	8.0	11.5	9.3	86
22...	1102	10.0	372	7.9	11.5	9.3	86
22...	1103	20.0	372	7.9	11.5	9.3	86
22...	1104	28.0	372	7.9	11.5	9.3	86
AUG							
02...	1046	1.00	320	8.1	30.0	6.7	90
02...	1047	10.0	320	7.9	29.0	6.5	86
02...	1048	20.0	345	7.4	27.5	2.0	26
02...	1049	27.0	352	7.2	27.0	.2	3

330606097025601 LEWISVILLE LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
10...	1645	1.00	337	8.2	8.0	10.1	86
10...	1646	10.0	337	8.2	7.5	10.0	85
10...	1647	20.0	342	8.1	7.5	9.4	80
10...	1648	24.0	342	8.0	7.5	8.5	72
MAR							
22...	1315	1.00	356	7.9	11.5	8.2	76
22...	1316	10.0	358	7.9	11.5	8.1	75
22...	1317	20.0	360	7.9	11.0	8.0	73
22...	1318	25.0	363	7.9	11.0	8.0	73
AUG							
02...	1400	1.00	318	8.2	32.0	6.4	89
02...	1401	10.0	320	7.9	31.0	5.8	80
02...	1402	15.0	336	7.3	30.5	1.1	15
02...	1403	20.0	351	7.2	29.0	.2	3
02...	1404	24.0	359	7.2	28.0	.2	3

TRINITY RIVER BASIN  
LEWISVILLE LAKE NEAR LEWISVILLE, TX

330755096572001 LEWISVILLE LAKE SITE DC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)
JAN										
10...	1430	1.00	337	8.2	8.0	.70	10.1	86	--	<.020
10...	1431	10.0	337	8.1	7.5	--	9.9	84	--	--
10...	1432	20.0	337	8.1	7.5	--	9.9	84	--	--
10...	1433	30.0	337	8.1	7.5	--	9.8	83	--	--
10...	1434	36.0	337	8.1	7.5	--	9.5	81	.48	.020
MAR										
22...	1120	1.00	357	7.8	11.5	.50	9.2	85	.48	.020
22...	1121	10.0	357	7.8	11.5	--	9.2	85	--	--
22...	1122	20.0	357	7.8	11.5	--	9.2	85	--	--
22...	1123	30.0	359	7.7	11.5	--	8.5	79	--	--
22...	1124	38.0	359	7.7	11.5	--	8.5	79	.48	.020
AUG										
02...	1110	1.00	319	8.2	31.0	2.10	5.9	81	--	<.020
02...	1111	10.0	321	7.9	30.0	--	5.3	71	--	--
02...	1112	15.0	344	7.2	28.5	--	.2	3	--	--
02...	1113	20.0	353	7.1	28.0	--	.2	3	--	<.020
02...	1114	25.0	361	7.1	27.0	--	.2	3	--	--
02...	1115	30.0	366	7.1	26.5	--	.2	3	--	--
02...	1116	36.0	378	7.1	26.0	--	.2	3	--	.070

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)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
10...	.50	<.060	--	.70	1.2	.010	<.010	140	40
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	.50	.080	.72	.80	1.3	.010	.040	400	50
MAR									
22...	.50	.130	.97	1.10	1.6	.020	.030	10	10
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	.50	.170	1.2	1.40	1.9	.030	.060	30	30
AUG									
02...	<.10	.100	.70	.80	--	.020	.040	50	90
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	<.10	.100	1.3	1.40	--	.010	.040	120	500
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	<.10	.630	1.3	1.90	--	.080	.200	1600	990

330959096565301 LEWISVILLE LAKE SITE EC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
JAN												
10...	1500	1.00	355	8.3	7.5	.60	10.6	90	36	36	140	32
10...	1501	10.0	355	8.2	7.0	--	10.3	86	--	--	--	--
10...	1502	20.0	365	8.1	7.0	--	9.6	80	--	--	--	--
10...	1503	24.0	365	8.1	7.0	--	9.6	80	--	--	140	33
MAR												
22...	1145	1.00	377	7.9	11.5	.40	9.4	87	K1	K14	140	23
22...	1146	10.0	377	7.9	11.5	--	9.3	86	--	--	--	--
22...	1147	20.0	377	7.8	11.5	--	9.1	84	--	--	--	--
22...	1148	28.0	377	7.8	11.5	--	8.9	82	--	--	140	23
AUG												
02...	1141	1.00	315	8.1	31.5	1.10	6.6	91	<1	<1	110	24
02...	1142	10.0	332	7.3	30.0	--	1.7	23	--	--	--	--
02...	1143	15.0	344	7.1	28.5	--	.2	3	--	--	--	--
02...	1144	20.0	363	7.1	27.5	--	.2	3	--	--	--	--
02...	1145	24.0	369	7.1	27.5	--	.2	3	--	--	130	7

LEWISVILLE LAKE NEAR LEWSVILLE LAKE, TX--Continued

330959096565301 LEWISVILLE LAKE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C., SUS- PENDE (MG/L)
JAN											
10...	50	4.1	16	.6	4.2	110	39	16	2.0	197	<1
10...	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--
10...	50	4.4	17	.6	4.1	110	50	14	3.1	209	50
MAR											
22...	50	4.4	17	.6	4.3	120	46	16	1.8	211	25
22...	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--
22...	50	4.3	17	.6	4.3	120	44	16	1.9	209	61
AUG											
02...	35	4.3	23	1.0	4.4	81	33	25	3.5	177	9
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	43	4.6	22	.9	3.9	120	29	26	5.4	208	50

[illegible]

## TRINITY RIVER BASIN

## LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330722096592201 LEWISVILLE LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)
JAN										
10...	1540	1.00	342	8.2	8.5	1.00	9.7	84	--	<.020
10...	1541	10.0	345	8.2	7.5	--	9.9	84	--	--
10...	1542	20.0	376	8.2	7.5	--	10.2	86	--	--
10...	1543	27.0	376	8.2	7.5	--	10.2	86	.68	.020
MAR										
22...	1217	1.00	387	8.0	11.5	.40	8.7	81	.38	.020
22...	1218	5.00	387	8.0	11.5	--	8.7	81	--	--
22...	1219	10.0	396	8.0	11.5	--	8.6	80	--	--
22...	1220	20.0	396	8.0	11.5	--	8.6	80	--	--
22...	1221	32.0	396	8.0	11.5	--	8.6	80	.38	.020
AUG										
02...	1220	1.00	315	8.2	32.0	1.30	7.0	98	--	.020
02...	1221	10.0	349	7.9	30.0	--	5.4	73	--	<.020
02...	1222	15.0	357	7.6	29.0	--	4.2	56	--	--
02...	1223	20.0	360	7.1	27.5	--	.2	3	--	<.020

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)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
10...	.40	<.060	--	.70	1.1	.010	.020	80	30
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	.70	<.060	--	.70	1.4	.010	.040	160	70
MAR									
22...	.40	.100	1.3	1.40	1.8	.030	.060	40	10
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	.40	.110	1.3	1.40	1.8	.030	.080	30	10
AUG									
02...	<.10	.880	.72	1.60	--	.120	.160	50	20
02...	<.10	.080	1.0	1.10	--	.010	.050	60	50
02...	--	--	--	--	--	--	--	--	--
02...	<.10	.130	.97	1.10	--	.020	.080	120	450

330944097003601 LEWISVILLE LAKE SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
JAN												
10...	1600	1.00	390	8.3	7.5	.40	10.9	92	K15	K16	140	25
10...	1602	12.0	390	8.2	6.5	--	10.2	84	--	--	140	25
MAR												
22...	1240	1.00	427	8.4	11.0	.30	9.8	90	K3	63	150	17
22...	1242	13.0	427	8.4	11.0	--	9.7	89	--	--	150	17
AUG												
02...	1245	1.00	373	8.5	33.5	.60	7.2	103	<1	<1	120	21
02...	1247	5.00	373	7.9	31.0	--	5.0	69	--	--	--	--
02...	1248	10.0	378	7.1	30.0	--	.2	3	--	--	120	24

## TRINITY RIVER BASIN

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LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330944097003601 LEWISVILLE LAKE SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)
JAN											
10...	50	4.8	23	.9	4.2	120	30	27	3.7	215	16
10...	50	4.8	23	.9	4.2	120	30	27	3.7	215	30
MAR											
22...	50	5.3	28	1.1	4.0	130	36	34	2.1	237	24
22...	50	5.2	28	1.1	4.2	130	37	35	2.1	239	27
AUG											
02...	39	4.9	31	1.3	4.7	97	28	40	2.4	208	7
02...	--	--	--	--	--	--	--	--	--	--	--
02...	41	4.9	29	1.2	4.5	99	30	38	4.0	212	16
DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN											
10...	.88	.020	.90	<.060	--	1.10	2.0	.040	.090	80	32
10...	.87	.030	.90	<.060	--	1.50	2.4	.040	.090	60	17
MAR											
22...	.28	.020	.30	.080	1.5	1.60	1.9	.040	.110	120	3
22...	.28	.020	.30	.080	1.4	1.50	1.8	.040	.100	7	4
AUG											
02...	--	<.020	<.10	.060	1.1	1.20	--	.030	.100	120	64
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	.050	<.10	.190	1.4	1.60	--	.130	.230	120	950



TRINITY RIVER BASIN  
LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330419096575401 LEWISVILLE LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE TIME	JAN 10,83 1321	MAR 22,83 1021	AUG 2,83 1011
TOTAL CELLS/ML	2500	4300	100000
DIVERSITY: DIVISION	0.9	1.6	0.4
..CLASS	0.9	1.6	0.4
..ORDER	0.9	2.4	1.5
...FAMILY	1.9	2.6	1.6
....GENUS	2.9	3.0	1.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..BACILLARIALES						
...NITZSCHIAEAE						
....NITZSCHIA	--	-	350	8	--	-
...EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	460#	18	1100#	26	560	1
....MELOSIRA	430#	17	140	3	--	-
..FRAGILARIALES						
...FRAGILARIAEAE						
....SYNEDRA	--	-	--	-	4100	4
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...DICTYOSPHAERIAEAE						
....DICTYOSPHAERIUM	370	15	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	170	4	560	1
....CHODATELLA	100	4	--	-	--	-
....FRANCEIA	--	-	--	-	*	0
....OOCYSTIS	230	9	--	-	--	-
....SELENASTRUM	--	-	210	5	--	-
....TREUBARIA	--	-	--	-	*	0
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	560	13	560	1
....GLOEOACTINIUM	290	11	--	-	--	-
...SCENEDESMUS	300	12	--	-	560	1
....TETRASTRUM	340	14	140	3	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	770#	18	--	-
....POLYTOMA	--	-	70	2	--	-
CHRYSTOPHYTA						
.CHRYSTOPHYCEAE						
..OCHROMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	70	2	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	70	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	840	1
....ANACYSTIS	--	-	630	15	7300	7
...NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	-	1700	2
...NOSTOCACEAE						
....CYLINDROSPERMUM	--	-	--	-	17000#	17
...OSCILLATORIALES						
...OSCILLATORIAEAE						
....OSCILLATORIA	--	-	--	-	69000#	67

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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## LEWISVILLE LAKE NEAR LEWISVILLE, TX--Continued

330944097003601 LEWISVILLE LAKE SITE GC

## PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE TIME	JAN 10,83 1601	MAR 22,83 1241	AUG 2,83 1246
TOTAL CELLS/ML	26000	38000	200000
DIVERSITY: DIVISION	1.6	1.7	0.7
..CLASS	1.6	1.7	0.7
..ORDER	2.0	2.0	1.8
...FAMILY	2.2	2.2	1.9
....GENUS	2.7	2.7	2.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..BACILLARIALES						
...NITZSCHIAEAE						
....NITZSCHIA	1100	4	870	2	3800	2
..EUPODISCALES						
...COSCINODISCAEAE						
....CYCLOTELLA	6900#	26	17000#	44	13000	6
....MELOSIRA	1900	7	2300	6	--	-
..FRAGILARIALES						
...FRAGILARIAEAE						
....SYNEDRA	--	-	--	-	*	0
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA			--	-	*	0
....TETRAEDRON	310	1	--	-	--	-
..MICRACTINIACEAE						
....MICRACTINIUM	620	2	--	-	--	-
..OOCYSTACEAE						
....ANKISTRODESMUS	780	3	3800	10	3800	2
....CHODATELLA	780	3	--	-	--	-
....KIRCHNERIELLA	--	-	290	1	--	-
....OOCYSTIS	1200	5	--	-	--	-
..SCENEDESMACEAE						
....GLOEOACTINIUM	--	-	3500	9	--	-
....SCENEDESMUS	310	1	580	2	2200	1
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	290	1	1600	1
CHRYSTOPHYTA						
.CHRYSTOPHYCEAE						
..OCHROMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	8600	4
....ANACYSTIS	1900	7	1700	5	34000#	17
..NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	2300	6	--	-
..NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	4900	2
....CYLINDROSPERMUM	--	-	--	-	8100	4
..OSCILLATORIALES						
...OSCILLATORIAEAE						
....LYNGBYA	--	-	--	-	3200	2
....OSCILLATORIA	10000#	38	--	-	110000#	57
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	470	2	5200	14	--	-
....TRACHELOMONAS	--	-	580	2	*	0

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

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

## TRINITY RIVER BASIN

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 east of Lewisville, 1.9 mi downstream from Lewisville Lake, 8.3 mi upstream from Denton Creek, and 28.2 mi upstream from mouth.

DRAINAGE AREA.--1,673 mi<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 National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Jan. 6, 1950, nonrecording gage 0.6 mi upstream at datum 3.26 ft lower.

REMARKS.--Water-discharge records good. Flow regulated by Lewisville Lake (see station 08052800) since November 1954. Most of low flow is used by city of Dallas for municipal supply (see station 08055500). Gage-height telemeter located at station.

AVERAGE DISCHARGE.--5 years (water years 1950-54), prior to regulation, 402 ft<sup>3</sup>/s (291,200 acre-ft/yr); 29 years (water years 1955-83), regulated, 657 ft<sup>3</sup>/s (476,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft<sup>3</sup>/s Sept. 15, 1950 (gage height, 30.75 ft); minimum daily, 0.8 ft<sup>3</sup>/s Jan. 19, 1955. Maximum discharge since construction of Lewisville Dam in 1954, 15,000 ft<sup>3</sup>/s Nov 2, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1907, 33.8 ft in 1908, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,070 ft<sup>3</sup>/s Feb. 5 at 1330 hours (gage height, 10.43 ft); minimum daily, 16 ft<sup>3</sup>/s Nov. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	271	121	146	117	176	401	729	187	119	327	332	300
2	259	134	130	124	126	169	731	186	135	391	332	268
3	258	95	129	101	400	166	729	188	134	364	346	218
4	266	120	127	92	605	172	728	185	134	300	368	215
5	297	119	179	106	1060	170	726	185	133	252	298	266
6	305	122	246	106	1050	164	726	185	135	243	313	253
7	238	128	213	106	1030	164	723	195	156	242	295	274
8	179	132	212	106	1010	163	528	219	176	242	234	306
9	184	149	213	106	994	161	366	231	175	255	234	306
10	151	158	227	106	979	162	366	211	198	271	233	304
11	148	158	247	88	975	159	367	165	224	270	234	302
12	147	139	225	49	967	158	366	171	224	261	233	302
13	146	119	109	33	966	158	363	186	224	234	254	302
14	149	131	94	32	966	158	366	207	202	227	309	303
15	150	149	220	32	964	156	286	170	197	214	331	251
16	165	157	189	32	961	157	214	157	226	191	308	205
17	164	157	157	28	607	156	221	161	224	167	308	256
18	145	156	147	23	263	155	196	152	224	183	331	293
19	158	158	139	24	260	155	177	157	223	217	365	294
20	183	112	139	23	289	155	176	180	224	290	272	251
21	174	16	138	27	271	155	177	221	243	314	264	201
22	139	85	139	26	262	155	173	133	262	283	262	200
23	136	158	140	23	447	154	168	307	275	296	261	199
24	135	157	140	22	649	154	164	162	302	315	259	198
25	135	150	139	22	644	154	169	152	313	317	259	198
26	149	165	169	29	642	221	178	149	254	294	275	198
27	166	144	196	40	638	160	186	148	194	298	292	207
28	159	131	97	47	640	155	188	151	196	319	293	245
29	140	152	78	55	---	260	187	159	191	339	291	254
30	139	161	106	55	---	557	238	172	233	355	290	201
31	130	---	132	176	---	727	---	160	---	348	295	---
TOTAL	5565	4033	4962	1956	18841	6311	10912	5592	6150	8619	8971	7570
MEAN	180	134	160	63.1	673	204	364	180	205	278	289	252
MAX	305	165	247	176	1060	727	731	307	313	391	368	306
MIN	130	16	78	22	126	154	164	133	119	167	233	198
AC-FT	11040	8000	9840	3880	37370	12520	21640	11090	12200	17100	17790	15020
CAL YR 1982	TOTAL	685700	MEAN	1879	MAX	7660	MIN	16	AC-FT	1360000		
WTR YR 1983	TOTAL	89482	MEAN	245	MAX	1060	MIN	16	AC-FT	177500		

## TRINITY RIVER BASIN

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08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1981 to current year.

WATER TEMPERATURES: November 1976 to September 1980.

INSTRUMENTATION.--Water temperature was recorded continuously at this station (November 1976 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 PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 619 micromhos Nov. 21, 1982; minimum daily, 200 micromhos May 13, 1982.

WATER TEMPERATURES: Maximum, 33.0°C July 27, 1977; minimum, 0.0°C Jan. 31 and Feb. 9, 1979.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 619 micromhos Nov. 21; minimum daily, 311 micromhos Oct. 1, 7.

WATER TEMPERATURES: Maximum daily, 29.0°C June 5, July 25, 31, Aug. 2; minimum daily, 6.0°C Jan. 23.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
OCT 18...	1315	146	332	8.4	21.5	30	16	8.4	97	1.1	120
JAN 20...	1110	23	472	7.1	6.5	<1	4.0	10.2	84	1.0	160
FEB 28...	1010	643	361	8.4	10.0	5	15	11.2	100	.8	140
APR 19...	1020	182	386	8.0	14.0	10	14	10.1	100	2.1	140
JUN 06...	1320	133	407	8.1	22.0	5	13	6.8	79	3.2	140
SEP 12...	1145	302	324	8.0	27.0	<1	4.8	7.2	91	2.1	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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 18...	10	42	3.7	18	.7	4.6	110	26	18	.20	5.3
JAN 20...	20	56	4.9	31	1.1	4.6	140	52	29	.30	4.5
FEB 28...	19	49	4.0	18	.7	3.9	120	29	22	.30	2.7
APR 19...	22	50	4.2	21	.8	4.4	120	35	24	.20	2.1
JUN 06...	24	50	4.5	23	.9	4.2	120	40	23	.30	2.3
SEP 12...	20	40	4.3	24	1.0	4.5	98	36	27	.30	3.5

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 18...	184	14	3	.45	.050	.50	.550	1.1	1.60	.320	5.5
JAN 20...	266	8	<1	.93	.070	1.0	1.20	1.8	3.00	.480	5.2
FEB 28...	201	13	5	--	<.020	.50	.290	.81	1.10	.090	5.3
APR 19...	213	21	7	.64	.060	.70	.430	.67	1.10	.140	3.6
JUN 06...	219	20	3	.52	.080	.60	.480	.62	1.10	.280	4.4
SEP 12...	198	24	<1	.07	.030	.10	.230	.67	.90	.090	3.0

## TRINITY RIVER BASIN

08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983.

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 18...	1315	2	47	<1	<10	<1	3
JAN 20...	1110	1	48	<1	10	1	8
APR 19...	1020	1	48	<1	<10	1	4

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 18...	5	5	<.1	<1	<1	12
JAN 20...	<1	59	<.1	<1	<1	37
APR 19...	<1	11	.1	<1	<1	140

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	5565	328	183	2750	19	282	31	469	120
NOV.	1982	4033	364	203	2210	21	234	41	448	120
DEC.	1982	4962	354	197	2650	21	277	38	505	120
JAN.	1983	1956	414	229	1210	25	133	55	289	130
FEB.	1983	18841	352	196	9990	20	1040	37	1890	120
MAR.	1983	6311	378	210	3580	22	380	44	743	130
APR.	1983	10912	372	207	6100	22	646	42	1240	130
MAY	1983	5592	402	223	3360	24	364	50	761	130
JUNE	1983	6150	393	218	3620	23	389	48	791	130
JULY	1983	8619	369	205	4780	22	504	41	959	130
AUG.	1983	8971	356	199	4810	21	503	38	921	120
SEPT	1983	7570	361	201	4110	21	432	39	802	120
TOTAL		89482	**	**	49200	**	5190	**	9810	**
WTD. AVG.		245	366	204	**	21	**	41	**	120



## TRINITY RIVER BASIN

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08053000 ELM FORK TRINITY RIVER NEAR LEWISVILLE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	311	346	357	365	436	389	366	390	410	380	355	359
2	322	375	363	371	516	371	361	395	415	375	350	365
3	319	336	351	416	353	366	362	390	410	380	340	370
4	314	343	342	389	348	370	360	400	400	385	360	368
5	313	337	340	382	353	378	359	390	410	390	350	366
6	315	345	343	372	346	373	368	385	407	385	360	364
7	311	342	336	382	348	372	365	390	410	380	340	363
8	320	340	341	370	346	383	364	380	390	370	355	360
9	343	338	337	378	344	373	374	385	395	360	360	358
10	336	345	339	371	347	389	379	380	400	370	365	356
11	334	344	351	377	344	382	368	390	390	373	370	353
12	349	348	353	386	348	377	369	400	395	371	375	354
13	328	350	366	448	345	382	369	390	390	370	370	356
14	331	355	500	449	349	376	374	380	385	375	360	354
15	335	350	344	462	346	386	379	400	390	380	355	356
16	331	342	353	436	345	384	384	410	388	385	360	367
17	327	371	345	496	347	389	386	400	390	390	360	358
18	335	374	347	514	367	382	394	370	400	380	350	357
19	329	436	345	545	371	380	391	400	390	370	345	358
20	330	569	356	520	389	386	382	410	395	360	360	359
21	333	619	361	512	375	384	391	480	390	365	365	369
22	339	544	348	465	370	388	390	470	380	360	360	368
23	342	341	358	489	345	382	385	410	385	355	355	367
24	337	337	347	495	351	385	380	420	380	350	350	364
25	331	339	349	515	350	384	389	410	385	360	358	362
26	330	375	347	449	354	404	385	415	390	355	360	366
27	327	363	360	436	356	379	412	410	400	360	357	367
28	335	354	392	426	365	390	393	400	395	365	350	365
29	334	353	401	425	---	363	382	390	390	360	354	364
30	343	343	399	394	---	372	395	410	380	350	358	363
31	353	---	366	500	---	359	---	420	---	360	360	---
MEAN	330	375	359	437	363	380	379	402	395	370	357	362

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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

## 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 upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2.2 mi north of Justin, 3.0 mi upstream from Olivers Creek, 12.9 mi upstream from Harriet Creek, and 32.9 mi upstream from Grapevine Dam.

DRAINAGE AREA.--400 mi<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 1732: 1950(M). WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 606.66 ft 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 a combined detention capacity of 52,750 acre-ft. These structures control runoff from 197 mi<sup>2</sup> in the Denton Creek watershed. Gage-height telemeter located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years (water years 1950-80) prior to completion of floodwater-retarding structures, 77.4 ft<sup>3</sup>/s (56,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,700 ft<sup>3</sup>/s Oct. 13, 1981 (gage height, 18.68 ft), from high-water mark; no flow at times in 1949-65, 1967-74, 1976-83.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1935 was the highest since 1908 and reached a stage of 20.6 ft at site about 1,500 ft upstream, from information by local resident. Flood in May 1908 reached a stage about 1.0 ft higher than flood in May 1935, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 820 ft<sup>3</sup>/s June 26 at 0530 hours (gage height, 7.53 ft); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	13	28	25	56	28	46	23	43	31	.00	.00
2	4.3	14	26	28	49	28	45	22	32	22	.00	.00
3	5.0	30	26	32	36	28	42	25	27	17	.00	.00
4	6.5	16	26	30	30	30	36	22	23	13	.00	.00
5	7.9	13	24	29	29	206	34	19	20	11	.00	.00
6	6.9	13	24	28	29	111	33	18	36	12	.00	.00
7	6.0	13	23	27	28	63	32	17	84	13	.00	.00
8	5.6	13	22	27	28	47	31	17	45	8.5	.00	.00
9	7.2	13	21	26	27	39	31	16	29	6.5	.00	.00
10	8.2	14	23	26	27	34	31	15	22	5.5	.00	.00
11	5.7	16	31	24	27	31	31	20	18	4.3	.13	.00
12	6.2	17	58	23	26	30	34	19	16	3.6	.76	.00
13	7.5	17	42	22	25	29	33	18	15	3.1	.14	.00
14	9.9	16	35	22	24	29	34	18	14	3.4	.00	.00
15	7.8	16	32	22	24	29	36	21	13	16	.00	.00
16	6.5	18	30	22	25	29	33	20	12	23	.00	.00
17	5.4	18	28	21	25	29	31	18	11	14	.00	.00
18	4.7	19	27	22	24	29	30	18	10	11	.00	.00
19	4.6	20	27	24	26	28	30	17	9.5	8.3	.01	.00
20	3.8	20	25	25	28	28	30	22	8.9	5.8	.10	.00
21	5.3	21	24	25	42	28	29	30	8.1	4.3	6.1	.00
22	8.7	20	25	25	38	27	31	28	7.4	2.9	3.2	.00
23	12	21	25	25	35	26	32	105	6.8	2.0	.77	.00
24	11	22	25	25	32	26	30	61	6.2	1.3	.16	.00
25	9.8	21	25	25	31	27	28	34	7.8	.82	.02	.00
26	9.5	27	24	24	29	51	27	27	367	.55	.00	.00
27	9.8	47	26	24	28	110	27	22	113	.31	.00	.00
28	10	57	30	23	28	60	26	20	74	.10	.00	.00
29	11	39	29	23	---	45	25	19	85	.03	.00	.00
30	12	32	27	24	---	62	24	19	50	.00	.00	.00
31	13	---	25	36	---	56	---	23	---	.00	.00	---
TOTAL	236.4	636	863	784	856	1423	962	773	1213.7	244.31	11.39	.00
MEAN	7.63	21.2	27.8	25.3	30.6	45.9	32.1	24.9	40.5	7.88	.37	.000
MAX	13	57	58	36	56	206	46	105	367	31	6.1	.00
MIN	3.8	13	21	21	24	26	24	15	6.2	.00	.00	.00
AC-FT	469	1260	1710	1560	1700	2820	1910	1530	2410	485	23	.00
CAL YR 1982	TOTAL	106581.90	MEAN	292	MAX	17100	MIN	3.8	AC-FT	211400		
WTR YR 1983	TOTAL	8002.80	MEAN	21.9	MAX	367	MIN	.00	AC-FT	15870		

## 08054500 GRAPEVINE LAKE NEAR GRAPEVINE, TX

LOCATION.--Lat 32°58'21", long 97°03'22", Tarrant County, Hydrologic Unit 12030104, in intake structure of Grapevine Dam on Denton Creek, 2.7 mi northeast of Grapevine, 4.3 mi upstream from bridge on State Highway 121, and 11.7 mi upstream from mouth.

DRAINAGE AREA.--695 mi<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, non-recording gage at site 1,000 ft upstream at present datum.

REMARKS.--The lake is formed by a rolled earthfill dam 12,850 ft long, including a 500-foot (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 concrete conduit that is controlled by two 6.5- by 13.0-foot broome-type gates and two 30-inch steel pipes with service valves. The capacity table used since April 1972 is based on a survey made in October 1966. The lake was built for flood control, navigation, and water conservation. The city of Dallas uses part of this water for their municipal supply. An unknown amount of water is diverted for industrial and municipal uses. Inflow is affected at times by discharge from the flood-detention pools of 87 floodwater-retarding structures with a combined detention capacity of 57,850 acre-ft. These structures control runoff from 217 mi<sup>2</sup> in the Denton Creek watershed. Gage-height telemeter at station. Figures give herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	588.0	-
Crest of spillway.....	560.0	425,500
Top of conservation pool.....	535.0	181,100
Lowest intake to wet wells (invert).....	500.5	22,140
Invert of two broome-type gates.....	475.0	100

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 471,200 acre-ft Nov. 1, 1981 (elevation, 563.29 ft); minimum since lake first filled in 1957, 94,480 acre-ft Feb. 26, 1979 (elevation, 520.67 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 183,200 acre-ft May 24 at 1600 hours (elevation, 535.29 ft); minimum daily, 155,300 acre-ft Sept. 30 (elevation, 531.31 ft).

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

531.0	153,300	534.0	173,900
532.0	160,000	536.0	188,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178200	173600	171900	172600	174300	176100	182100	180500	182200	181700	174500	166300
2	178000	174100	172000	172800	174000	176000	181500	180600	182100	181500	174100	165900
3	177900	173800	171800	172600	174000	176100	181100	180400	182000	181300	173800	165600
4	177800	173500	171600	172600	174100	176700	181500	180200	181800	181000	173400	165200
5	177600	173300	171700	172600	174300	177000	181300	180000	181500	181300	173000	163200
6	177300	173100	171600	172500	174400	177300	181300	179900	181400	181100	172800	164800
7	177200	173000	171500	172500	174300	177500	181200	179900	181300	180800	172500	164600
8	177500	172800	171400	172500	174300	177500	181200	179600	181200	180600	172300	164200
9	177700	172800	171500	172500	174500	177300	181100	179400	181000	180300	172000	163900
10	177500	172700	171800	172400	174400	177300	181100	179400	180900	180000	171800	163500
11	177300	172800	172100	172300	174400	177300	181000	179300	180700	179700	171400	163200
12	177100	172500	172100	172300	174400	177300	180900	179400	180600	179400	171000	163000
13	176900	172500	171500	172200	174300	177300	181000	179100	180400	179100	170800	162600
14	176600	172300	171400	172200	174400	177200	181000	179700	181100	179800	170400	162100
15	176500	171800	171300	172000	174500	177300	180900	179500	181100	179600	170100	161700
16	176200	171600	171200	171900	174400	177900	180800	179300	181000	179400	169700	161300
17	175900	171500	171100	171800	174500	177600	180700	179100	180800	179200	169400	160800
18	175700	171400	171100	171900	174700	177500	180700	179100	180700	179000	169100	160400
19	175500	171400	171000	171900	174800	177600	180600	179000	180500	178800	170000	160000
20	175300	171000	170900	171800	175200	177500	180500	179700	180400	178400	169800	159700
21	175500	170400	170900	171800	175800	177300	180600	181100	180200	178100	169400	159100
22	175300	170400	170900	171700	175900	177100	181000	181300	180000	177800	169100	158600
23	175000	170300	170800	171500	176000	177300	180900	183000	179800	177500	168900	158100
24	174900	170100	170800	171600	176100	177200	180700	183200	179600	177100	168500	157700
25	174700	170100	170800	171500	176100	177100	180600	183200	179800	176800	168200	157200
26	174500	171500	172000	171600	176000	178900	180500	182900	180600	176500	168000	156900
27	174200	171800	172600	171400	176100	179100	180500	182600	181400	176100	167700	156500
28	174200	171900	172700	171400	176000	179100	180500	182400	181900	175700	167400	156100
29	174000	172000	172500	171400	---	179800	180500	182100	182000	175400	167100	155700
30	173800	171900	172500	171300	---	181400	180500	182500	181800	175200	166800	155300
31	173800	---	172500	173500	---	181700	---	182400	---	174800	166500	---
MAX	178200	174100	172700	173500	176100	181700	182100	183200	182200	181700	174500	166300
MIN	173800	170100	170800	171300	174000	176000	180500	179000	179600	174800	166500	155300
(†)	533.98	533.72	533.81	533.95	534.30	535.08	534.91	535.18	535.10	534.13	532.95	531.31
(‡)	-4700	-1900	+600	+1000	+2500	+5700	-1200	+1900	-600	-7000	-8300	-11200

CAL YR 1982 MAX 404100 MIN 170100 † -122900  
WTR YR 1983 MAX 183200 MIN 155300 ‡ -23200

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

## TRINITY RIVER BASIN

08054500 GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

## WATER-QUALITY RECORDS

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

325751097033001 GRAPEVINE LAKE SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
24...	0904	1.00	381	7.9	11.5	10.0	93
24...	0905	10.0	381	7.9	11.5	9.9	93
24...	0906	20.0	381	7.9	11.5	9.9	93
24...	0907	30.0	381	7.9	11.5	9.9	93
24...	0908	40.0	381	7.9	11.5	9.8	92
24...	0909	50.0	381	7.9	11.5	9.8	92
AUG							
01...	1355	1.00	353	8.1	31.0	7.3	100
01...	1356	10.0	353	8.0	30.0	7.4	100
01...	1357	20.0	356	7.7	29.0	6.7	89
01...	1358	25.0	376	7.2	27.0	1.7	22
01...	1359	30.0	387	7.1	25.5	1.7	21
01...	1401	40.0	403	7.1	23.0	1.7	20
01...	1402	50.0	409	7.1	22.5	1.7	20
01...	1403	57.0	415	7.0	21.5	1.7	20

325822097030401 GRAPEVINE LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
MAR												
24...	0800	1.00	381	7.9	11.5	.60	10.0	93	<1	22	150	22
24...	0802	10.0	381	7.9	11.5	--	9.5	89	--	--	--	--
24...	0803	20.0	381	7.9	11.5	--	9.4	88	--	--	--	--
24...	0804	30.0	381	7.9	11.5	--	9.3	87	--	--	--	--
24...	0805	40.0	381	7.9	11.5	--	9.3	87	--	--	--	--
24...	0806	50.0	381	7.9	11.5	--	9.0	84	--	--	--	--
24...	0807	54.0	381	7.9	11.5	--	8.9	83	--	--	150	19
AUG												
01...	1415	1.00	350	8.2	31.5	2.00	7.3	101	<1	K1	130	35
01...	1417	10.0	350	8.1	30.0	--	7.4	100	--	--	--	--
01...	1418	20.0	356	7.8	29.0	--	6.3	83	--	--	--	--
01...	1419	25.0	376	7.1	27.0	--	1.2	15	--	--	--	--
01...	1420	30.0	384	7.1	25.5	--	1.4	17	--	--	--	--
01...	1421	40.0	400	7.2	23.5	--	1.3	16	--	--	--	--
01...	1422	50.0	408	7.1	22.0	--	1.6	19	--	--	--	--
01...	1423	58.0	412	7.1	21.5	--	1.6	18	--	--	160	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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)
MAR												
24...	51	6.0	16	.6	4.1	130	29	20	.30	1.8	206	8
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
24...	50	5.9	15	.6	4.1	130	27	20	--	1.9	202	29
AUG												
01...	43	6.7	19	.7	4.4	100	32	26	.30	3.6	195	5
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	54	6.7	18	.6	3.9	160	22	25	--	7.2	235	10



## 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 1982 TO SEPTEMBER 1983

DATE	NITRO- GEN, NITRATE (MG/L AS N)	NITRO- GEN, NITRITE (MG/L AS N)	NITRO- GEN, NO2+NO3 (MG/L AS N)	NITRO- GEN, AMMONIA (MG/L AS N)	NITRO- GEN, ORGANIC (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR											
24...	.18	.020	.20	.180	.82	1.00	1.2	.030	.020	<3	2
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	.18	.020	.20	.160	.74	.90	1.1	.020	.020	10	10
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	<.020	.10	.150	.65	.80	.90	.020	.050	4	8
AUG											
01...	--	<.020	<.10	.090	.61	.70	--	.020	.050	44	14
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	<.020	<.10	.120	.58	.70	--	.030	.060	80	30
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	<.020	<.10	.110	.89	1.00	--	.060	.040	100	340
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	<.020	<.10	.660	.44	1.10	--	.070	.140	460	1400

325930097053801 GRAPEVINE LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (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)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)
MAR													
24...	0927	1.00	381	7.9	11.0	.60	9.8	90	K2	20	150	19	--
24...	0928	10.0	381	7.9	11.0	--	9.8	90	--	--	--	--	--
24...	0929	20.0	381	7.9	11.0	--	9.8	90	--	--	--	--	--
24...	0930	30.0	381	7.9	11.0	--	9.8	90	--	--	--	--	--
24...	0931	40.0	381	7.9	11.0	--	9.8	90	--	--	--	--	--
24...	0932	50.0	381	7.9	11.0	--	9.8	90	--	--	150	20	--
AUG													
01...	1830	1.00	350	8.2	32.5	1.80	6.2	87	<1	K3	130	32	--
01...	1831	10.0	350	7.9	30.0	--	6.3	85	--	--	--	--	--
01...	1832	20.0	366	7.3	28.0	--	3.2	42	--	--	--	--	--
01...	1833	25.0	377	7.2	27.0	--	.7	9	--	--	--	--	--
01...	1834	30.0	382	7.1	26.0	--	.2	3	--	--	--	--	--
01...	1835	40.0	400	7.0	23.5	--	.2	2	--	--	150	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)	ALKA- LINITY FIELD (MG/L AS CAC03)	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)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)
MAR											
24...	50	5.9	16	.6	4.1	130	25	20	1.8	201	8
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	50	6.0	16	.6	4.0	130	28	21	1.8	205	23
AUG											
01...	42	6.6	19	.8	4.2	100	32	25	3.8	193	12
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--
01...	51	6.6	18	.7	3.6	140	25	25	7.0	222	21



## TRINITY RIVER BASIN

## GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

## 325930097053801 GRAPEVINE LAKE SITE BC--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	NITRO- GEN, NITRATE (MG/L AS N)	NITRO- GEN, NITRITE (MG/L AS N)	NITRO- GEN, NO2+NO3 (MG/L AS N)	NITRO- GEN, AMMONIA (MG/L AS N)	NITRO- GEN, ORGANIC (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR											
24...	.18	.020	.20	.210	.59	.80	1.0	.040	.040	<3	2
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--
24...	--	<.020	.10	.150	.55	.70	.80	.020	.030	<10	10
24...	--	--	--	--	--	--	--	--	--	--	--
24...	.18	.020	.20	.190	.61	.80	1.0	.040	.050	3	11
AUG											
01...	--	<.020	<.10	.110	.59	.70	--	.020	.040	34	19
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	<.020	<.10	.100	.60	.70	--	.020	.050	80	50
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	<.020	<.10	.200	.40	.60	--	.030	.050	410	560
01...	--	<.020	<.10	.500	.60	1.10	--	.030	.090	1100	1100

## 325933097081401 GRAPEVINE LAKE SITE CC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
24...	1000	1.00	385	8.0	10.5	10.0	91
24...	1001	10.0	385	7.9	10.5	10.0	91
24...	1002	17.0	385	7.9	10.5	10.0	91
AUG							
01...	1700	1.00	354	8.2	33.5	6.1	87
01...	1701	10.0	354	7.8	31.0	5.6	77
01...	1702	15.0	357	7.5	30.5	3.6	49

## 330106097094601 GRAPEVINE LAKE SITE DC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
24...	1010	1.00	388	8.0	10.5	10.0	91
24...	1011	10.0	388	8.0	10.5	10.0	91
24...	1012	15.0	393	8.0	10.5	10.0	91
AUG							
01...	1730	1.00	350	8.1	33.0	7.1	101
01...	1731	10.0	359	7.6	31.5	3.7	51
01...	1732	13.0	364	7.4	31.0	1.5	21

## TRINITY RIVER BASIN

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## GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

330207097103701 GRAPEVINE LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)	HARD- NESS, NONCAR- BONATE (MG/L CAC03)
MAR												
24...	1030	1.00	400	8.0	10.5	.40	10.0	91	K5	42	150	12
24...	1032	10.0	400	8.0	10.5	--	10.0	91	--	--	--	--
24...	1033	13.0	410	8.0	10.0	--	10.0	90	--	--	160	18
AUG												
01...	1745	1.00	350	8.3	34.0	.90	6.9	99	<1	<1	140	39
01...	1747	5.00	356	7.8	32.0	--	5.5	77	--	--	--	--
01...	1748	11.0	374	7.4	31.5	--	1.1	15	--	--	150	41

DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CAC03)	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)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)
MAR											
24...	50	6.5	17	.6	4.1	140	29	24	1.8	216	20
24...	--	--	--	--	--	--	--	--	--	--	--
24...	52	6.8	18	.7	4.1	140	28	29	1.9	224	23
AUG											
01...	44	7.0	20	.8	4.3	100	31	27	5.2	199	5
01...	--	--	--	--	--	--	--	--	--	--	--
01...	48	7.4	21	.8	4.7	110	32	28	7.6	215	26

DATE	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR											
24...	--	<.020	.10	.120	.68	.80	.90	.020	.030	<3	3
24...	--	--	--	--	--	--	--	--	--	--	--
24...	.18	.020	.20	.140	.86	1.00	1.2	.020	.030	5	7
AUG											
01...	--	<.020	<.10	.130	.77	.90	--	.020	.050	110	43
01...	--	--	--	--	--	--	--	--	--	--	--
01...	--	.020	<.10	.150	.85	1.00	--	.040	.070	510	210

## TRINITY RIVER BASIN

GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

325822097030401 GRAPEVINE LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE	MAR 24,83	AUG 1,83
TIME	0801	1416
TOTAL CELLS/ML	3500	96000
DIVERSITY: DIVISION	1.5	0.3
..CLASS	1.5	0.3
..ORDER	1.7	1.4
...FAMILY	1.7	1.4
....GENUS	2.0	2.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)				
.BACILLARIOPHYCEAE				
..EUPODISCALES				
...COSCINODISCAEAE				
....CYCLOTELLA	2000#	56	*	0
....MELOSIRA	170	5	--	-
..FRAGILARIALES				
...FRAGILARIAEAE				
....SYNEDRA	--	-	700	1
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...MIRACTINIAEAE				
....GOLINKINIA	--	-	*	0
...OOCYSTACEAE				
....ANKISTRODESMUS	170	5	*	0
....OOCYSTIS	280	8	--	-
...SCENEDESMACEAE				
....CRUCIGENIA	--	-	560	1
....SCENEDESMUS	--	-	*	0
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	170	5	--	-
..ZYGNEMATALES				
...DESMIDIACEAE				
....STAUSTRUM	--	-	*	0
CHRYSOPHYTA				
.CHRYSOPHYCEAE				
..OCHROMONADALES				
...OCHROMONADACEAE				
....OCHROMONAS	--	-	700	1
CRYPTOPHYTA (CRYPTOMONADS)				
.CRYPTOPHYCEAE				
..CRYPTOMONADALES				
...CRYPTOMONADACEAE				
....CRYPTOMONAS	84	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..CHROOCOCCALES				
...CHROOCOCCACEAE				
....AGMENELLUM	--	-	2200	2
....ANACYSTIS	670#	19	6500	7
..NOSTOCALES				
...NOSTOCACEAE				
....ANABAENA	--	-	2500	3
....CYLINDROSPERMUM	--	-	17000#	17
..OSCILLATORIALES				
...OSCILLATORIAEAE				
....LYNGBYA	--	-	15000#	16
....OSCILLATORIA	--	-	49000#	51
EUGLENOPHYTA (EUGLENOIDS)				
.EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....EUGLENA	28	1	--	-
PYRRHOPHYTA (FIRE ALGAE)				
.DINOPHYCEAE				
..DINOKONTAE				
...GYMNODINIACEAE				
....GYMNODINIUM	--	-	*	0

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

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

## GRAPEVINE LAKE NEAR GRAPEVINE, TX--Continued

330207097103701 GRAPEVINE LAKE SITE EC

PHYTOPLANKTON ANALYSES, OCTOBER 1982 TO AUGUST 1983

DATE	MAR 24,83	AUG 1,83		
TIME	1031	1746		
TOTAL CELLS/ML	12000	210000		
DIVERSITY: DIVISION	1.7	0.2		
..CLASS	1.7	0.2		
...ORDER	2.0	1.4		
...FAMILY	2.1	1.4		
....GENUS	2.4	1.7		
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)				
.BACILLARIOPHYCEAE				
..BACILLARIALES				
...NITZSCHIAEAE				
....NITZSCHIA	140	1	1800	1
..EUPODISCALES				
...COSCINODISCAEAE				
....CYCLOTELLA	6900#	56	*	0
....MELOSIRA	280	2	--	-
..FRAGILARIALES				
...FRAGILARIAEAE				
....SYNEDRA	70	1	--	-
..NAVICULEALES				
...NAVICULACEAE				
....NAVICULA	70	1	--	-
CHLOROPHYTA (GREEN ALGAE)				
.CHLOROPHYCEAE				
..CHLOROCOCCALES				
...CHLOROCOCCACEAE				
....TETRAEDRON	70	1	*	0
...OOCYSTACEAE				
....ANKISTRODESMUS	910	7	*	0
....OOCYSTIS	910	7	--	-
...SCENEDESMACEAE				
....SCENEDESMUS	140	1	1400	1
..VOLVOCALES				
...CHLAMYDOMONADACEAE				
....CHLAMYDOMONAS	490	4	*	0
CHRYSOPHYTA				
.CHRYSOPHYCEAE				
..OCHROMONADALES				
...OCHROMONADACEAE				
....OCHROMONAS	420	3	*	0
CRYPTOPHYTA (CRYPTOMONADS)				
.CRYPTOPHYCEAE				
..CRYPTOMONADALES				
...CRYPTOMONADACEAE				
....CRYPTOMONAS	210	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)				
.CYANOPHYCEAE				
..CHROOCOCCALES				
...CHROOCOCCACEAE				
....AGMENELLUM	--	-	5600	3
....ANACYSTIS	1100	9	30000	14
..NOSTOCALES				
...NOSTOCACEAE				
....CYLINDROSPERMUM	--	-	28000	13
..OSCILLATORIALES				
...OSCILLATORIAEAE				
....LYNGBYA	--	-	7000	3
....OSCILLATORIA	--	-	130000#	64
EUGLENOPHYTA (EUGLENOIDS)				
.EUGLENOPHYCEAE				
..EUGLENALES				
...EUGLENACEAE				
....EUGLENA	140	1	--	-
....TRACHELOMONAS	420	3	*	0

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

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

## TRINITY RIVER BASIN

08055000 DENTON CREEK NEAR GRAPEVINE, TX

LOCATION.--Lat 32°59'13", long 97°00'45", Denton County, Hydrologic Unit 12030104, on left bank at downstream side of left pier of bridge on State Highway 121, 1.3 mi downstream from Bakers Branch, 4.1 mi downstream from Grapevine Dam, 5.0 mi northeast of Grapevine, and 6.1 mi upstream from mouth.

DRAINAGE AREA.--705 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1947 to current year.

Water-quality words.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.11 ft 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). The Corps of Engineers diverts water from Denton Creek just downstream from Grapevine Dam. Several observations of water temperature were made during the year. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--5 years (water years 1948-52), prior to regulation, 140 ft<sup>3</sup>/s (101,400 acre-ft/yr); 31 years (water years 1953-83), regulated, unadjusted, 158 ft<sup>3</sup>/s (114,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,900 ft<sup>3</sup>/s Feb. 26, 1948 (gage height, 30.38 ft), from rating curve extended above 6,000 ft<sup>3</sup>/s on basis of conveyance-slope study; no flow at times. Maximum discharge since construction of Grapevine Dam in 1952, 9,700 ft<sup>3</sup>/s Nov. 1, 1981 (gage height, 27.93 ft).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 was slightly higher than the flood in April 1942, which reached a stage of 35.9 ft, from floodmarks, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 588 ft<sup>3</sup>/s Dec. 14, time unknown (gage height, 10.12 ft, from floodmark); minimum daily, 12 ft<sup>3</sup>/s Nov. 24, 25, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	53	46	46	65	30	67	41	107	45	78	89
2	54	59	47	47	32	30	127	42	108	45	77	89
3	54	50	47	46	31	29	116	41	107	45	76	89
4	53	45	47	46	31	30	78	41	107	45	79	88
5	53	46	47	46	34	29	29	40	107	52	79	87
6	53	46	46	47	32	29	28	40	107	46	80	88
7	54	46	47	47	31	28	28	42	78	46	82	88
8	54	47	46	46	34	29	29	40	46	46	82	87
9	58	45	46	46	36	30	29	42	44	63	84	88
10	53	46	46	46	36	30	28	43	44	84	82	86
11	52	46	46	46	33	29	28	43	45	85	81	86
12	53	46	46	47	30	29	29	43	45	84	81	85
13	54	46	46	45	30	29	28	42	45	87	81	86
14	53	46	475	46	29	29	28	44	46	88	81	86
15	53	46	47	47	30	29	28	44	46	90	80	111
16	52	45	47	47	30	29	28	44	44	91	81	148
17	52	46	47	47	29	29	28	44	44	90	81	148
18	52	46	46	47	32	29	27	44	44	89	85	148
19	52	46	46	47	31	27	28	43	43	89	98	151
20	52	158	46	47	42	29	29	52	43	89	98	153
21	54	290	47	47	37	29	29	80	43	88	98	156
22	53	56	46	47	35	29	30	46	43	86	98	154
23	52	44	46	47	31	29	28	96	44	84	98	153
24	52	12	46	42	30	29	28	44	42	76	92	151
25	52	12	46	31	32	29	30	63	43	76	89	151
26	52	27	46	31	30	61	43	125	46	77	88	151
27	52	22	47	31	29	31	42	118	48	78	89	151
28	53	13	47	31	31	28	43	102	51	78	88	151
29	53	12	46	31	---	28	41	103	48	78	88	151
30	53	26	46	32	---	60	42	105	47	78	88	153
31	53	---	46	100	---	31	---	111	---	78	87	---
TOTAL	1643	1568	1866	1399	933	966	1196	1848	1755	2276	2649	3603
MEAN	53.0	52.3	60.2	45.1	33.3	31.2	39.9	59.6	58.5	73.4	85.5	120
MAX	58	290	475	100	65	61	127	125	108	91	98	156
MIN	52	12	46	31	29	27	27	40	42	45	76	85
AC-FT	3260	3110	3700	2770	1850	1920	2370	3670	3480	4510	5250	7150
CAL YR 1982	TOTAL	252599	MEAN	692	MAX	2020	MIN 12	AC-FT	501000			
WTR YR 1983	TOTAL	21702	MEAN	59.5	MAX	475	MIN 12	AC-FT	43050			



## TRINITY RIVER BASIN

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## 08055500 ELM FORK TRINITY RIVER NEAR CARROLLTON, TX

LOCATION.--Lat 32°57'57", long 96°56'39", Dallas County, Hydrologic Unit 12030103, near left bank at downstream side of bridge on Sandy Lake Road, 40 ft upstream from Carrollton Dam, 0.3 mi downstream from Denton Creek, 1.0 mi upstream from St. Louis Southwestern Railway Lines bridge, 2.3 mi northwest of Carrollton, and 18.2 mi upstream from mouth.

DRAINAGE AREA.--2,459 mi<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 National Geodetic Vertical Datum of 1929. Prior to November 1923, nonrecording gage at site 15.5 mi downstream at different datum. Nov. 1, 1923, to Nov. 13, 1934, nonrecording gage, and Nov. 14, 1934, to July 6, 1938, water-stage recorder at present site and datum. July 7, 1938, to Apr. 14, 1939, nonrecording gage at site 9.3 mi downstream at datum 22.94 ft lower. Apr. 15, 1939, to Sept. 30, 1955, water-stage recorder at site 8.5 mi downstream at datum 22.94 ft lower.

REMARKS.--Records good. Flow is largely regulated by Lewisville Lake (station 08052800) since November 1954 and by Grapevine Lake (station 08054500) since July 1952. The city of Dallas diverts water from pool at gage and from river 14 mi downstream for municipal use. A water treatment plant returns water to river below this station. In addition, the Dallas Power and Light Co. diverts water from pool at gage into North Lake for cooling water at their electric generating plant. Several observations of water temperature were made during the year. Gage-height telemeters located at station.

AVERAGE DISCHARGE.--47 years (water years 1908-54), prior to regulation by Lewisville and Grapevine Lakes, 818 ft<sup>3</sup>/s (592,600 acre-ft/yr); 29 years (water years 1955-83), regulated, unadjusted, 749 ft<sup>3</sup>/s (542,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, about 17 ft May 25, 1908, present site and datum, from information by local resident; estimated discharge, 145,000 ft<sup>3</sup>/s, at site 8.5 mi downstream (from information by Corps of Engineers); maximum gage height subsequent to 1908, 14.5 ft Apr. 26, 1942, present site and datum, from observation by National Weather Service; discharge at site 8.5 mi downstream, 90,700 ft<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, 2,560 ft<sup>3</sup>/s Jan. 31 at 2400 hours (gage height, 3.79 ft); no flow Nov. 22, Apr. 24, 25, May 7, 12 (result of pumping).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	15	49	50	1260	552	803	35	95	125	171	216
2	103	307	48	141	239	81	878	49	100	195	173	168
3	85	185	36	49	573	23	890	80	81	153	174	119
4	83	36	27	14	680	61	847	54	72	132	234	73
5	124	26	62	19	1200	111	756	44	80	192	194	149
6	176	41	165	17	1170	52	711	24	101	76	131	126
7	163	55	131	15	1110	34	708	9.2	80	104	161	132
8	57	54	120	22	1100	30	556	45	60	92	90	193
9	113	60	137	28	1100	11	300	85	37	88	135	208
10	34	90	215	95	1080	7.7	282	66	37	146	96	208
11	26	85	375	165	1070	6.8	260	11	100	137	137	204
12	39	113	221	120	1060	8.7	239	6.7	98	144	118	185
13	36	59	108	93	1050	12	257	24	69	127	119	188
14	43	58	169	89	1010	13	268	74	94	145	173	183
15	20	63	144	87	1010	11	141	22	65	142	192	153
16	38	71	113	88	1000	17	69	23	97	138	184	124
17	86	67	72	86	759	18	76	17	83	78	167	147
18	29	62	68	79	327	14	45	18	68	103	188	211
19	8.9	54	70	88	302	13	33	23	70	80	556	273
20	47	50	56	83	433	15	54	133	53	140	154	261
21	82	198	46	87	381	6.0	56	398	55	203	141	193
22	36	.36	37	94	322	3.4	50	37	90	122	152	190
23	48	18	31	88	381	8.6	43	660	93	136	139	165
24	34	32	57	88	726	5.9	14	70	162	158	133	162
25	30	36	68	69	710	2.0	1.9	48	218	180	123	148
26	36	168	412	61	680	80	17	88	163	159	129	144
27	72	212	645	79	671	140	45	119	86	143	190	149
28	69	38	130	85	701	136	41	125	72	134	184	187
29	53	3.8	32	101	---	129	44	128	43	160	182	201
30	60	25	14	101	---	668	102	219	46	171	172	177
31	72	---	65	808	---	867	---	185	---	208	165	---
TOTAL	2033.9	2282.16	3923	3089	22105	3137.1	8586.9	2919.9	2568	4311	5257	5237
MEAN	65.6	76.1	127	99.6	789	101	286	94.2	85.6	139	170	175
MAX	176	307	645	808	1260	867	890	660	218	208	556	273
MIN	8.9	.36	14	14	239	2.0	1.9	6.7	37	76	90	73
AC-FT	4030	4530	7780	6130	43850	6220	17030	5790	5090	8550	10430	10390

CAL YR 1982 TOTAL 988326.06 MEAN 2708 MAX 10900 MIN .36 AC-FT 1960000  
WTR YR 1983 TOTAL 65449.96 MEAN 179 MAX 1260 MIN .36 AC-FT 129800

## 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 downstream from Commerce Street viaduct in Dallas, 5.2 mi downstream from confluence of West and Elm Forks, and at mile 500.3.

DRAINAGE AREA.--6,106 mi<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 National Geodetic Vertical Datum of 1929. Oct. 1, 1898, to Dec. 31, 1899, nonrecording gage at site 2 mi upstream at different datum. July 1, 1903, to July 20, 1930, nonrecording gage at present site and datum. July 21, 1930, to Sept. 30, 1932, nonrecording gage at site 6 mi downstream at datum 3.08 ft lower.

REMARKS.--Records good. At times flow is affected by storage in seven upstream reservoirs, combined capacity 1,703,000 acre-ft, of which 846,200 acre-ft is for flood control. The city of Dallas diverts water for municipal use from Elm Fork, Lake Ray Hubbard (on the East Fork), and Lake Tawakoni (on the Sabine River), and purchases water from North Texas Municipal Water District (from the East Fork). Sewage effluent is returned to the river downstream from this station. The Trinity River Authority discharges sewage effluent into the river upstream from the station. For additional information on diversions and effluent returns upstream from this station, see stations 08048000, 08049200, and 08049500. Gage-height telemeters located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--80 years, 1,530 ft<sup>3</sup>/s (1,108,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 184,000 ft<sup>3</sup>/s May 25, 1908 (gage height, 52.6 ft), from rating curve extended above 109,000 ft<sup>3</sup>/s; minimum observed for periods 1903-6, 1920-75, 1.2 ft<sup>3</sup>/s July 4, 1953, result of storage behind temporary dam 4 mi upstream. Maximum stage since at least 1840, that of May 25, 1908.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1866 reached about the same stage as that of May 25, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,010 ft<sup>3</sup>/s Aug. 20 at 0645 hours (gage height, 31.43 ft); minimum daily, 211 ft<sup>3</sup>/s July 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	321	276	334	748	7060	1020	1930	408	1630	422	219	1040
2	272	2400	355	1520	4620	621	1260	415	671	402	219	1260
3	253	1960	316	858	1490	906	1190	503	535	405	229	433
4	256	449	322	520	1380	1060	1130	475	494	349	226	329
5	257	665	326	439	1660	1490	1060	389	685	2780	236	305
6	304	363	306	410	2050	1190	977	364	781	2350	214	311
7	467	265	306	393	1760	542	961	335	448	759	329	308
8	371	263	286	366	1900	481	922	321	402	446	428	304
9	1320	265	285	368	1580	446	698	331	584	394	1830	313
10	1180	263	929	363	1450	427	604	460	393	373	758	324
11	402	343	2490	347	1400	410	576	575	375	363	389	302
12	577	364	2150	395	1360	407	560	533	378	364	344	299
13	885	323	1210	345	1320	411	543	385	383	357	322	300
14	498	292	498	338	1310	418	538	427	3330	403	298	298
15	320	279	445	324	1260	419	528	457	7510	1420	290	288
16	286	278	392	324	1270	649	426	450	3520	921	283	288
17	269	279	391	326	1260	1040	382	376	665	522	290	280
18	266	282	364	322	1050	582	393	1120	485	344	315	280
19	272	306	333	343	778	447	374	594	504	322	4650	314
20	269	295	322	395	1580	475	360	2240	473	291	7730	378
21	529	362	320	363	1690	471	377	4070	408	277	2140	343
22	1070	350	317	328	1380	429	400	4480	388	265	614	304
23	562	288	318	322	1030	521	492	4420	382	260	448	294
24	329	288	304	321	1060	500	428	3530	375	242	389	276
25	291	289	310	317	1120	456	371	999	616	239	355	275
26	281	1640	1110	313	1030	3360	361	578	1330	248	342	281
27	270	4540	5170	310	1000	3120	350	516	862	236	321	280
28	451	2490	3660	310	1010	961	350	928	940	235	318	270
29	372	665	1080	303	---	678	357	728	1210	226	328	277
30	282	363	541	307	---	4410	375	568	523	220	306	301
31	267	---	536	2450	---	3320	---	2190	---	211	302	---
TOTAL	13749	21485	26026	15088	46858	31667	19273	34165	31280	16646	25462	10855
MEAN	444	716	840	487	1674	1022	642	1102	1043	537	821	362
MAX	1320	4540	5170	2450	7060	4410	1930	4480	7510	2780	7730	1260
MIN	253	263	285	303	778	407	350	321	375	211	214	270
AC-FT	27270	42620	51620	29930	92940	62810	38230	67770	62040	33020	50500	21530
CAL YR 1982	TOTAL	1723463	MEAN	4722	MAX	30100	MIN	253	AC-FT	3418000		
WTR YR 1983	TOTAL	292554	MEAN	802	MAX	7730	MIN	211	AC-FT	580300		

## TRINITY RIVER BASIN

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08057410 TRINITY RIVER BELOW DALLAS, TX

LOCATION.--Lat 32°42'26", long 96°44'08", Dallas County, Hydrologic Unit 12030105, on right bank at downstream side of bridge on South Loop Highway 12, 1.0 mi downstream from White Rock Creek, 1.5 mi upstream from Fivemile Creek, 6.4 mi southeast of Dallas County Courthouse in Dallas, and at mile 491.8.

DRAINAGE AREA.--6,278 mi<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 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, of which 846,200 acre-ft 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.--26 years (water years 1958-83), 1,812 ft<sup>3</sup>/s (1,313,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,700 ft<sup>3</sup>/s May 27, 1957 (gage height, 32.02 ft); minimum daily, 131 ft<sup>3</sup>/s Dec. 9, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 25, 1908, reached a stage of 41.1 ft, 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, 8,260 ft<sup>3</sup>/s Aug. 20 at 1500 hours (gage height, 22.73 ft); minimum daily, 468 ft<sup>3</sup>/s Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	546	540	723	1090	7450	1310	2720	654	2130	657	498	1280
2	498	2180	1220	1780	6560	998	1760	654	1080	593	500	1610
3	468	2670	1340	1420	2540	1090	1620	830	879	591	508	797
4	478	1070	885	983	1740	1440	1490	791	784	521	511	582
5	484	706	712	819	1940	2050	1440	645	979	2720	484	539
6	496	609	666	766	2220	1670	1370	594	1390	3280	499	561
7	715	577	654	722	1990	965	1320	545	1000	1470	598	567
8	603	581	593	680	1990	840	1200	518	792	792	806	553
9	1430	574	600	659	1860	764	990	530	843	634	2010	567
10	1620	548	987	668	1700	733	842	722	661	569	1330	567
11	771	639	2160	635	1640	711	837	988	599	576	744	545
12	781	685	1910	696	1590	664	832	957	587	584	604	547
13	1230	668	1120	634	1530	638	837	687	601	546	576	558
14	914	592	985	616	1520	654	852	687	2640	644	527	558
15	609	597	883	606	1490	643	835	809	6740	1490	517	543
16	541	586	770	584	1480	920	700	782	4630	1340	530	550
17	508	568	732	586	1460	1340	601	624	1140	976	539	536
18	509	563	694	588	1360	1050	619	1460	740	701	554	532
19	526	592	656	599	1100	724	599	1170	722	641	3550	596
20	545	585	638	668	1890	729	585	2560	710	598	7710	705
21	728	605	634	643	2660	753	599	4200	612	566	4250	667
22	1380	671	631	586	1990	678	626	5700	593	553	1260	599
23	1040	579	626	562	1520	758	751	4860	553	537	820	568
24	629	599	599	568	1390	808	702	4700	591	505	681	536
25	556	585	583	571	1450	735	612	1800	776	520	624	521
26	538	1480	989	564	1330	3040	579	1030	1660	534	606	539
27	514	4530	4590	575	1280	4220	561	882	1160	524	561	550
28	664	3560	4950	558	1280	1740	568	1370	1300	522	555	545
29	758	1360	1950	542	---	1050	585	1270	1490	513	582	547
30	622	807	1020	540	---	4080	597	942	868	498	564	564
31	533	---	874	2450	---	4660	---	2440	---	482	563	---
TOTAL	22234	30906	36374	23958	57950	42455	28229	46401	39250	25677	34661	18929
MEAN	717	1030	1173	773	2070	1370	941	1497	1308	828	1118	631
MAX	1620	4530	4950	2450	7450	4660	2720	5700	6740	3280	7710	1610
MIN	468	540	583	540	1100	638	561	518	553	482	484	521
AC-FT	44100	61300	72150	47520	114900	84210	55990	92040	77850	50930	68750	37550
CAL YR 1982	TOTAL	1804614	MEAN	4944	MAX	27500	MIN	468	AC-FT	3579000		
WTR YR 1983	TOTAL	407024	MEAN	1115	MAX	7710	MIN	468	AC-FT	807300		

## TRINITY RIVER BASIN

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1971 to September 1981.

## 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.--Beginning October 1976, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1967-68, 1973-83): Maximum, 1,130 micromhos Dec. 17, 1977; minimum, 148 micromhos May 16, 1982.

pH (1976-82): Maximum, 8.8 units Jan. 23, 1980; minimum, 6.8 units Sept. 17, 18, 1981.

WATER TEMPERATURES (1967-68, 1973-82): Maximum, 34.0°C June 30, Aug. 31, 1977; minimum, 4.0°C Jan. 10, 1968.

DISSOLVED OXYGEN: Maximum, 12.5 mg/L Feb. 8, 1982; minimum, 0.0 mg/L on many days during spring and summer of 1977-81.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 910 micromhos Aug. 5; minimum, 216 micromhos Aug. 19.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT 27...	1030	514	742	7.5	19.5	5.0	55	12	150	0
DEC 15...	1415	883	664	7.8	14.0	7.9	77	9.0	180	32
MAR 15...	1510	643	768	7.2	20.0	6.8	77	14	180	20
APR 26...	0950	573	816	7.4	19.5	5.2	57	28	190	19
JUL 20...	1500	598	702	7.2	30.0	4.8	64	13	150	0
SEP 14...	1405	558	780	7.2	28.5	3.8	49	15	140	0
DATE		CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 27...	49	5.6	90	3.4	11	150	87	71	1.3	
DEC 15...	64	5.3	59	2.0	9.6	150	100	48	.80	
MAR 15...	62	6.1	82	2.8	9.8	160	100	62	1.1	
APR 26...	64	7.0	90	3.0	9.3	170	110	78	1.0	
JUL 20...	50	5.5	81	3.0	12	150	95	65	1.0	
SEP 14...	47	5.9	99	3.8	14	150	94	79	1.2	
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)
OCT 27...	12	417	4.6	1.00	5.6	3.10	6.9	10.0	3.50	
DEC 15...	10	387	2.9	.400	3.3	2.00	1.8	3.80	2.50	
MAR 15...	8.9	428	2.9	1.00	3.9	2.30	1.7	4.00	3.90	
APR 26...	9.2	470	3.4	1.20	4.6	3.20	4.3	7.50	3.40	
JUL 20...	12	411	2.0	.370	2.4	2.30	.70	3.00	3.40	
SEP 14...	12	442	3.0	1.00	4.0	4.00	4.0	8.00	3.90	



## TRINITY RIVER BASIN

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08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	22234	642	369	22100	47	2790	84	5020	170
NOV.	1982	30906	588	338	28200	42	3470	77	6380	160
DEC.	1982	36374	567	326	32000	39	3840	74	7240	160
JAN.	1983	23958	689	395	25600	52	3370	90	5820	170
FEB.	1983	57950	526	303	47400	34	5350	68	10700	160
MAR.	1983	42455	597	344	39400	42	4820	78	8910	160
APR.	1983	28229	668	384	29200	50	3800	87	6650	170
MAY	1983	46401	558	321	40200	38	4780	72	9080	160
JUNE	1983	39250	570	328	34800	39	4150	74	7850	160
JULY	1983	25677	654	376	26000	49	3360	85	5910	170
AUG.	1983	34661	551	317	29700	38	3590	72	6700	150
SEPT	1983	18929	731	419	21400	57	2930	96	4880	170
TOTAL		407024	**	**	376000	**	46300	**	85100	**
WTD. AVG.		1115	595	342	**	42	**	77	**	160

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	750	722	740	730	688	707	---	---	697	---	---	613
2	768	750	759	726	352	530	---	---	591	---	---	525
3	820	756	785	484	394	449	---	---	574	---	---	564
4	804	754	779	---	---	600	---	---	654	---	---	634
5	818	760	790	---	---	703	---	---	701	---	---	671
6	822	774	797	---	---	736	---	---	716	---	---	685
7	808	716	757	---	---	748	---	---	720	---	---	698
8	714	616	652	---	---	747	---	---	743	---	---	711
9	762	454	576	---	---	750	---	---	740	---	---	740
10	626	438	558	---	---	761	---	---	633	---	---	765
11	584	494	526	---	---	725	544	444	503	796	766	780
12	632	514	588	---	---	710	494	454	465	798	744	773
13	630	516	561	---	---	715	604	480	519	802	754	771
14	638	580	604	---	---	743	---	---	633	806	764	787
15	620	568	594	---	---	741	---	---	655	788	742	768
16	680	624	657	---	---	745	---	---	684	778	734	758
17	696	670	684	---	---	752	---	---	695	770	718	748
18	726	676	703	---	---	754	---	---	707	798	748	771
19	760	722	743	---	---	743	---	---	719	786	742	766
20	758	700	733	---	---	746	---	---	726	770	744	761
21	766	474	675	---	---	738	---	---	725	776	742	761
22	646	468	552	---	---	714	---	---	728	784	732	760
23	630	548	586	788	716	763	---	---	730	784	706	744
24	590	544	567	778	724	752	---	---	740	768	706	739
25	662	592	614	750	718	737	---	---	746	784	728	754
26	716	670	692	758	392	576	---	---	632	800	742	772
27	744	710	727	410	352	386	528	326	415	758	734	749
28	740	490	705	464	380	418	442	332	376	794	758	776
29	620	446	582	---	---	571	---	---	509	794	746	776
30	676	626	650	---	---	674	---	---	626	840	716	768
31	708	674	690	---	---	---	---	---	674	784	236	531
MONTH	822	438	665	788	352	681	604	326	644	840	236	723



## TRINITY RIVER BASIN

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	470	380	437	620	590	607	---	---	482	810	730	775
2	442	374	407	---	---	656	---	---	552	778	728	752
3	574	---	518	---	---	638	---	---	566	764	730	743
4	---	---	553	---	---	586	---	---	580	744	720	729
5	---	---	535	648	336	511	---	---	586	744	730	738
6	---	---	514	---	---	560	---	---	595	770	740	752
7	---	---	521	---	---	662	---	---	602	784	752	773
8	---	---	521	---	---	691	---	---	620	784	730	764
9	---	---	542	---	---	711	---	---	657	786	724	755
10	---	---	557	---	---	720	---	---	715	810	630	752
11	---	---	563	---	---	727	---	---	717	708	608	652
12	---	---	568	---	---	742	---	---	718	770	706	742
13	---	---	576	---	---	751	750	714	733	766	722	745
14	---	---	577	---	---	745	740	706	716	764	636	741
15	---	---	580	794	768	776	740	706	719	710	588	652
16	---	---	581	794	616	710	780	724	736	754	706	729
17	---	---	584	748	616	681	806	768	788	768	722	750
18	---	---	597	718	634	679	798	744	776	760	414	571
19	---	---	636	752	720	734	818	778	801	632	500	554
20	---	---	540	770	712	732	820	774	799	582	---	516
21	---	---	486	764	720	739	826	790	805	---	---	446
22	---	---	585	788	764	775	790	750	770	442	388	409
23	---	---	577	792	740	770	830	778	805	426	222	428
24	---	---	593	756	718	732	774	732	744	---	---	433
25	754	594	598	776	758	766	782	738	755	---	---	573
26	610	590	599	780	398	545	832	788	805	---	---	674
27	610	582	599	520	468	491	848	796	824	---	---	706
28	610	580	595	---	---	553	834	788	811	---	---	620
29	---	---	---	---	---	671	862	802	822	---	---	634
30	---	---	---	712	408	481	838	804	824	---	---	692
31	---	---	---	488	416	452	---	---	---	---	---	523
MONTH	754	374	555	794	336	664	862	706	714	810	222	656

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	500	652	576	601	812	748	771	808	362	579
2	---	---	615	684	656	669	808	766	786	676	478	567
3	---	---	656	686	630	661	846	806	820	632	558	587
4	---	---	680	662	642	652	846	788	811	618	580	595
5	---	---	634	674	308	518	910	804	834	642	622	631
6	---	---	575	---	---	407	842	808	823	682	636	656
7	670	592	640	---	---	675	838	624	776	898	692	729
8	744	668	702	---	---	728	786	558	660	788	742	763
9	772	692	724	---	---	777	668	252	442	760	696	739
10	---	---	767	---	---	802	592	488	531	762	740	749
11	---	---	790	---	---	799	678	500	573	758	704	725
12	---	---	795	---	---	796	724	680	695	744	696	724
13	478	320	387	---	---	812	748	726	737	746	718	730
14	770	442	615	---	---	774	736	702	724	786	732	758
15	516	350	432	---	---	600	762	706	733	828	786	804
16	540	458	489	---	---	610	790	738	772	870	822	844
17	668	534	616	---	---	630	794	762	777	872	812	846
18	676	658	663	---	---	720	794	764	782	858	788	830
19	714	594	657	---	---	740	784	216	400	848	774	810
20	708	---	457	724	700	711	406	360	374	786	686	750
21	792	---	511	746	720	731	456	356	394	756	724	743
22	796	760	781	762	730	745	600	462	533	816	770	790
23	822	770	791	776	750	763	682	610	645	824	796	810
24	808	774	793	788	720	759	712	680	696	854	806	839
25	832	630	786	786	702	742	760	704	731	878	796	846
26	770	532	603	782	742	756	790	756	768	874	776	817
27	634	512	579	790	758	773	800	776	787	868	808	837
28	608	476	537	782	750	766	794	756	778	882	774	827
29	526	434	481	822	772	797	792	724	762	828	766	797
30	574	438	512	832	800	810	804	764	787	836	768	793
31	---	---	---	824	764	795	810	784	800	---	---	---
MONTH	832	320	626	832	308	714	910	216	694	898	362	751

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.3	7.2	7.2	7.2	7.1	7.2	---	---	---	---	---	---
2	7.3	7.2	7.2	7.3	7.2	7.3	---	---	---	---	---	---
3	7.3	7.1	7.2	7.3	7.2	7.3	---	---	---	---	---	---
4	7.2	7.0	7.1	---	---	7.3	---	---	---	---	---	---
5	7.2	7.1	7.2	---	---	7.3	---	---	---	---	---	---
6	7.3	7.1	7.2	7.5	7.1	7.3	---	---	---	---	---	---
7	7.3	7.2	7.3	7.6	7.2	7.4	---	---	---	---	---	---
8	7.3	7.1	7.2	7.7	7.4	7.5	---	---	---	---	---	---
9	7.3	7.2	7.3	7.7	7.5	7.6	---	---	---	---	---	---
10	7.3	7.2	7.3	---	---	---	---	---	---	---	---	---
11	7.2	7.1	7.2	---	---	---	7.5	7.4	7.4	7.5	7.4	7.5
12	7.2	7.1	7.1	---	---	---	7.4	7.4	7.4	7.6	7.5	7.5
13	7.3	7.1	7.2	---	---	---	7.5	7.4	7.4	7.5	7.4	7.5
14	7.3	7.2	7.2	---	---	---	---	---	---	7.5	7.4	7.5
15	7.2	7.0	7.1	---	---	---	---	---	---	7.5	7.4	7.4
16	7.2	7.1	7.1	---	---	---	---	---	---	7.4	7.4	7.4
17	7.2	7.1	7.2	---	---	---	---	---	---	7.5	7.3	7.4
18	7.2	7.1	7.2	---	---	---	---	---	---	7.5	7.4	7.4
19	7.2	7.1	7.2	---	---	---	---	---	---	7.5	7.3	7.4
20	7.2	7.2	7.2	---	---	---	---	---	---	7.5	7.4	7.5
21	7.3	7.2	7.2	---	---	---	---	---	---	7.6	7.4	7.5
22	7.4	7.2	7.3	7.3	7.2	7.2	---	---	---	7.5	7.4	7.5
23	7.3	7.2	7.3	7.3	7.2	7.2	---	---	---	7.6	7.4	7.4
24	7.3	7.1	7.2	7.2	7.2	7.2	---	---	---	7.5	7.4	7.5
25	7.2	7.1	7.2	7.3	7.2	7.2	---	---	---	7.5	7.3	7.4
26	7.2	7.1	7.2	7.5	7.2	7.3	---	---	---	7.4	7.4	7.4
27	7.3	7.2	7.2	7.4	7.3	7.3	7.6	7.4	7.5	7.5	7.4	7.4
28	7.3	7.2	7.2	7.3	7.2	7.3	7.6	7.4	7.5	7.5	7.4	7.5
29	7.3	7.2	7.2	---	---	---	---	---	---	7.5	7.3	7.4
30	7.3	7.2	7.2	---	---	---	---	---	---	7.5	7.3	7.4
31	7.3	7.1	7.2	---	---	---	---	---	---	7.7	7.3	7.4
MONTH	7.4	7.0	7.2	7.7	7.1	7.3	7.6	7.4	7.4	7.7	7.3	7.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.7	7.4	7.4	7.5	7.4	7.5	7.5	7.2	7.4	7.5	7.4	7.4
2	7.8	7.7	7.7	7.8	---	7.4	7.3	7.2	7.2	7.4	7.3	7.4
3	7.7	7.5	7.6	7.9	---	---	7.3	7.2	7.3	7.4	7.4	7.4
4	---	---	---	7.4	---	---	7.5	7.3	7.4	7.5	7.4	7.4
5	---	---	---	7.6	7.2	7.4	---	---	---	7.4	7.4	7.4
6	---	---	---	8.3	---	---	---	---	---	7.4	7.4	7.4
7	---	---	---	8.3	---	---	---	---	---	7.4	7.4	7.4
8	---	---	---	7.6	---	---	---	---	---	7.4	7.3	7.4
9	---	---	---	7.7	---	---	---	---	---	7.4	7.3	7.4
10	---	---	---	8.0	---	---	---	---	---	7.4	7.3	7.4
11	---	---	---	7.8	---	---	---	---	---	7.5	7.4	7.4
12	---	---	---	7.9	---	---	---	---	---	7.5	7.4	7.4
13	---	---	---	7.9	---	---	7.5	7.4	7.4	7.4	7.3	7.4
14	---	---	---	7.8	---	---	7.5	7.4	7.5	7.5	7.3	7.4
15	---	---	---	7.9	---	---	7.5	7.4	7.5	7.4	7.4	7.4
16	---	---	---	7.4	7.3	7.4	7.5	7.4	7.4	7.5	7.4	7.5
17	---	---	---	7.5	7.3	7.4	7.4	7.4	7.4	7.4	7.3	7.4
18	---	---	---	7.6	7.4	7.5	7.4	7.3	7.4	7.5	7.4	7.4
19	---	---	---	7.4	7.3	7.4	7.4	7.3	7.4	7.5	7.4	7.4
20	---	---	---	7.6	7.4	7.4	7.4	7.3	7.4	7.5	7.4	7.4
21	---	---	---	7.5	7.4	7.4	7.5	7.3	7.4	---	---	---
22	---	---	---	7.4	7.4	7.4	7.5	7.4	7.4	7.6	7.5	7.5
23	---	---	---	7.5	7.4	7.4	7.5	7.4	7.4	7.5	7.5	7.5
24	---	---	---	7.5	7.4	7.4	7.4	7.4	7.4	---	---	---
25	---	---	---	7.5	7.4	7.4	7.4	7.3	7.4	---	---	---
26	7.6	7.5	7.5	7.8	7.4	7.6	7.4	7.3	7.4	---	---	---
27	7.8	7.5	7.6	7.7	7.5	7.6	7.4	7.3	7.4	---	---	---
28	7.6	7.5	7.5	7.7	7.4	7.5	7.4	7.3	7.4	---	---	---
29	---	---	---	7.6	7.4	7.4	7.4	7.3	7.4	---	---	---
30	---	---	---	7.7	7.4	7.6	7.4	7.4	7.4	---	---	---
31	---	---	---	7.5	7.5	7.5	---	---	---	---	---	---
MONTH	7.8	7.4	7.6	8.3	7.2	7.5	7.5	7.2	7.4	7.6	7.3	7.4

## TRINITY RIVER BASIN

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	7.0	7.0	7.0	7.3	7.2	7.3	7.3	7.2	7.2
2	---	---	---	7.1	7.0	7.1	7.3	7.2	7.2	7.4	7.2	7.3
3	---	---	---	7.1	7.0	7.1	7.3	7.2	7.3	7.2	7.1	7.2
4	---	---	---	7.1	7.0	7.0	7.3	7.2	7.3	7.2	7.2	7.2
5	---	---	---	7.5	7.0	7.2	7.5	7.2	7.3	7.2	7.1	7.2
6	---	---	---	7.4	7.1	7.2	7.3	7.2	7.3	7.2	7.1	7.2
7	7.4	7.4	7.4	7.1	7.0	7.0	7.3	7.2	7.2	9.9	7.1	7.5
8	7.4	7.3	7.4	7.0	7.0	7.0	7.3	7.1	7.2	7.9	7.2	7.4
9	7.4	7.3	7.3	7.1	7.0	7.0	7.6	7.2	7.3	7.3	7.2	7.2
10	7.3	7.1	7.2	7.1	7.1	7.1	7.3	7.2	7.3	7.3	7.2	7.3
11	7.2	7.0	7.1	7.4	7.1	7.2	7.3	7.2	7.2	7.2	7.2	7.2
12	7.1	7.0	7.0	7.4	7.2	7.3	7.3	7.2	7.3	7.2	7.1	7.2
13	7.0	7.0	7.0	8.0	---	7.3	7.3	7.2	7.3	7.2	7.1	7.2
14	7.3	7.0	7.1	8.0	---	7.2	7.3	7.2	7.3	7.2	7.1	7.2
15	7.2	7.1	7.2	7.3	7.1	7.2	7.2	7.1	7.2	7.2	7.1	7.2
16	7.2	7.1	7.1	7.2	7.1	7.1	7.2	7.2	7.2	7.2	7.1	7.2
17	7.1	7.0	7.1	7.4	7.1	7.2	7.2	7.2	7.2	7.2	7.1	7.1
18	7.0	7.0	7.0	---	---	---	7.2	7.1	7.2	7.2	7.1	7.1
19	7.1	---	7.0	---	---	---	7.5	7.2	7.4	7.2	7.1	7.2
20	7.2	7.0	7.1	7.3	7.2	7.2	7.4	7.4	7.4	7.2	7.1	7.1
21	7.3	7.1	7.2	7.3	7.2	7.3	7.3	7.2	7.3	7.2	7.1	7.2
22	7.4	7.3	7.3	7.3	7.2	7.3	7.3	7.2	7.3	7.3	7.1	7.2
23	7.6	7.3	7.4	7.3	7.3	7.3	7.3	7.2	7.3	7.2	7.1	7.2
24	7.4	7.3	7.3	7.3	7.2	7.3	7.3	7.3	7.3	7.3	7.1	7.2
25	7.4	7.3	7.4	7.3	7.2	7.3	7.3	7.2	7.3	7.2	7.1	7.2
26	7.5	7.3	7.4	7.3	7.2	7.3	7.3	7.2	7.3	7.3	7.1	7.2
27	7.4	7.3	7.3	7.3	7.2	7.3	7.3	7.2	7.3	7.2	7.1	7.2
28	7.3	7.2	7.3	7.3	7.2	7.3	7.3	7.2	7.3	7.3	7.1	7.2
29	7.2	7.1	7.2	7.3	7.2	7.3	7.3	7.2	7.3	7.3	7.1	7.2
30	7.0	7.0	7.0	7.3	7.3	7.3	7.2	7.2	7.2	7.2	7.1	7.2
31	---	---	---	7.3	7.2	7.3	7.2	7.1	7.2	---	---	---
MONTH	7.6	7.0	7.2	8.0	7.0	7.2	7.6	7.1	7.3	9.9	7.1	7.2

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	26.5	25.5	26.0	24.0	23.0	23.5	---	---	---	---	---	---
2	27.0	25.5	26.5	24.0	18.5	21.0	---	---	---	---	---	---
3	27.5	26.5	27.0	19.0	18.0	18.5	17.5	15.0	16.5	---	---	---
4	28.0	27.0	27.0	21.5	15.5	19.0	18.0	12.0	15.5	---	---	---
5	27.5	26.5	27.0	---	---	---	---	---	---	---	---	---
6	27.5	26.5	27.0	---	---	---	---	---	---	---	---	---
7	27.5	26.5	27.0	---	---	---	---	---	---	---	---	---
8	27.5	26.5	27.0	---	---	---	---	---	---	---	---	---
9	27.5	24.0	25.0	---	---	---	---	---	---	---	---	---
10	24.5	23.0	23.5	---	---	---	---	---	---	---	---	---
11	23.0	22.0	22.5	---	---	---	13.0	11.0	12.0	14.5	13.5	14.5
12	23.0	21.0	22.0	---	---	---	10.5	9.0	9.5	14.5	12.5	13.5
13	22.0	20.5	21.5	---	---	---	10.5	9.0	10.0	15.0	12.5	14.0
14	23.0	21.5	22.0	---	---	---	---	---	---	15.5	14.0	15.0
15	23.0	21.0	22.5	---	---	---	---	---	---	15.0	13.0	14.0
16	23.5	22.0	22.5	---	---	---	---	---	---	14.0	12.0	13.0
17	23.5	22.0	23.0	---	---	---	---	---	---	14.5	13.0	14.0
18	24.0	22.5	23.5	---	---	---	---	---	---	15.0	13.5	14.5
19	24.5	23.5	24.0	---	---	---	---	---	---	14.0	12.5	13.0
20	24.0	21.5	22.5	---	---	---	---	---	---	12.5	11.5	12.0
21	22.0	17.5	20.5	---	---	---	---	---	---	12.5	11.0	12.0
22	19.0	18.0	18.5	20.5	19.0	20.0	---	---	---	12.5	11.0	11.5
23	19.5	18.5	19.0	21.5	18.5	20.5	---	---	---	12.5	9.0	11.5
24	19.5	18.0	19.0	18.0	15.5	16.5	---	---	---	13.5	11.5	12.5
25	20.0	18.0	19.0	16.0	15.0	15.5	---	---	---	14.0	12.0	13.5
26	20.0	18.5	19.5	16.0	11.5	13.5	---	---	---	14.5	12.5	13.5
27	21.0	19.0	20.0	11.5	10.5	11.0	---	---	---	12.5	11.0	12.0
28	22.0	20.0	21.0	12.0	10.0	11.0	---	---	---	13.5	12.0	12.5
29	20.5	19.5	20.0	---	---	---	---	---	---	15.0	13.0	14.0
30	21.5	19.5	20.5	---	---	---	---	---	---	15.0	12.5	14.0
31	23.0	21.5	22.5	---	---	---	---	---	---	15.5	12.0	14.0
MONTH	28.0	17.5	23.0	24.0	10.0	17.5	18.0	9.0	12.5	15.5	9.0	13.5

## TRINITY RIVER BASIN

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08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	12.0	10.5	11.0	---	---	---	17.0	16.0	16.5	24.0	23.5	23.5
2	10.5	8.5	9.0	---	---	---	16.5	15.0	15.5	23.5	22.0	23.0
3	---	---	---	---	---	---	18.5	11.5	15.0	22.0	20.5	21.5
4	---	---	---	---	---	---	18.5	17.5	18.0	22.5	21.0	22.0
5	---	---	---	---	---	---	---	---	---	23.5	21.5	22.5
6	---	---	---	---	---	---	---	---	---	23.5	21.5	22.5
7	---	---	---	---	---	---	---	---	---	24.5	23.0	23.5
8	---	---	---	---	---	---	---	---	---	24.0	23.0	23.5
9	---	---	---	---	---	---	---	---	---	23.0	21.5	22.5
10	---	---	---	---	---	---	---	---	---	22.0	21.0	21.5
11	---	---	---	---	---	---	---	---	---	22.5	21.0	21.5
12	---	---	---	---	---	---	---	---	---	24.0	22.5	23.0
13	---	---	---	---	---	---	---	---	---	24.5	23.5	24.0
14	---	---	---	---	---	---	20.0	18.5	19.0	24.5	23.5	24.5
15	---	---	---	---	---	---	18.5	17.5	18.0	23.0	21.5	22.0
16	---	---	---	20.0	19.0	19.5	19.0	17.5	18.5	23.0	21.0	22.0
17	---	---	---	19.0	16.5	17.5	20.0	18.0	19.5	23.0	22.0	22.5
18	---	---	---	16.5	14.5	16.0	21.0	19.0	20.0	23.0	21.0	22.0
19	---	---	---	17.0	15.5	16.5	20.5	18.5	19.5	24.0	21.5	22.5
20	---	---	---	16.0	14.5	15.0	18.5	17.5	18.0	23.5	21.5	22.0
21	---	---	---	15.0	13.0	14.5	18.0	17.0	17.5	22.5	20.0	21.5
22	---	---	---	15.5	14.0	15.0	20.0	18.5	19.0	23.0	21.0	21.5
23	---	---	---	15.5	14.0	14.5	19.5	18.5	19.0	23.0	22.5	22.5
24	---	---	---	15.5	13.5	14.5	20.0	18.0	19.0	---	---	---
25	19.0	14.5	17.0	15.5	14.0	15.0	20.5	18.5	19.5	---	---	---
26	14.5	12.5	13.5	15.5	13.5	14.0	21.0	19.5	20.5	---	---	---
27	14.0	12.0	13.0	14.5	13.0	14.0	21.5	20.5	21.0	---	---	---
28	15.0	12.5	13.5	---	13.0	---	23.0	21.5	22.0	---	---	---
29	---	---	---	---	---	---	23.0	22.5	22.5	---	---	---
30	---	---	---	17.0	---	15.0	23.5	22.5	23.0	---	---	---
31	---	---	---	17.0	14.5	15.0	---	---	---	---	---	---
MONTH	19.0	8.5	13.0	20.0	13.0	15.5	23.5	11.5	19.0	24.5	20.0	22.5

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

## TRINITY RIVER BASIN

08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	4.7	4.2	4.5	9.4	4.7	8.0	---	---	---	---	---	---
2	4.7	4.1	4.5	9.4	5.6	7.4	---	---	---	---	---	---
3	4.6	3.9	4.3	13.4	7.4	9.1	13.2	---	9.8	---	---	---
4	4.6	4.0	4.4	13.5	6.6	10.2	---	---	---	---	---	---
5	4.8	4.2	4.5	---	---	---	---	---	---	---	---	---
6	4.6	4.1	4.3	---	---	---	---	---	---	---	---	---
7	4.2	3.0	3.7	---	---	---	---	---	---	---	---	---
8	3.9	3.3	3.7	---	---	---	---	---	---	---	---	---
9	5.0	3.5	4.3	---	---	---	---	---	---	---	---	---
10	5.3	4.4	4.9	---	---	---	---	---	---	---	---	---
11	5.2	4.8	5.0	---	---	---	9.7	8.6	9.2	8.2	7.8	7.9
12	5.3	4.8	5.0	---	---	---	10.2	8.8	9.8	8.7	7.8	8.2
13	5.5	4.9	5.2	---	---	---	13.7	8.9	11.4	8.7	7.3	8.2
14	5.5	5.0	5.2	---	---	---	---	---	---	7.5	7.0	7.2
15	5.4	4.9	5.3	---	---	---	---	---	---	8.3	7.0	7.6
16	5.2	4.7	5.0	---	---	---	---	---	---	8.3	7.9	8.2
17	5.1	4.6	4.8	---	---	---	---	---	---	8.3	7.5	8.0
18	4.9	4.2	4.6	---	---	---	---	---	---	7.6	7.1	7.4
19	4.8	4.1	4.5	---	---	---	---	---	---	7.5	7.1	7.3
20	5.3	4.2	4.8	---	---	---	---	---	---	9.0	7.6	8.3
21	7.1	5.0	5.8	---	---	---	---	---	---	9.0	8.7	8.9
22	7.4	6.5	6.9	5.6	5.2	5.5	---	---	---	9.3	8.4	8.9
23	6.5	5.8	6.2	5.4	4.2	4.9	---	---	---	9.6	9.0	9.3
24	6.4	6.1	6.2	9.2	5.4	7.7	---	---	---	9.3	8.4	9.0
25	6.3	5.9	6.1	7.6	7.2	7.4	---	---	---	8.4	7.8	8.2
26	5.9	5.2	5.7	10.2	7.4	8.8	---	---	---	8.0	7.5	7.8
27	5.5	4.8	5.2	10.5	10.0	10.2	---	---	---	8.1	6.1	7.2
28	5.4	4.4	5.0	10.0	9.5	9.7	---	---	---	6.3	5.7	6.0
29	6.7	4.8	5.3	---	---	---	---	---	---	6.4	5.9	6.2
30	5.5	5.0	5.3	---	---	---	---	---	---	6.4	4.4	6.1
31	9.7	5.0	7.8	---	---	---	---	---	---	8.5	4.8	6.6
MONTH	9.7	3.0	5.1	13.5	4.2	8.1	13.7	8.6	10.1	9.6	4.4	7.7

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	7.5	2.9	4.9	9.2	7.4	8.4	7.1	3.0	5.1	4.8	4.1	4.5
2	8.5	6.6	7.8	---	---	---	---	---	---	4.7	4.1	4.4
3	---	---	---	---	---	---	---	---	---	5.1	4.1	4.6
4	---	---	---	---	---	---	---	---	---	5.2	4.8	5.0
5	---	---	---	---	---	---	---	---	---	5.1	4.4	4.8
6	---	---	---	---	---	---	---	---	---	5.0	4.2	4.7
7	---	---	---	---	---	---	---	---	---	4.9	4.4	4.7
8	---	---	---	---	---	---	---	---	---	5.2	4.4	4.8
9	---	---	---	---	---	---	---	---	---	5.2	4.3	4.9
10	---	---	---	---	---	---	---	---	---	5.2	4.4	4.9
11	---	---	---	---	---	---	---	---	---	5.4	4.8	5.1
12	---	---	---	---	---	---	---	---	---	5.1	4.7	5.0
13	---	---	---	---	---	---	---	---	---	4.9	4.4	4.8
14	---	---	---	---	---	---	6.9	6.4	6.7	5.1	4.2	4.7
15	---	---	---	---	---	---	6.9	6.7	6.8	5.8	4.1	5.0
16	---	---	---	6.3	5.4	5.8	6.8	6.4	6.6	5.8	5.5	5.6
17	---	---	---	6.5	5.5	6.1	6.4	6.1	6.3	5.7	5.1	5.4
18	---	---	---	7.3	6.5	6.8	6.3	5.9	6.1	6.3	4.1	5.4
19	---	---	---	6.7	6.0	6.4	6.3	5.5	6.0	5.7	5.1	5.4
20	---	---	---	6.9	6.0	6.6	6.5	5.7	6.1	6.0	3.5	5.0
21	---	---	---	7.4	6.9	7.1	6.4	5.9	6.2	5.9	4.1	4.9
22	---	---	---	7.0	6.5	6.8	6.1	5.6	5.9	6.0	4.7	5.4
23	---	---	---	7.0	6.8	6.9	6.0	5.5	5.8	5.1	3.5	4.3
24	---	---	---	7.1	6.9	7.0	5.8	5.5	5.7	---	---	---
25	---	---	---	6.9	6.4	6.7	5.8	5.2	5.5	---	---	---
26	8.0	7.4	7.7	8.6	6.6	7.6	5.7	5.1	5.4	---	---	---
27	10.8	4.5	8.1	9.7	7.0	7.7	5.4	4.9	5.2	---	---	---
28	12.3	9.2	10.9	---	---	---	5.2	4.6	5.0	---	---	---
29	---	---	---	---	---	---	5.1	4.4	4.8	---	---	---
30	---	---	---	10.5	7.3	8.0	4.8	4.2	4.6	---	---	---
31	---	---	---	7.5	6.9	7.2	---	---	---	---	---	---
MONTH	12.3	2.9	7.9	10.5	5.4	7.0	7.1	3.0	5.8	6.3	3.5	4.9



## TRINITY RIVER BASIN

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08057410 TRINITY RIVER BELOW DALLAS, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	4.2	3.4	4.0	5.3	3.9	4.7	5.2	2.4	3.6
2	---	---	---	4.1	3.5	3.9	5.3	3.8	4.5	4.4	2.7	3.9
3	---	---	---	4.1	3.3	3.8	4.8	3.7	4.4	4.2	3.4	3.9
4	---	---	---	4.3	3.2	3.8	4.7	3.7	4.3	4.4	3.8	4.1
5	---	---	---	4.9	3.9	4.2	4.3	2.9	3.8	4.5	3.9	4.3
6	---	---	---	9.5	3.5	4.7	4.2	3.4	3.9	4.8	3.9	4.4
7	5.4	4.9	5.1	---	---	---	4.1	3.1	3.6	4.8	3.4	4.3
8	8.0	3.8	5.3	---	---	---	3.7	2.7	3.4	4.5	3.9	4.3
9	8.0	2.5	5.0	---	---	---	4.7	3.0	3.8	4.4	3.6	4.1
10	---	---	---	---	---	---	4.5	2.4	3.6	4.2	3.6	4.0
11	---	---	---	---	---	---	4.3	3.9	4.1	4.1	3.5	3.9
12	---	---	---	---	---	---	4.0	3.3	3.7	4.0	3.3	3.8
13	---	---	---	---	---	---	3.7	3.0	3.4	4.0	3.3	3.7
14	2.1	.3	1.0	---	---	---	3.8	3.0	3.5	4.1	3.5	3.9
15	3.3	2.0	2.9	---	---	---	3.9	2.7	3.5	4.1	3.4	3.7
16	4.3	1.3	1.8	4.8	4.3	4.6	4.5	3.5	4.2	4.0	3.4	3.7
17	7.5	1.8	6.0	4.7	4.3	4.6	4.4	3.5	4.1	3.9	3.2	3.7
18	7.5	6.6	7.1	---	---	---	6.0	3.4	4.1	4.0	3.3	3.7
19	7.1	5.6	6.4	---	---	---	6.3	3.0	4.6	4.0	3.3	3.7
20	---	---	---	---	---	---	5.1	3.6	4.1	4.4	3.5	3.9
21	---	---	---	4.8	3.9	4.6	4.4	3.2	3.7	5.0	4.5	4.8
22	5.2	4.3	4.8	4.7	.0	4.1	4.8	3.9	4.5	5.0	4.0	4.6
23	5.1	4.1	4.7	4.8	3.4	4.3	4.9	4.4	4.6	5.1	3.7	4.4
24	4.9	4.3	4.7	4.5	3.4	4.1	4.9	4.4	4.7	5.0	3.6	4.5
25	4.9	3.3	4.3	4.9	3.6	4.3	4.8	4.3	4.6	5.0	3.8	4.6
26	5.3	3.0	4.3	5.3	3.7	4.5	4.7	4.0	4.4	4.9	3.4	4.4
27	4.7	4.1	4.4	5.2	3.6	4.5	4.3	3.9	4.1	4.8	3.6	4.4
28	4.5	3.7	4.2	5.0	3.5	4.4	4.3	3.7	4.1	4.8	3.6	4.2
29	4.2	3.6	4.0	5.0	3.3	4.3	4.5	3.5	4.1	4.5	3.3	4.1
30	4.5	3.5	4.0	4.7	3.3	4.2	4.4	3.6	4.0	4.6	2.5	3.9
31	---	---	---	5.5	3.2	4.3	4.1	3.3	3.8	---	---	---
MONTH	8.0	.3	4.4	9.5	.0	4.3	6.3	2.4	4.1	5.2	2.4	4.1

## TRINITY RIVER BASIN

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 downstream from Honey Creek, 1.2 mi upstream from Southern Pacific Railway Co. bridge, 1.7 mi upstream from Clemons Creek, 3.3 mi north of McKinney, 26.1 mi upstream from Lavon Dam, and 86.5 mi upstream from mouth.

DRAINAGE AREA.--164 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1975 to current year.

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 528.74 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. At end of year, flow from 89.1 mi<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. A nonrecording rain gage is located at station. Gage-height telemeter is located at station.

AVERAGE DISCHARGE.--8 years regulated, 92.6 ft<sup>3</sup>/s (67,090 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,800 ft<sup>3</sup>/s May 13, 1982 (gage height, 22.17 ft, from graph); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1913, about 28 ft in April 1942 (discharge not determined), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,290 ft<sup>3</sup>/s Feb. 1 at 0200 hours (gage height, 22.17 ft, from graph); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	13	87	979	82	157	15	22	17	4.5	.00
2	.00	19	75	129	419	73	126	15	16	7.3	5.0	.00
3	.00	10	53	182	264	68	93	19	11	1.5	4.2	.00
4	.00	11	50	135	204	153	79	15	8.1	.00	3.1	.00
5	.42	3.3	36	110	186	283	75	10	8.1	348	2.2	.00
6	3.6	.13	25	94	165	160	68	7.1	576	139	2.0	.00
7	2.2	.03	19	82	137	112	55	5.8	211	81	2.2	.00
8	1.1	.00	16	76	120	89	48	3.6	123	53	2.6	.00
9	1.8	.00	15	70	107	75	45	2.7	81	34	73	.00
10	.40	.00	20	62	109	63	42	8.8	47	22	11	.00
11	.00	.00	258	50	95	53	43	58	25	16	3.6	.00
12	.00	.21	266	40	80	49	40	30	14	13	6.4	.00
13	.00	.93	154	33	70	48	35	17	7.7	12	4.7	.00
14	.00	1.7	124	28	66	47	33	30	3.9	11	4.0	.00
15	.00	.86	104	23	58	43	30	56	2.1	11	2.2	.00
16	.00	.20	89	18	51	44	27	27	.17	11	.70	.00
17	.00	.20	77	17	44	56	27	20	.00	11	.20	4.4
18	.00	.60	68	16	41	40	28	14	.00	11	.12	6.9
19	.00	1.8	59	16	39	32	26	11	.00	9.3	.60	2.0
20	.00	4.0	50	18	344	32	26	34	.00	8.1	9.6	.06
21	.00	5.8	45	18	498	27	28	127	.00	7.1	22	.00
22	.00	6.4	43	16	307	20	30	110	.00	6.4	11	.00
23	.00	7.1	43	15	248	19	33	121	.00	6.0	7.4	.00
24	.00	9.9	44	14	195	30	30	102	.00	5.6	5.0	.00
25	.00	9.5	38	12	153	27	25	52	6.5	5.5	2.6	.00
26	.00	18	44	11	122	684	20	32	183	5.3	1.0	.00
27	.00	96	477	10	101	389	19	22	37	4.7	.11	.00
28	.00	92	336	9.7	90	203	18	14	63	4.0	.04	.00
29	.00	20	180	9.4	---	144	17	10	105	3.1	.00	.00
30	.00	15	127	7.8	---	307	16	6.8	37	1.8	.00	.00
31	.00	---	101	251	---	219	---	15	---	1.4	.00	---
TOTAL	9.52	333.66	3049	1659.9	5292	3671	1339	1010.8	1587.57	867.10	191.07	13.36
MEAN	.31	11.1	98.4	53.5	189	118	44.6	32.6	52.9	28.0	6.16	.45
MAX	3.6	96	477	251	979	684	157	127	576	348	73	6.9
MIN	.00	.00	13	7.8	39	19	16	2.7	.00	.00	.00	.00
AC-FT	19	662	6050	3290	10500	7280	2660	2000	3150	1720	379	26
CAL YR 1982	TOTAL	88292.75	MEAN	242	MAX	26800	MIN	.00	AC-FT	175100		
WTR YR 1983	TOTAL	19023.98	MEAN	52.1	MAX	979	MIN	.00	AC-FT	37730		

## TRINITY RIVER BASIN

363

08059400 SISTER GROVE CREEK NEAR BLUE RIDGE, TX

LOCATION.--Lat 33°17'40", long 96°28'58", Collin County, Hydrologic Unit 12030106, on left bank at upstream side of highway embankment of bridge on Farm Road 545, 3.5 mi upstream from Hatler Banch, 4.8 mi west of Blue Ridge, 7.4 mi upstream from Stiff Creek, 14.7 mi upstream from mouth, and 24.7 mi upstream from Lavon Dam.

DRAINAGE AREA.--83.1 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 536.29 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. At end of year, flow from 47.4 mi<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. Several observations of water temperature were made during the year. Gage-height telemeter located at this station.

AVERAGE DISCHARGE.--8 years regulated, 45.4 ft<sup>3</sup>/s (32,890 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft<sup>3</sup>/s May 13, 1982 (gage height, 22.5 ft, from floodmarks); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1900, 20.7 ft 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 downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,250 ft<sup>3</sup>/s Feb. 1 at 0445 hours (gage height, 14.14 ft.); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	3.5	5.5	70	866	78	98	14	15	4.4	.03	.00
2	.10	14	59	92	360	73	86	14	11	2.5	.02	.00
3	.05	21	78	104	232	66	66	17	8.6	2.2	.01	.00
4	.00	7.3	31	86	183	139	60	13	7.1	1.6	.00	.00
5	.00	3.7	21	74	165	180	57	11	6.9	26	.00	.00
6	.00	2.2	15	68	139	113	52	9.1	128	27	.00	.00
7	.00	1.9	11	62	112	89	47	8.8	65	7.0	.00	.00
8	.00	2.0	8.4	59	99	73	44	8.2	36	3.7	.00	.00
9	.00	2.4	7.0	57	88	66	41	7.7	22	2.0	.00	.00
10	.19	1.9	9.7	54	88	59	38	10	16	1.5	.00	.00
11	.79	1.3	181	50	79	55	38	37	12	1.0	.00	.00
12	.72	.93	200	45	68	52	36	21	8.9	.86	.00	.00
13	.60	1.9	132	43	60	51	33	15	6.6	.79	.00	.00
14	.43	2.0	97	44	59	51	29	14	5.4	.79	.00	.00
15	.60	2.7	70	41	56	49	25	37	5.7	.79	.00	.00
16	.72	2.7	56	39	54	48	23	24	4.6	.93	.00	.00
17	.66	4.2	51	37	48	53	22	16	3.7	1.1	.00	.00
18	.60	4.2	49	36	47	47	22	16	4.4	1.3	.00	.00
19	.54	4.9	47	36	46	43	20	12	3.9	2.5	.00	.00
20	.29	5.5	42	38	286	42	19	11	3.3	2.7	.00	.00
21	.43	6.7	43	38	545	40	21	30	2.6	2.7	.00	.00
22	.60	8.0	48	38	303	35	22	45	2.1	2.4	.00	.00
23	.79	11	48	36	217	35	23	41	1.8	2.4	.00	.00
24	2.9	15	63	36	156	39	20	37	2.2	4.0	.00	.00
25	3.1	17	53	34	121	38	14	22	2.7	3.7	.00	.00
26	2.7	24	44	33	105	378	14	17	7.3	.79	.00	.00
27	2.5	45	183	32	92	198	14	19	7.0	.34	.00	.00
28	2.5	28	182	31	84	115	14	16	4.9	.11	.00	.00
29	2.7	12	112	32	---	86	16	14	8.8	.06	.00	.00
30	3.1	7.0	84	32	---	148	15	7.5	7.3	.05	.00	.00
31	3.5	---	70	287	---	118	---	9.9	---	.04	.00	---
TOTAL	31.26	263.93	2100.6	1764	4758	2657	1029	574.2	420.8	107.25	.06	.00
MEAN	1.01	8.80	67.8	56.9	170	85.7	34.3	18.5	14.0	3.46	.002	.000
MAX	3.5	45	200	287	866	378	98	45	128	27	.03	.00
MIN	.00	.93	5.5	31	46	35	14	7.5	1.8	.04	.00	.00
AC-FT	62	524	4170	3500	9440	5270	2040	1140	835	213	.1	.00

CAL YR 1982 TOTAL 40213.01 MEAN 110 MAX 8560 MIN .00 AC-FT 79760  
WTR YR 1983 TOTAL 13706.10 MEAN 37.6 MAX 866 MIN .00 AC-FT 27190

NOTE.--No gage-height record July 29 to Sept. 30.

## TRINITY RIVER BASIN

08060500 LAVON LAKE NEAR LAVON, TX

LOCATION.--Lat 33°01'54", long 96°28'56", Collin County, Hydrologic Unit 12030106, in right abutment of spillway in dam on East Fork Trinity River, 3,850 ft upstream from St. Louis Southwestern Railway Lines bridge, 4,000 ft upstream from bridge on State Highway 78, 2.9 mi west of Lavon, and 55.9 mi upstream from mouth.

DRAINAGE AREA.--770 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1953 to current year. Prior to October 1970, published as Lavon Reservoir.

Water-quality records.--Chemical analyses: October 1969 to September 1974, October 1975 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 20, 1954, nonrecording gage in the approach channel at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 18,860 ft long, including a 568-foot gated spillway with twelve 40.0- by 28.0-foot tainter gates. The original dam was 9,499 ft long, but conservation capacity was increased to the present size in December 1975. Deliberate impoundment began Sept. 14, 1953, and the dam was completed in October 1953. The low-flow outlets consist of five 36-inch-diameter 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. Flow is affected at times by discharge from the flood-detention pools of 149 floodwater-retarding structures with a combined detention capacity of 69,170 acre-ft. These structures control runoff from 242 mi<sup>2</sup> in the East Fork Trinity River, Pilot Grove Creek, and Sister Grove Creek drainage basins. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	514.0	-
Design flood.....	509.0	921,200
Top of tainter gates.....	503.5	748,200
Top of conservation pool.....	492.0	456,500
Crest of spillway (sill of tainter gates).....	475.5	178,300
Lowest gated outlet (invert).....	453.0	12,700

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 734,000 acre-ft May 26, 1982 (elevation, 503.02 ft); minimum since lake first filled in 1957, 80,150 acre-ft Apr. 17, 1976 (elevation, 465.96 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 506,300 acre-ft Feb. 24 at 1700 hours (elevation, 494.25 ft); minimum daily, 402,300 acre-ft Sept. 30 (elevation, 489.35 ft).

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

489.0	395,500	494.0	500,600
491.0	435,500	495.0	523,700
493.0	478,200		

CONTENTS, IN ACRE-FEET WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	429600	419400	419400	462600	483800	495700	473900	456200	467600	465000	445600	424900
2	429200	422500	427600	465000	489200	493200	473700	457000	467200	464400	444700	424300
3	428600	420700	430600	465400	489600	490500	473000	456400	467400	462200	443700	423300
4	428000	420200	432500	466100	488900	492500	472600	456000	467200	461600	442900	422300
5	427300	418800	433300	466500	488700	494100	470200	454900	469600	468900	442000	419800
6	427300	418200	433900	466500	488100	493900	467000	454500	472200	470900	441200	419800
7	426500	418400	434100	465200	486500	492800	463700	454900	472400	469600	441000	419200
8	426700	418400	434700	465000	485400	491900	461800	453800	472000	467600	440100	418400
9	428200	418000	433700	464800	484300	489800	461100	453400	469300	465700	439700	417600
10	427300	417400	436000	464800	482700	488500	461100	454100	468000	463300	439100	416800
11	426500	417600	439700	463500	480700	485400	460000	453800	466100	461300	438100	416000
12	426300	417200	444100	462200	478100	482300	459200	454100	463900	459300	437400	416000
13	426100	416400	444500	461100	475500	479200	459600	453400	462800	459000	436400	415000
14	425300	416000	445300	460300	472200	476300	458800	455300	463300	458100	435600	413400
15	425100	414600	446000	459600	469800	473700	458100	454900	462600	457700	434700	413000
16	424700	414400	446200	460000	467000	472000	457700	454500	462200	457700	433900	412400
17	423700	414400	444700	459800	464800	468300	457300	454300	461600	457500	433100	411600
18	422900	414200	445600	459600	462800	465200	457000	454500	461100	456800	432500	410800
19	423900	414000	445800	459400	460700	462400	457300	453800	460700	456200	432900	410200
20	422500	414000	445600	459000	477000	459600	456400	456600	460300	455500	432500	410600
21	423500	413400	445600	458500	493400	457000	456400	462800	459400	455100	431900	408900
22	421700	413400	445600	458800	499700	457000	457500	465900	459000	454300	431200	408100
23	421300	413800	445800	457700	502900	457300	457500	468700	458800	453400	430400	407100
24	420400	412400	446600	457700	505700	457500	457000	468900	460500	452600	429800	406300
25	420200	412200	446800	457000	505000	457300	456400	468900	466500	451500	429200	405500
26	419400	415000	448300	457500	503200	465200	456000	468900	469600	450900	428800	404900
27	418600	417400	453600	456800	501300	470200	455800	468500	470200	449400	428400	404300
28	420200	418800	459400	456000	498600	470400	455800	468300	470000	448500	427100	403700
29	419800	419000	460900	456800	---	469300	455800	468000	469300	447900	426500	403300
30	419200	419200	461600	456800	---	471500	455800	468700	467400	447300	425700	402500
31	419200	---	462200	472000	---	471300	---	468000	---	446400	425500	---
MAX	429600	422500	462200	472000	505700	495700	473900	468900	472400	470900	445600	424900
MIN	418600	412200	419400	456000	460700	457000	455800	453400	458800	446400	425500	402500
(†)	490.19	490.19	492.25	492.70	493.90	492.67	491.95	492.52	492.49	491.51	490.50	489.35
(‡)	-10800	0	+43000	+9800	+26600	-27300	-15500	-12200	-600	-21000	-20900	-23000

CAL YR 1982 MAX 734000 MIN 412200 ‡ -74000

WTR YR 1983 MAX 505700 MIN 402500 ‡ -27500

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## TRINITY RIVER BASIN

365

08061000 EAST FORK TRINITY RIVER NEAR LAVON, TX

LOCATION.--Lat 33°01'25", long 96°28'31", Collin County, Hydrologic Unit 12030106, on left bank at downstream side of St. Louis Southwestern Railway Lines bridge, 150 ft upstream from bridge on State Highway 78, 3,550 ft downstream from Lavon Dam, 2.5 mi west of Lavon, and 54.9 mi upstream from mouth.

DRAINAGE AREA.--773 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1953 to current year.

Water-quality record.--Chemical and biochemical analyses: October 1980 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder, concrete control, and crest-stage gage. Datum of gage is 429.58 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1969, at site 150 ft downstream at same datum.

REMARKS.--Records fair. Flow is regulated by Lavon Lake (station 08060500).

AVERAGE DISCHARGE.--30 years, 350 ft<sup>3</sup>/s (253,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft<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 May 26, 1957; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1894, 22.3 ft in 1913 and in April 1942, from information by St. Louis Southwestern Railway Lines and local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,850 ft<sup>3</sup>/s Feb. 28 at 1130 hours (gage height, 12.95 ft); no flow June 4, July 31 to Aug. 21 and Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	.36	.95	2.5	21	1710	1.2	4.4	.58	637	.00	1.1
2	.56	4.4	37	2.0	671	1770	.82	3.7	.12	557	.00	.05
3	.82	.36	14	1.5	1290	1750	.60	2.0	.05	585	.01	.03
4	1.2	.22	2.8	1.2	1270	1400	.60	2.5	.00	577	2.5	.03
5	3.7	.22	1.8	1.1	1260	772	1560	2.5	.26	294	4.8	.06
6	.82	.22	1.6	248	1260	767	1540	2.5	3.1	8.7	4.4	.08
7	.82	.36	2.5	612	1250	762	1540	3.0	.04	540	4.8	.05
8	1.2	.36	2.7	611	1250	762	970	4.4	320	854	4.1	.05
9	1.5	.36	1.5	613	1250	757	272	5.1	749	837	1.6	.07
10	.56	.36	7.5	609	1260	1380	78	9.9	728	801	8.2	.11
11	.36	.56	12	609	1540	1690	265	8.8	734	679	2.9	.05
12	.82	.82	7.5	598	1690	1710	272	6.0	744	556	2.1	.00
13	.82	.82	6.0	605	1620	1640	272	3.7	318	249	1.7	.02
14	.56	.82	4.4	446	1560	1660	272	6.0	.21	3.2	1.2	.15
15	.82	.60	3.7	203	1570	1640	67	3.7	.25	2.5	.83	.13
16	.56	.76	2.5	201	1560	1510	24	.40	.11	3.4	.19	.16
17	.82	1.5	2.5	201	1290	1010	2.5	.80	.06	3.2	.14	.16
18	.56	1.3	2.0	201	1080	1570	3.0	1.2	.06	1.5	.37	.22
19	.56	1.2	2.0	201	1070	1570	3.7	.57	.06	1.3	.08	.16
20	.11	1.1	2.0	201	729	1560	2.5	4.8	.06	1.1	.01	.16
21	.56	.82	1.5	171	7.8	1560	1.5	29	.07	.72	.00	.16
22	.82	1.5	1.5	143	3.7	1.1	1.5	7.6	.07	1.1	1.6	.16
23	.36	1.1	1.5	143	2.0	1.1	.56	26	.07	1.3	.18	.16
24	.22	.61	1.2	62	2.0	.82	4.4	.82	.43	1.2	9.7	.56
25	.36	.83	1.2	3.0	809	.82	3.0	.66	.56	.87	.30	.56
26	.36	8.2	1.2	3.1	1350	3.7	3.0	.24	.16	.31	.64	.36
27	.16	12	5.1	3.0	1330	1.5	3.7	.13	.80	.21	.23	.36
28	1.5	2.6	3.7	3.0	1580	1.1	3.0	.09	.21	.16	.10	.36
29	1.2	1.2	1.2	2.6	---	1000	2.0	.12	310	.11	.07	.22
30	.56	1.1	.82	2.3	---	1000	3.0	.69	760	.08	.05	.22
31	.36	---	.60	52	---	1000	---	.39	---	.00	1.9	---
TOTAL	23.99	46.66	136.47	6755.3	29575.5	31960.14	7172.58	141.71	4670.33	7196.96	54.70	5.96
MEAN	.77	1.56	4.40	218	1056	1031	239	4.57	156	232	1.76	.20
MAX	3.7	12	37	613	1690	1770	1560	29	760	854	9.7	1.1
MIN	.11	.22	.60	1.1	2.0	.82	.56	.09	.00	.00	.00	.00
AC-FT	48	93	271	13400	58660	63390	14230	281	9260	14280	108	12
CAL YR 1982	TOTAL	334223.84	MEAN	916	MAX	4630	MIN	.04	AC-FT	662900		
WTR YR 1983	TOTAL	87740.30	MEAN	240	MAX	1770	MIN	.00	AC-FT	174000		



## TRINITY RIVER BASIN

08061540 ROWLETT CREEK NEAR SACHSE, TX

LOCATION.--Lat 32°57'35", long 96°36'51", Dallas County, Hydrologic Unit 12030106, on left bank at downstream side of bridge on State Highway 78, 150 ft downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 250 ft downstream from Spring Creek, and 1.5 mi southwest of Sachse.

DRAINAGE AREA.--120 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 450.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversions above station. The North Texas Municipal Water District returned 8,630 acre-ft of sewage effluent into a tributary above station. A rain gage and a gage-height telemeter are located at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--15 years (water years 1969-83), 91.2 ft<sup>3</sup>/s (66,070 acre-ft).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,500 ft<sup>3</sup>/s Mar. 27, 1977 (gage height, 29.31 ft); no flow Aug. 24 to Sept. 2, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1942, 35.4 ft in 1942, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 2	1000	2,480	15.67	May 21	1145	3,720	19.05
Jan. 31	2315	4,980	21.20	May 23	0515	2,610	16.07
Mar. 26	0845	2,270	14.96	July 5	1030	*5,870	22.46
Mar. 30	0545	2,150	14.58	Aug. 19	1045	2,080	14.33

Minimum discharge, 3.5 ft<sup>3</sup>/s Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	17	46	112	1450	83	132	40	74	25	17	59
2	12	660	371	226	194	78	111	66	58	23	17	21
3	13	46	110	117	129	86	103	65	53	22	17	18
4	13	28	70	91	111	449	98	40	48	20	23	18
5	13	25	61	88	229	177	92	36	45	1090	17	17
6	12	23	55	86	150	112	80	34	321	107	18	20
7	12	21	50	79	112	100	77	30	60	61	22	16
8	17	22	47	73	103	80	75	28	47	47	36	16
9	342	20	46	70	102	80	71	29	43	39	30	16
10	36	20	271	67	97	76	70	61	40	38	22	15
11	23	30	633	61	97	79	67	101	40	33	18	16
12	67	85	206	57	91	78	65	41	40	31	16	17
13	34	25	91	56	87	73	64	33	39	48	17	14
14	18	23	74	55	88	70	59	56	204	64	15	14
15	17	22	62	53	83	71	54	126	64	40	18	13
16	16	21	57	52	76	138	53	48	47	51	15	16
17	16	23	56	51	69	107	55	39	44	47	13	15
18	17	22	56	50	75	78	56	61	41	39	30	16
19	14	22	52	57	68	74	53	41	39	34	704	18
20	13	21	50	54	753	86	50	472	40	30	66	19
21	168	21	48	52	330	72	52	1360	36	28	36	21
22	75	23	48	48	171	69	64	250	32	28	30	17
23	25	31	47	48	133	80	104	1270	32	28	26	16
24	22	23	47	47	116	82	55	160	39	27	24	14
25	22	22	43	44	104	72	51	94	42	28	21	16
26	21	569	207	44	97	980	47	78	52	25	20	16
27	18	707	956	42	93	177	44	68	84	23	19	15
28	90	93	170	44	88	100	44	61	107	23	20	12
29	30	62	97	42	---	89	43	55	34	22	24	15
30	17	50	82	42	---	785	49	72	27	20	21	14
31	17	---	95	1400	---	170	---	262	---	17	17	---
TOTAL	1222	2777	4304	3408	5296	4851	2038	5177	1872	2158	1389	530
MEAN	39.4	92.6	139	110	189	156	67.9	167	62.4	69.6	44.8	17.7
MAX	342	707	956	1400	1450	980	132	1360	321	1090	704	59
MIN	12	17	43	42	68	69	43	28	27	17	13	12
AC-FT	2420	5510	8540	6760	10500	9620	4040	10270	3710	4280	2760	1050
CAL YR 1982	TOTAL	63158	MEAN	173	MAX	14900	MIN	12	AC-FT	125300		
WTR YR 1983	TOTAL	35022	MEAN	96.0	MAX	1450	MIN	12	AC-FT	69470		

## 08061550 LAKE RAY HUBBARD NEAR FORNEY, TX

LOCATION.--Lat 32°48'00", long 96°29'45", Kaufman County, Hydrologic Unit 12030106, near right end of spillway in Forney Dam on East Fork Trinity River, 0.5 mi upstream from Duck Creek, 1.8 mi upstream from bridge on Interstate Highway 20, 3.8 mi northwest of Forney, 24 mi downstream from Lavon Dam, and 31.8 mi upstream from mouth.

DRAINAGE AREA.--1,071 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

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

Water-quality records.--Chemical analyses: October 1969 to September 1979.

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

REMARKS.--The lake is formed by a rolled earthfill dam 12,500 ft long, including a 664-foot gated spillway with fourteen 40- by 28-foot tainter gates. Closure was made in September 1967, but the gates were not closed until Mar. 22, 1970. Low-flow releases are made through three 4.5- by 6.75-foot sluiceways. The lake was built by the city of Dallas for municipal water supply. Flow is affected at times by discharge from the flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 12,530 acre-ft. These structures control runoff from 44.5 mi<sup>2</sup> above this station and below Lavon Lake station (08060500). There are two gage-height telemeters at station. Area and capacity tables are based on surveys made in 1953 and 1959. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	450.0	-
Design flood.....	440.5	611,500
Top of tainter gates.....	437.5	536,700
Top of conservation pool.....	435.5	489,900
Crest of spillway (sill of tainter gates).....	409.5	83,130
Lowest gated outlet (invert).....	388.0	80

COOPERATION.--The area and capacity tables were furnished by Forrest and Cotton, Consulting Engineers for the city of Dallas.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 513,900 acre-ft May 13, 1982 (elevation, 436.54 ft); minimum since first appreciable filling following closure of gates on Mar. 22, 1970, 326,600 acre-ft Sept. 29, 30, 1978 (elevation, 427.48 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 494,500 acre-ft May 23 at 1400 hours (elevation, 435.70 ft); minimum, 439,600 acre-ft Sept. 30 (elevation, 433.22 ft).

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

433.0	435,000	435.0	478,600
434.0	456,500	436.0	501,400

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	462400	463100	471900	479800	490600	478600	483800	480700	490200	484700	478000	463300
2	462600	468600	479800	479800	487400	478600	480000	482900	489900	485400	477100	462400
3	462400	466800	481100	478600	486300	478600	478400	481100	490400	484700	476200	461500
4	462000	466600	480900	478600	484700	482200	480200	480400	490200	486500	475300	460400
5	462000	465700	481100	478900	484500	481800	481800	478900	491700	491700	474800	459600
6	462000	464800	480200	479800	484000	480900	480700	477500	491700	489500	473700	458500
7	461300	465300	480200	480900	481800	479300	479800	478400	489200	489000	476200	457600
8	462000	465300	481800	480900	481100	478400	479500	478400	487700	489700	475700	456900
9	465100	465300	479800	481100	482000	477700	479800	478400	488100	489700	475300	455800
10	464400	465700	482000	481100	482200	480400	480200	479500	487900	489700	474400	455400
11	464000	465900	483800	481600	482900	479500	480200	479800	488100	489700	473700	454800
12	464600	467300	479500	480900	482000	479100	480400	480000	488600	489200	473300	454300
13	464400	464400	477700	480900	481600	478600	482200	479300	488600	489000	472600	453700
14	464000	465900	479500	482000	481600	479300	482000	482700	489500	488300	471900	451900
15	463700	464200	479300	480400	481600	479300	481600	480900	488800	487700	471300	450800
16	463300	464400	479300	479800	481100	481800	481300	479300	488100	488300	470400	449800
17	462600	464400	478600	479100	480200	480000	481100	478600	487700	488100	469500	448700
18	462200	464200	480000	478600	479100	479100	480700	480200	487700	487400	470100	447800
19	466800	464200	479800	478600	478600	479800	481100	480200	487200	487000	470800	447600
20	462200	464600	479800	477700	492400	480400	480400	483100	487000	486300	470400	450400
21	463500	464600	479800	477700	488600	476800	480700	490800	486500	485800	469900	446100
22	463500	464600	480000	477100	482900	476200	481800	492200	486300	485200	469500	445000
23	463300	467000	479800	476400	479800	477300	481800	492900	486300	485400	468600	444100
24	463100	465100	480900	477300	481800	476800	480900	488800	486100	483600	467900	443300
25	462600	464000	483800	476800	480400	476400	480000	489200	487200	482200	467500	442600
26	462000	469500	482200	478900	479800	484900	480200	489200	487700	481800	466800	442200
27	460900	471000	484000	476800	479100	484300	478900	489000	488300	481100	466200	441600
28	463500	471300	483100	475500	478200	482900	479800	489200	487400	480200	465500	440900
29	463100	471700	479500	477300	---	484300	480700	489700	486700	479800	464800	440300
30	463100	471700	478600	477100	---	486700	479500	492200	485800	479500	464200	439600
31	462900	---	479100	488800	---	483100	---	490800	---	478600	464200	---
MAX	466800	471700	484000	488800	492400	486700	483800	492900	491700	491700	478000	463300
MIN	460900	463100	471900	475500	478200	476200	478400	477500	485800	478600	464200	439600
(†)	434.29	434.69	435.02	435.45	434.98	435.20	435.04	435.54	435.32	435.00	434.35	433.22
(#)	+500	+8800	+7400	+9700	-10600	+4900	-3600	+11300	-5000	-7200	-14400	-24600
CAL YR 1982	MAX	512300	MIN	460900	#	+1800						
WTR YR 1983	MAX	492900	MIN	439600	#	-22800						

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

## TRINITY RIVER BASIN

08061550 LAKE RAY HUBBARD NEAR FORNEY, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
SEP 12...	1410	242	25.0	91	6	32	2.7	11

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
SEP 12...	.5	3.7	85	22	8.1	.30	3.6	134

08061700 DUCK CREEK NEAR GARLAND, TX

LOCATION.--Lat 32°49'58", long 96°35'43", Dallas County, Hydrologic Unit 12030106, on right bank in the median area between the dual bridges on Belt Line Road, 6.0 mi southeast of Garland, and 7.7 mi upstream from mouth.

DRAINAGE AREA.--31.6 mi<sup>2</sup>.

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

Water-quality records.--Sediment records: October 1976 to September 1982.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 430.02 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1962, at datum 4.00 ft higher.

REMARKS.--Records fair. 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.--25 years, 28.8 ft<sup>3</sup>/s (12.38 in/yr), 20,870 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft<sup>3</sup>/s July 27, 1962 (gage height, 20.80 ft, present datum); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, 21.5 ft (present datum) June 13, 1949, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 2	1030	2,080	15.44	May 20	0345	2,150	15.52
Jan. 31	1500	*5,470	17.48	May 21	1100	2,720	16.01
Feb. 20	1315	3,720	16.60	May 23	0445	2,280	15.64
Mar. 30	0430	2,180	15.55	Aug. 19	1400	3,030	16.21

Minimum discharge, 0.01 ft<sup>3</sup>/s Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	8.7	8.3	40	220	8.3	13	3.5	6.2	.94	.52	89
2	.22	264	385	78	25	7.9	9.5	23	4.7	.74	.38	5.3
3	.18	16	23	11	16	18	9.5	14	4.2	.64	.36	1.9
4	.14	11	9.5	8.7	13	305	9.9	2.6	4.0	.56	1.2	.84
5	.10	9.9	7.5	7.2	64	37	6.8	3.1	2.9	535	1.4	.84
6	.08	9.9	7.2	6.5	16	14	6.2	2.1	170	16	.71	.38
7	.06	8.3	5.0	6.5	12	9.9	6.8	1.3	9.3	6.4	5.8	.18
8	13	8.7	4.7	6.8	12	7.9	6.5	.94	5.4	4.0	2.5	.13
9	191	7.9	6.2	6.5	11	6.5	6.2	.64	4.5	3.0	2.3	.09
10	5.7	7.2	181	6.8	10	5.7	5.0	52	4.2	2.2	6.2	.06
11	3.1	17	253	6.5	9.5	5.7	4.0	68	3.8	1.5	1.2	.04
12	118	52	31	6.5	9.5	5.0	3.5	5.3	3.6	1.3	.77	.09
13	12	8.7	11	6.8	8.7	5.7	3.1	2.7	3.1	1.2	.44	.09
14	2.2	7.5	11	5.7	9.1	5.0	4.0	44	17	1.1	.24	.06
15	1.7	7.5	7.2	5.3	8.3	5.3	2.6	12	8.8	1.0	.14	.06
16	1.4	8.3	7.2	5.3	7.2	63	2.4	3.5	3.1	8.0	.39	.56
17	1.2	9.1	5.7	5.6	7.9	26	2.6	3.1	2.3	2.0	.65	.48
18	1.0	9.5	5.3	5.8	71	5.3	2.7	122	2.5	1.6	4.3	.13
19	.84	8.7	4.7	5.8	10	5.3	2.7	8.7	2.3	1.3	723	.23
20	.70	7.9	5.0	5.7	935	9.9	3.1	477	2.0	1.0	18	2.6
21	102	8.3	5.3	4.7	108	4.5	3.3	634	2.0	.80	3.8	1.7
22	58	8.7	5.9	4.5	66	4.0	3.8	26	1.4	.70	2.6	.64
23	9.1	8.3	6.2	4.0	30	63	9.5	663	1.4	.64	2.6	.30
24	8.7	7.5	6.2	5.0	17	26	3.3	15	2.3	.56	1.2	.23
25	8.3	7.9	6.2	5.3	14	6.0	2.1	7.5	8.7	.50	1.2	.23
26	7.5	402	62	4.2	12	490	1.7	4.7	10	.72	.84	.09
27	7.2	297	277	4.2	9.9	30	1.4	4.0	50	.64	.74	.23
28	135	25	18	4.2	8.7	15	1.7	3.3	14	.69	.74	.18
29	40	13	9.9	4.5	---	10	3.5	3.8	4.0	.54	.64	.04
30	15	9.9	7.2	4.2	---	481	5.7	15	1.4	.70	.64	.01
31	10	---	21	1320	---	22	---	134	---	1.1	.94	---
TOTAL	753.69	1275.4	1403.4	1601.8	1740.8	1707.9	146.1	2359.78	359.1	597.07	786.44	106.71
MEAN	24.3	42.5	45.3	51.7	62.2	55.1	4.87	76.1	12.0	19.3	25.4	3.56
MAX	191	402	385	1320	935	490	13	663	170	535	723	89
MIN	.06	7.2	4.7	4.0	7.2	4.0	1.4	.64	1.4	.50	.14	.01
CFSM	.77	1.35	1.43	1.64	1.97	1.74	.15	2.41	.38	.61	.80	.11
IN.	.89	1.50	1.65	1.89	2.05	2.01	.17	2.78	.42	.70	.93	.13
AC-FT	1490	2530	2780	3180	3450	3390	290	4680	712	1180	1560	212
(††)	2.02	3.29	4.25	2.64	2.60	3.32	.34	5.22	1.28	1.86	2.04	.40
CAL YR 1982	TOTAL	14799.96	MEAN	40.5	MAX	1430	MIN	.00	CFSM	1.28	IN	17.42
WTR YR 1983	TOTAL	12838.19	MEAN	35.2	MAX	1320	MIN	.01	CFSM	1.11	IN	15.11
									AC-FT	29360	††	31.73
									AC-FT	25460	††	29.26

†† Rainfall, in inches.

## TRINITY RIVER BASIN

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX

LOCATION.--Lat 32°46'27", long 96°30'12", Kaufman County, Hydrologic Unit 12030106, on right bank 25 ft downstream from bridge on Interstate Highway 20, 0.2 mi downstream from Duck Creek, 1.9 mi downstream from Lake Ray Hubbard Dam, 2.5 mi upstream from Texas and Pacific Railroad Co. bridge, 2.6 mi northwest of Forney, and 30.8 mi upstream from mouth.

DRAINAGE AREA.--1,118 mi<sup>2</sup>, of which 1,071 mi<sup>2</sup> is above Lake Ray Hubbard.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 377.86 ft 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 upstream and 868 ft to left. From Aug. 26, 1975, to May 12, 1977, recording gage at same datum located at site 105 ft downstream.

REMARKS.--Water-discharge records good. Flow is regulated by Lake Ray Hubbard (station 08061550). Low flow is sustained by sewage effluent from the city of Garland into Duck Creek, which enters the East Fork Trinity River 0.2 mi upstream from this station. Gage-height telemeters at station.

AVERAGE DISCHARGE.--10 years (water years 1974-83), 560 ft<sup>3</sup>/s (405,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,400 ft<sup>3</sup>/s Mar. 27, 1977 (gage height, 16.34 ft); minimum daily, 13 ft<sup>3</sup>/s Oct. 18, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,300 ft<sup>3</sup>/s July 5 at 2130 hours (gage height, 11.84 ft); minimum daily, 19 ft<sup>3</sup>/s Dec. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	31	26	347	3540	1990	2280	47	149	609	87	142
2	25	204	358	415	2650	1990	1350	42	114	93	85	95
3	24	106	352	285	2580	2000	67	93	108	84	89	56
4	26	41	227	137	2280	2380	1040	53	108	79	100	46
5	25	35	213	80	2030	2200	2350	41	103	2900	80	51
6	27	32	212	75	1990	2050	2360	40	1030	1810	77	49
7	28	31	215	257	1960	2010	2370	39	1180	701	79	56
8	28	31	227	613	1960	2010	1440	36	329	218	84	55
9	157	31	217	615	1640	1120	76	35	1160	661	80	54
10	67	31	278	617	977	55	51	45	1120	690	88	54
11	32	31	1580	617	1360	944	50	169	557	697	86	54
12	35	51	1930	613	1940	2020	55	81	538	579	77	52
13	84	48	661	613	1950	2030	110	49	362	320	76	54
14	38	33	159	615	1950	2030	112	43	114	138	75	52
15	29	30	35	617	1950	2010	106	110	143	114	73	53
16	28	30	27	608	1960	2050	105	52	108	117	80	54
17	28	30	26	608	1950	2110	105	44	104	127	80	55
18	27	31	23	615	2010	2030	106	145	97	106	74	51
19	26	32	22	615	1490	2040	107	138	94	97	466	51
20	32	30	21	619	3310	2050	108	494	96	96	302	58
21	37	29	20	458	4520	1560	106	1510	95	96	75	66
22	159	31	20	307	3890	584	112	1460	89	94	61	64
23	49	39	20	269	2670	68	128	4290	84	90	62	59
24	33	37	19	139	194	72	120	2880	84	88	59	56
25	30	31	19	38	827	49	110	229	96	88	59	55
26	29	203	24	45	1990	548	108	142	137	87	59	56
27	29	658	1430	39	1990	185	106	128	164	86	55	57
28	32	98	1470	32	1990	727	96	119	119	82	53	57
29	139	38	1400	33	---	1670	47	108	233	86	57	59
30	45	28	679	33	---	2520	47	107	1160	84	55	57
31	34	---	191	818	---	2270	---	253	---	87	58	---
TOTAL	1409	2111	12101	11792	59548	47372	15328	13022	9875	11204	2891	1778
MEAN	45.5	70.4	390	380	2127	1528	511	420	329	361	93.3	59.3
MAX	159	658	1930	818	4520	2520	2370	4290	1180	2900	466	142
MIN	24	28	19	32	194	49	47	35	84	79	53	46
AC-FT	2790	4190	24000	23390	118100	93960	30400	25830	19590	22220	5730	3530
CAL YR 1982	TOTAL	451343	MEAN	1237	MAX	21400	MIN 19	AC-FT	895200			
WTR YR 1983	TOTAL	188431	MEAN	516	MAX	4520	MIN 19	AC-FT	373800			



## TRINITY RIVER BASIN

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08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1981 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1981 to current year.

WATER TEMPERATURES: October 1981 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 900 micromhos May 10, 1983; minimum daily, 245 micromhos Aug. 8, 1982.

WATER TEMPERATURES: Maximum daily, 30.5°C Aug. 3, 26, 1982; minimum daily, 4.0°C Jan. 16, Feb. 6, 1982.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 900 micromhos May 10; minimum daily, 261 micromhos Nov. 27.

WATER TEMPERATURES: Maximum daily, 30.0°C on several days during July and August; minimum daily, 7.0°C Feb. 6.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
NOV 18...	1245	30	693	8.7	17.0	30	5.0	.0	0	4.2	180
FEB 17...	1345	1970	280	8.4	9.0	5	7.3	12.4	108	2.2	120
APR 07...	1045	2400	300	8.4	12.0	5	11	11.3	107	1.7	130
MAY 23...	0750	4880	285	8.0	20.0	15	230	9.6	107	5.0	150
JUL 14...	1225	147	639	8.0	27.0	20	11	.0	0	27	180
AUG 25...	1000	96	800	7.8	28.0	40	23	.1	1	52	180

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
NOV 18...	0	65	3.2	58	2.0	11	200	53	66	2.1	8.1
FEB 17...	9	43	2.7	11	.5	3.9	110	24	8.3	.30	3.3
APR 07...	11	48	2.6	11	.4	3.6	120	22	8.0	.30	.2
MAY 23...	5	58	2.4	9.4	.3	3.6	150	21	7.3	.30	3.4
JUL 14...	2	67	3.4	46	1.6	8.5	180	52	55	1.5	7.4
AUG 25...	0	68	3.4	63	2.1	11	220	48	73	2.3	10

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 18...	386	19	21	--	.010	<.10	12.0	6.0	18.0	2.60	30
FEB 17...	163	11	10	--	<.020	.40	.360	.94	1.30	.100	4.7
APR 07...	168	20	3	--	<.020	.40	.310	.49	.80	.060	5.8
MAY 23...	195	458	146	.38	.120	.50	.280	1.8	2.10	.380	9.8
JUL 14...	349	44	3	--	.020	<.10	8.50	4.5	13.0	1.50	26
AUG 25...	411	16	<1	--	.020	<.10	15.0	7.0	22.0	4.20	38

## TRINITY RIVER BASIN

08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
FEB 17...	1345	1	48	2	<10	1	6
AUG 25...	1000	2	26	1	10	8	110

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
FEB 17...	<1	4	.1	1	<1	9
AUG 25...	5	66	.1	<1	<1	29

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	1409	551	312	1190	35	135	50	191	180
NOV.	1982	2111	490	278	1580	30	173	45	254	160
DEC.	1982	12101	314	182	5950	13	429	29	936	120
JAN.	1983	11792	338	196	6230	15	475	31	982	130
FEB.	1983	59548	284	166	26700	11	1730	26	4180	110
MAR.	1983	47372	302	176	22500	12	1530	28	3530	120
APR.	1983	15328	355	205	8500	16	679	32	1340	130
MAY	1983	13022	367	211	7420	18	635	33	1180	130
JUNE	1983	9875	417	239	6370	23	615	38	1010	150
JULY	1983	11204	409	234	7080	22	671	37	1130	140
AUG.	1983	2891	665	373	2910	48	377	60	471	190
SEPT	1983	1778	736	410	1970	57	273	67	320	200
TOTAL		188431	**	**	98400	**	7720	**	15500	**
WTD. AVG.		516	334	193	**	15	**	31	**	130

## TRINITY RIVER BASIN

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08061750 EAST FORK TRINITY RIVER NEAR FORNEY, TX--Continued

DAY	SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	EQUIVALENT MEAN											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	679	613	719	350	268	289	304	670	600	420	650	600
2	680	350	400	314	278	292	360	740	700	690	690	564
3	682	468	376	353	287	286	604	600	740	790	770	658
4	594	571	362	387	289	309	475	690	730	710	760	698
5	738	652	339	482	287	290	302	780	700	325	720	605
6	672	733	337	472	283	292	300	830	310	310	760	578
7	744	739	353	400	279	290	300	780	300	300	800	710
8	779	669	339	304	281	290	302	830	540	720	640	771
9	330	723	342	297	285	434	672	870	300	320	700	828
10	492	742	325	298	290	609	783	900	310	320	780	762
11	546	754	277	313	296	301	754	520	350	310	810	770
12	714	616	263	305	284	292	773	620	340	320	850	657
13	431	625	334	301	283	291	626	730	400	410	810	680
14	565	635	395	303	281	290	494	750	730	639	720	790
15	716	645	649	298	282	291	544	450	660	690	710	807
16	755	654	728	295	284	299	520	620	720	710	750	760
17	736	690	753	299	286	292	508	750	790	570	790	830
18	642	740	764	308	284	291	486	600	810	610	800	805
19	771	726	728	307	302	294	564	470	790	780	500	793
20	827	743	684	302	285	293	531	330	750	820	400	705
21	688	789	771	305	278	294	508	350	720	770	590	844
22	356	722	759	319	279	303	546	310	750	730	670	826
23	514	727	799	328	285	751	540	290	820	790	710	744
24	603	775	788	338	406	586	498	310	850	750	740	784
25	545	786	723	737	350	714	484	550	810	800	770	810
26	713	550	590	781	287	315	548	780	580	820	750	643
27	741	261	312	707	285	473	543	775	650	870	730	782
28	706	455	265	726	286	400	533	770	640	800	720	810
29	522	717	268	784	---	298	764	730	550	780	700	845
30	376	718	355	756	---	303	788	710	300	770	730	894
31	629	---	400	550	---	300	---	340	---	750	800	---
MEAN	629	653	500	420	291	357	532	627	608	626	720	745

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	ONCE-DAILY											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	25.0	20.0	---	8.5	14.0	15.0	24.0	28.0	25.0	20.0	29.0
2	---	---	20.0	11.0	8.0	14.0	14.0	22.0	22.0	28.0	29.0	28.0
3	26.5	18.5	15.0	10.5	7.5	14.0	14.0	20.0	24.0	25.0	28.0	29.0
4	28.0	19.0	15.0	10.5	8.0	12.0	15.0	---	---	26.5	28.0	29.0
5	27.5	20.0	17.0	13.0	8.0	17.0	15.0	27.0	26.0	26.0	28.0	27.0
6	27.0	20.0	15.0	15.0	7.0	15.0	14.0	20.0	24.0	28.0	---	28.0
7	25.5	26.0	16.0	13.0	8.0	13.5	15.0	24.0	22.0	26.0	29.0	29.0
8	26.0	22.5	14.0	10.0	8.0	15.0	13.0	22.0	24.0	27.0	27.0	27.0
9	23.0	22.0	12.5	12.0	8.0	14.0	17.0	---	23.0	27.0	28.0	27.0
10	23.0	22.0	15.0	11.0	8.0	15.0	19.0	21.0	24.0	28.0	28.0	29.0
11	22.0	22.5	12.0	10.0	9.0	13.0	17.0	20.0	24.0	27.0	28.0	28.0
12	22.5	20.0	11.0	10.0	8.0	13.5	18.0	---	24.0	26.0	28.0	27.0
13	22.0	---	14.0	10.0	8.0	15.0	21.0	23.0	23.0	27.0	30.0	27.0
14	21.0	---	14.0	11.0	9.0	14.5	16.0	22.5	25.0	27.0	30.0	27.0
15	21.0	---	17.0	12.0	12.0	13.5	16.0	20.0	25.0	26.0	29.0	26.0
16	22.5	16.0	16.0	13.0	11.0	15.0	20.0	20.0	25.0	26.0	---	26.0
17	23.0	---	15.0	10.0	14.0	13.0	19.0	23.0	26.0	26.0	29.0	28.0
18	25.0	17.0	17.0	10.0	12.0	13.0	18.0	23.0	26.0	27.0	---	28.0
19	24.0	19.0	16.0	10.0	13.0	13.0	17.0	23.0	26.0	28.0	25.0	28.0
20	21.0	21.0	16.0	9.0	12.0	12.0	17.0	22.0	---	28.5	27.0	27.0
21	19.0	25.0	16.0	8.0	10.0	11.5	15.0	21.0	27.0	26.0	29.0	22.0
22	17.0	21.0	18.5	9.0	13.0	13.0	18.0	21.0	27.0	28.0	28.0	20.0
23	20.0	20.0	18.5	---	13.0	15.0	17.0	---	26.0	30.0	29.0	22.0
24	18.0	14.5	18.5	10.0	16.0	13.0	18.0	21.0	26.0	29.0	---	24.0
25	20.0	15.0	15.5	14.5	15.5	15.0	18.0	23.0	27.0	28.0	28.0	25.0
26	20.0	18.0	14.5	10.0	15.0	14.0	18.0	23.0	27.0	29.0	---	23.0
27	21.0	10.0	11.0	14.5	15.0	15.0	19.0	---	26.0	29.0	30.0	24.0
28	22.0	13.0	14.0	13.5	12.0	16.0	16.0	25.0	26.0	29.0	30.0	24.0
29	20.0	16.0	10.0	15.0	---	14.0	21.0	25.0	27.0	---	29.0	25.0
30	21.0	18.0	13.0	16.0	---	16.0	23.0	23.0	26.0	30.0	29.0	24.0
31	23.0	---	---	16.0	---	14.0	---	19.0	---	20.0	28.0	---
MEAN	22.5	19.0	15.0	11.5	10.5	14.0	17.0	22.0	25.0	27.0	28.0	26.0

## TRINITY RIVER BASIN

## 08062000 EAST FORK TRINITY RIVER NEAR CRANDALL, TX

LOCATION.--Lat 32°38'19", long 96°29'17", Kaufman County, Hydrologic Unit 12030106, on right bank 15 ft downstream from downstream eastbound bridge on U.S. Highway 175, 0.7 mi downstream from Mustang Creek, 1.8 mi northwest of Crandall, 4.0 mi upstream from Buffalo Creek, and 11.0 mi upstream from mouth.

DRAINAGE AREA.--1,256 mi<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: October 1967 to September 1981. Pesticide analyses: October 1976 to September 1981.

REVISED RECORDS.--WSP 1922: Drainage area. WDR TX-75-1: 1974.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 338.69 ft (revised) National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1983, at datum 5.00 ft higher.

REMARKS.--Records good except those below 60 ft<sup>3</sup>/s in July, August, and September, which are fair. Flow largely regulated by Lavon Lake (station 08060500) since September 1953 and Lake Ray Hubbard (station 08061550) since Mar. 22, 1970. The city of Forney discharges sewage effluent into a tributary below Lake Ray Hubbard and above this station. The North Texas Municipal Water District discharges sewage effluent into tributaries above station from the Mesquite and Chandler's Landing sewage treatment plants. Gage-height telemeter located at station. Flow is affected at times by discharge from the flood-detention pools of 20 floodwater-retarding structures with a combined detention capacity of 11,760 acre-ft. These structures control runoff from 39.2 mi<sup>2</sup>.

AVERAGE DISCHARGE.--4 years (water years 1950-53) prior to regulation by Lavon Lake, 652 ft<sup>3</sup>/s (472,400 acre-ft/yr); 30 years (water years 1954-83) regulated, 595 ft<sup>3</sup>/s (431,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft<sup>3</sup>/s May 28, 1957 (gage height, 22.81 ft); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,200 ft<sup>3</sup>/s Feb. 21 at 1430 hours (gage height, 20.15 ft); minimum daily, 31 ft<sup>3</sup>/s Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	46	88	371	2310	2100	2140	95	222	773	49	94
2	39	154	410	452	4640	2080	2140	85	123	162	50	162
3	36	355	910	429	3330	2060	1280	125	104	60	48	75
4	33	117	435	262	2830	2470	643	122	98	53	56	52
5	45	65	339	157	2490	4250	1700	83	91	381	65	48
6	38	49	313	133	2080	3090	1770	76	347	1480	58	45
7	60	40	307	135	1980	2270	1860	82	907	1760	56	44
8	49	40	299	558	1920	2110	1960	74	661	310	87	44
9	132	42	307	630	1860	2020	850	69	547	405	99	43
10	253	40	319	633	1440	694	172	78	826	500	128	42
11	85	40	957	630	962	354	57	202	687	500	78	42
12	58	49	1600	630	1360	1460	50	212	430	489	58	42
13	159	109	1620	628	1740	1920	76	117	412	350	52	41
14	121	63	458	628	1760	1960	103	156	152	145	49	57
15	62	43	180	628	1830	1930	100	195	82	84	47	53
16	47	40	92	625	1820	1960	95	139	89	80	46	58
17	47	46	73	623	1820	1990	93	100	69	97	46	68
18	43	47	67	625	1840	1990	88	143	72	84	45	54
19	40	43	63	625	1900	1920	90	271	68	65	134	51
20	50	44	53	630	2710	1950	89	568	64	58	447	58
21	64	37	49	618	11200	1960	86	966	67	57	147	52
22	256	38	50	435	8040	1280	88	1700	65	59	118	63
23	165	40	45	391	6300	337	91	1830	64	58	69	54
24	75	48	46	311	3570	242	95	3750	64	52	61	52
25	47	51	37	117	730	190	100	3130	63	52	57	50
26	42	89	35	40	1560	699	99	420	174	51	59	50
27	38	830	585	66	2030	1100	94	178	107	51	60	49
28	73	489	1550	44	2060	418	95	140	132	50	60	49
29	181	174	1570	31	---	1260	101	129	85	49	58	48
30	136	111	1350	34	---	1940	100	108	540	48	50	48
31	67	---	424	194	---	2800	---	191	---	48	45	---
TOTAL	2583	3379	14631	12313	78112	52804	16305	15534	7412	8411	2482	1688
MEAN	83.3	113	472	397	2790	1703	544	501	247	271	80.1	56.3
MAX	256	830	1620	633	11200	4250	2140	3750	907	1760	447	162
MIN	33	37	35	31	730	190	50	69	63	48	45	41
AC-FT	5120	6700	29020	24420	154900	104700	32340	30810	14700	16680	4920	3350
CAL YR 1982	TOTAL	518732	MEAN	1421	MAX	17700	MIN 28	AC-FT	1029000			
WTR YR 1983	TOTAL	215654	MEAN	591	MAX	11200	MIN 31	AC-FT	427700			

## 08062500 TRINITY RIVER NEAR ROSSER, TX

LOCATION.--Lat 32°25'35", long 96°27'46", Ellis County, Hydrologic Unit 12030105, on right bank at downstream side of right pier of bridge on State Highway 34, 2.5 mi south of Rosser, 8.5 mi downstream from East Fork Trinity River, and at mile 451.4.

DRAINAGE AREA.--8,147 mi<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 National Geodetic Vertical Datum of 1929. July 25, 1924, to Sept. 30, 1925, nonrecording gage at abandoned lock and dam No. 7, 1.7 mi upstream from present site at datum 6.94 ft higher.

REMARKS.--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, of which 1,138,000 acre-ft is for flood control. A levee system constructed in 1916 extends several miles upstream and downstream from station. The cities of Fort Worth 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. Flow is affected at times by discharge from the flood-detention pools of 38 floodwater-retarding structures with a combined detention capacity of 22,680 acre-ft. These structures control runoff from 76.7 mi<sup>2</sup>. Two separate gage-height telemeters at station.

AVERAGE DISCHARGE.--46 years (water years 1925, 1939-83), 2,619 ft<sup>3</sup>/s (1,897,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 150,000 ft<sup>3</sup>/s Apr. 23, 1942, following numerous breaks in levee systems along both banks; maximum gage height, 41.55 ft Apr. 22, 1942, just prior to levee breaks; minimum discharge, 32 ft<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 (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, 15,500 ft<sup>3</sup>/s Feb. 21 at 0900 hours (gage height, 27.01 ft); minimum daily, 526 ft<sup>3</sup>/s Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	608	589	848	1200	5660	3640	6520	765	3030	1630	621	941
2	601	727	957	1600	9050	3560	4680	767	2180	1110	629	1820
3	551	3060	2740	2210	8160	3140	3450	829	1210	742	629	1350
4	526	2140	1870	1510	4600	4370	2110	956	997	699	646	776
5	536	882	1160	1060	4050	7500	2750	875	924	1070	648	645
6	545	642	960	895	4050	5740	3450	719	1740	4870	619	636
7	604	576	903	844	3950	4310	3470	679	2520	4580	622	657
8	784	545	861	989	3630	3470	3430	619	1970	2070	872	643
9	777	548	814	1160	3690	3180	2740	583	1280	1060	1480	644
10	1870	545	843	1160	3340	2320	1300	614	1740	1210	2000	650
11	1500	551	2160	1150	2730	1170	1120	982	1600	1160	1170	630
12	787	633	4360	1130	2750	1860	1090	1270	1190	1170	809	613
13	961	683	4160	1150	3100	2650	1060	1060	1110	1060	729	618
14	1250	658	2420	1080	3150	2770	1070	801	1160	864	678	630
15	845	582	1200	1070	3150	2770	1070	2520	5300	970	624	628
16	642	576	947	1070	3100	2850	1030	1410	6100	1740	635	615
17	576	558	825	1040	3090	3340	883	1020	3860	1520	644	623
18	545	561	794	1050	3080	3590	825	903	1190	1050	658	612
19	545	567	762	1050	3000	3030	834	1920	906	862	1450	639
20	545	592	717	1070	5130	2820	801	1820	878	798	5550	699
21	564	582	697	1130	14600	2880	795	4060	818	753	6080	783
22	1010	633	705	983	11300	2520	813	6610	747	735	2920	704
23	1450	626	694	836	7470	1410	851	6960	728	713	1210	658
24	764	561	685	788	5700	1120	951	7380	690	695	893	616
25	655	595	655	692	3230	1080	855	6980	746	657	793	583
26	589	608	640	595	3080	1760	773	3050	1480	677	747	577
27	564	3020	2170	580	3630	5570	752	1290	1670	682	709	590
28	582	5090	6090	591	3650	4240	732	1080	1480	665	664	598
29	764	2950	5400	569	---	2570	733	2080	1450	662	689	588
30	851	1250	2980	553	---	3860	725	1420	1690	649	689	588
31	670	---	1640	645	---	7420	---	1640	---	633	661	---
TOTAL	24061	32130	52657	31450	135120	102510	51663	63662	52384	37756	37768	21354
MEAN	776	1071	1699	1015	4826	3307	1722	2054	1746	1218	1218	712
MAX	1870	5090	6090	2210	14600	7500	6520	7380	6100	4870	6080	1820
MIN	526	545	640	553	2730	1080	725	583	690	633	619	577
AC-FT	47720	63730	104400	62380	268000	203300	102500	126300	103900	74890	74910	42360
CAL YR 1982	TOTAL	2191183	MEAN	6003	MAX	40500	MIN	526	AC-FT	4346000		
WTR YR 1983	TOTAL	642515	MEAN	1760	MAX	14600	MIN	526	AC-FT	1274000		



## TRINITY RIVER BASIN

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1954 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: January 1968 to September 1981.

## 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.--Beginning March 1977, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,990 micromhos Oct. 13, 1956; minimum, 122 micromhos Sept. 30, 1981.

pH: Maximum, 9.9 units July 12, 1982; minimum, 6.8 units Oct. 3, 19, 20, Nov. 19, 1980.

WATER TEMPERATURES: Maximum, 36.0°C July 1, 1955; minimum, 1.0°C on many days during winter months.

DISSOLVED OXYGEN: Maximum, 10.7 mg/L Nov. 9, 1977; minimum, 0.0 mg/L on several days during 1979-81.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 826 micromhos Jan. 31; minimum, 304 micromhos July 6.

pH: Maximum, 8.1 units Feb. 7, 8, 18, 19, Sept. 10; minimum, 7.1 units Sept. 7.

WATER TEMPERATURE: Maximum, 32.5°C July 30, Aug. 2; minimum, 7.0°C Feb. 5.

DISSOLVED OXYGEN: Maximum, 10.2 mg/L Feb. 6-8; minimum, 0.4 mg/L Sept. 2.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT 25...	1605	687	558	7.7	17.5	5.1	53	17	140	7
JAN 17...	1050	1060	567	7.7	10.0	7.9	71	17	150	12
FEB 28...	1405	3690	434	7.9	12.0	8.6	81	5.7	150	15
APR 19...	1005	868	740	7.7	19.0	5.8	64	28	190	29
JUN 06...	1410	1340	686	7.6	25.5	3.6	45	26	170	13
SEP 06...	1435	662	630	7.7	29.5	4.5	60	16	150	16
DATE	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	
OCT 25...	47	4.7	57	2.2	8.1	130	63	45	.70	
JAN 17...	53	4.6	53	2.0	7.4	140	68	42	.80	
FEB 28...	52	3.7	28	1.1	4.5	130	44	22	.50	
APR 19...	66	5.8	70	2.3	9.7	160	93	62	1.4	
JUN 06...	61	4.9	62	2.2	8.2	160	89	50	.80	
SEP 06...	50	5.1	66	2.5	11	130	81	53	1.0	

## TRINITY RIVER BASIN

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08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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)
OCT 25...	10	313	2.9	.770	3.7	1.80	2.8	4.60	1.90
JAN 17...	7.7	320	3.1	.800	3.9	2.30	1.6	3.90	2.00
FEB 28...	5.2	238	1.3	.330	1.6	.820	1.6	2.40	.840
APR 19...	7.7	412	4.2	1.10	5.3	2.50	1.8	4.30	2.50
JUN 06...	11	383	2.6	.840	3.4	3.20	6.5	9.70	1.70
SEP 06...	11	356	3.0	1.20	4.2	3.00	1.5	4.50	2.10

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	24061	620	351	22800	43	2790	75	4860	170
NOV.	1982	32130	547	311	26900	36	3130	65	5680	160
DEC.	1982	52657	484	275	39100	29	4150	57	8100	150
JAN.	1983	31450	603	342	29000	41	3470	72	6150	170
FEB.	1983	135120	382	218	79700	20	7130	44	16000	140
MAR.	1983	102510	448	255	70700	25	7000	52	14500	150
APR.	1983	51663	588	333	46500	40	5570	71	9860	160
MAY	1983	63662	498	283	48600	31	5320	59	10100	150
JUNE	1983	52384	548	311	44000	35	4970	65	9220	160
JULY	1983	37756	545	309	31500	36	3640	65	6630	160
AUG.	1983	37768	578	328	33400	40	4070	70	7100	160
SEPT	1983	21354	708	400	23100	54	3090	87	5010	170
TOTAL		642515	**	**	495000	**	54300	**	103000	**
WTD. AVG.		1760	503	286	**	31	**	59	**	150

## TRINITY RIVER BASIN

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	694	664	675	644	600	624	486	412	446	578	506	552
2	724	696	710	680	646	663	520	456	505	582	564	574
3	720	686	701	704	348	516	534	312	424	576	498	548
4	722	712	718	434	376	413	496	366	409	532	496	514
5	734	718	727	472	428	445	534	498	517	566	534	550
6	770	722	748	534	478	505	568	530	548	630	568	593
7	746	724	736	600	536	567	582	568	575	658	632	642
8	756	726	742	652	602	628	602	574	590	674	566	647
9	732	692	712	668	628	647	632	590	608	560	552	556
10	704	476	601	656	638	645	640	614	627	566	554	560
11	570	426	486	692	650	663	682	512	626	566	552	560
12	574	552	565	738	678	698	508	394	430	560	548	553
13	566	496	524	782	734	753	408	380	393	584	556	575
14	586	502	542	748	706	721	484	396	435	582	550	570
15	576	502	534	734	706	719	536	488	517	590	546	573
16	586	564	577	716	682	697	618	536	576	612	588	601
17	596	576	588	730	714	722	644	620	637	594	578	587
18	632	576	593	714	680	698	690	642	668	590	562	577
19	684	636	666	764	718	736	712	692	701	594	564	580
20	684	664	675	758	730	744	726	712	721	600	556	580
21	708	668	685	770	744	756	722	702	714	612	578	594
22	716	676	699	776	750	766	710	686	699	630	586	609
23	690	508	595	786	740	758	700	636	669	660	630	649
24	594	460	512	784	694	766	662	626	646	684	638	661
25	594	556	576	726	654	676	698	648	671	730	668	690
26	588	570	582	744	724	735	726	706	719	768	714	738
27	598	558	575	724	360	588	724	436	664	788	734	759
28	658	598	621	370	338	355	504	324	383	810	756	781
29	744	656	691	416	356	385	374	328	356	810	774	784
30	722	652	699	430	404	418	380	374	378	822	764	790
31	624	514	566	---	---	---	502	382	437	826	786	809
MONTH	770	426	633	786	338	634	726	312	558	826	496	624

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	772	322	488	452	390	436	424	398	412	808	770	787
2	388	352	359	404	388	398	474	430	462	810	788	801
3	376	352	367	390	374	381	566	464	508	800	750	791
4	358	324	339	616	314	382	618	572	594	768	746	755
5	388	348	369	572	322	351	622	508	566	760	744	748
6	410	390	399	408	364	383	520	512	515	750	728	741
7	392	388	390	408	382	397	530	520	527	746	732	740
8	386	380	383	392	380	386	548	530	539	764	740	747
9	412	382	395	398	388	394	650	540	582	806	764	775
10	424	396	408	592	396	481	726	656	700	804	770	785
11	452	426	440	692	600	659	786	724	755	778	734	754
12	456	426	440	702	480	590	736	658	697	784	646	705
13	426	412	417	478	464	471	698	658	668	680	606	646
14	418	410	415	480	458	470	722	698	713	724	680	701
15	420	412	416	468	442	461	714	700	709	722	348	473
16	432	422	426	438	402	424	708	696	701	610	490	554
17	438	428	432	526	430	479	708	698	702	640	558	606
18	440	426	433	508	470	486	710	698	704	712	636	660
19	446	432	441	468	426	445	752	710	735	738	482	614
20	464	---	371	450	422	440	744	720	737	550	494	519
21	---	---	290	460	444	453	758	716	741	546	376	432
22	---	---	310	504	444	473	774	738	757	438	374	402
23	---	---	330	656	504	569	774	754	762	400	374	384
24	400	---	350	732	664	715	764	748	758	376	344	364
25	556	408	502	750	730	741	790	754	775	390	350	365
26	574	466	516	728	646	700	780	750	759	498	392	443
27	464	450	456	642	426	497	752	726	734	576	504	539
28	456	442	452	488	466	477	772	720	742	668	578	624
29	---	---	---	524	444	481	792	762	778	668	436	597
30	---	---	---	508	438	463	796	770	784	508	424	471
31	---	---	---	486	392	413	---	---	---	578	510	535
MONTH	772	322	405	750	314	481	796	398	671	810	344	615

## TRINITY RIVER BASIN

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08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	600	444	518	576	400	427	800	778	789	778	718	740
2	548	460	497	538	402	459	806	778	792	776	460	640
3	554	480	522	614	544	588	786	778	783	606	516	548
4	632	554	593	688	618	662	---	---	779	662	524	604
5	706	634	660	696	648	686	---	---	778	656	588	620
6	702	632	667	616	304	396	---	---	788	624	590	612
7	626	354	436	374	340	359	---	---	787	658	614	633
8	482	392	438	464	376	417	---	---	717	684	656	666
9	594	484	547	540	466	502	---	---	620	738	674	699
10	574	490	518	582	478	506	---	---	571	816	728	771
11	528	486	505	520	494	506	---	---	661	790	760	769
12	594	520	555	540	518	529	---	---	732	766	748	757
13	624	594	612	588	526	555	---	---	753	766	748	761
14	662	496	610	688	586	618	---	---	768	746	734	754
15	572	416	490	762	692	727	---	---	786	---	---	755
16	490	366	438	768	602	719	---	---	782	---	---	759
17	536	484	506	620	500	541	---	---	779	---	---	756
18	590	540	567	548	494	516	---	---	775	---	---	760
19	690	596	648	604	554	577	756	712	746	---	---	751
20	710	690	701	636	606	612	650	310	401	---	---	732
21	734	676	710	688	638	671	406	366	377	---	---	709
22	732	670	699	712	686	699	414	360	379	---	---	730
23	744	652	712	734	706	719	502	424	462	---	---	745
24	762	738	750	748	730	739	580	504	542	---	---	759
25	764	746	753	758	740	748	648	582	617	---	---	771
26	806	690	741	762	740	751	686	652	671	748	742	743
27	778	588	652	758	716	738	712	688	696	778	752	769
28	604	556	581	758	722	739	742	714	733	794	738	766
29	644	560	603	766	746	756	762	744	753	766	726	745
30	592	522	542	764	750	757	764	750	755	776	750	763
31	---	---	---	774	754	762	756	736	748	---	---	---
MONTH	806	354	592	774	304	612	806	310	688	816	460	720

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.5	7.5	7.5	7.5	7.4	7.4	---	---	---	7.5	7.4	7.4
2	7.5	7.5	7.5	7.5	7.4	7.5	---	---	---	7.4	7.3	7.3
3	7.5	7.5	7.5	7.6	7.4	7.5	---	---	---	7.4	7.3	7.3
4	7.5	7.5	7.5	7.7	7.5	7.6	---	---	---	7.4	7.4	7.4
5	7.5	7.5	7.5	7.6	7.5	7.5	---	---	---	7.4	7.3	7.3
6	7.5	7.4	7.5	7.5	7.5	7.5	---	---	---	7.3	7.2	7.3
7	7.4	7.4	7.4	7.5	7.4	7.4	---	---	---	7.2	7.2	7.2
8	7.5	7.3	7.4	7.4	7.4	7.4	---	---	---	7.3	7.2	7.2
9	7.5	7.4	7.5	7.6	7.4	7.5	---	---	---	7.2	7.2	7.2
10	7.5	7.3	7.4	7.6	7.6	7.6	---	---	---	7.6	7.2	7.4
11	7.4	7.3	7.3	7.6	7.6	7.6	---	---	---	7.6	7.6	7.6
12	7.4	7.3	7.3	7.6	7.5	7.6	---	---	---	7.6	7.6	7.6
13	7.4	7.3	7.4	7.6	7.6	7.6	---	---	---	7.6	7.6	7.6
14	7.4	7.3	7.4	7.6	7.6	7.6	---	---	---	7.6	7.6	7.6
15	7.5	7.4	7.4	7.6	7.6	7.6	---	---	---	7.6	7.6	7.6
16	7.5	7.4	7.5	7.6	7.6	7.6	7.7	7.6	7.6	7.6	7.5	7.6
17	7.4	7.4	7.4	7.6	7.5	7.6	7.7	7.6	7.6	7.6	7.5	7.6
18	7.4	7.4	7.4	7.6	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.5
19	7.4	7.4	7.4	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.5
20	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.6	7.6	7.6	7.5	7.5
21	7.5	7.5	7.5	7.6	7.5	7.5	7.6	7.5	7.6	7.6	7.5	7.5
22	7.5	7.4	7.5	7.6	7.5	7.5	7.6	7.5	7.6	7.6	7.5	7.6
23	7.5	7.4	7.4	7.6	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.6
24	7.4	7.3	7.3	---	---	---	7.5	7.5	7.5	7.5	7.4	7.5
25	7.5	7.3	7.4	---	---	---	7.5	7.5	7.5	7.5	7.5	7.5
26	7.5	7.4	7.5	---	---	---	7.5	7.5	7.5	7.5	7.4	7.4
27	7.4	7.4	7.4	---	---	---	7.5	7.4	7.5	7.5	7.4	7.4
28	7.4	7.4	7.4	---	---	---	7.7	7.5	7.6	7.5	7.4	7.4
29	7.5	7.4	7.4	---	---	---	7.7	7.6	7.7	7.5	7.4	7.4
30	7.4	7.4	7.4	---	---	---	7.6	7.6	7.6	7.5	7.4	7.4
31	7.4	7.3	7.4	---	---	---	7.6	7.4	7.5	7.4	7.4	7.4
MONTH	7.5	7.3	7.4	7.7	7.4	7.5	7.7	7.4	7.6	7.6	7.2	7.5

## TRINITY RIVER BASIN

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.7	7.2	7.5	7.9	7.9	7.9	7.9	7.8	7.8	7.5	7.4	7.5
2	7.9	7.6	7.8	7.9	7.8	7.9	8.0	7.9	7.9	7.5	7.4	7.5
3	8.0	7.9	8.0	7.9	7.9	7.9	8.0	7.8	7.9	7.5	7.5	7.5
4	8.0	7.9	8.0	7.9	7.8	7.9	7.8	7.8	7.8	7.5	7.4	7.5
5	8.0	7.9	8.0	7.8	7.7	7.8	7.9	7.8	7.8	7.5	7.4	7.5
6	8.0	8.0	8.0	7.8	7.7	7.8	7.9	7.8	7.9	7.5	7.5	7.5
7	8.1	8.0	8.0	7.9	7.8	7.8	7.9	7.9	7.9	7.6	7.5	7.5
8	8.1	8.0	8.0	8.0	7.8	7.9	7.9	7.9	7.9	7.5	7.5	7.5
9	8.0	8.0	8.0	8.0	7.9	7.9	7.9	7.8	7.9	7.5	7.5	7.5
10	8.0	7.9	8.0	8.0	7.7	7.9	7.8	7.7	7.7	7.5	7.5	7.5
11	8.0	7.9	7.9	7.7	7.7	7.7	7.7	7.6	7.6	7.5	7.4	7.5
12	7.9	7.9	7.9	7.8	7.7	7.7	7.7	7.6	7.6	7.5	7.4	7.4
13	8.0	7.9	7.9	7.9	7.8	7.9	7.6	7.6	7.6	7.4	7.4	7.4
14	8.0	7.9	7.9	7.9	7.8	7.9	7.6	7.6	7.6	7.4	7.4	7.4
15	8.0	7.9	7.9	7.9	7.8	7.9	7.6	7.6	7.6	7.6	7.4	7.5
16	8.0	7.9	7.9	7.9	7.8	7.9	7.6	7.6	7.6	7.5	7.4	7.5
17	8.0	7.9	7.9	7.9	7.8	7.8	7.6	7.6	7.6	7.5	7.4	7.5
18	8.1	7.9	7.9	7.9	7.8	7.8	7.6	7.6	7.6	7.5	7.4	7.5
19	8.1	7.9	7.9	8.0	7.9	7.9	7.6	7.6	7.6	7.4	7.3	7.4
20	8.0	7.8	7.9	8.0	7.9	7.9	7.7	7.6	7.6	7.4	7.4	7.4
21	---	---	---	8.0	7.9	8.0	7.6	7.6	7.6	7.5	7.4	7.4
22	---	---	---	8.0	7.9	8.0	7.6	7.6	7.6	7.5	7.5	7.5
23	---	---	---	7.9	7.7	7.8	7.6	7.6	7.6	7.5	7.5	7.5
24	7.8	7.8	7.8	7.7	7.6	7.6	7.6	7.5	7.6	7.5	7.5	7.5
25	7.8	7.7	7.7	7.7	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.6
26	7.9	7.7	7.8	7.6	7.6	7.6	7.6	7.5	7.6	7.6	7.4	7.5
27	7.9	7.9	7.9	7.6	7.5	7.6	7.6	7.5	7.5	7.4	7.4	7.4
28	7.9	7.9	7.9	7.6	7.5	7.6	7.6	7.5	7.5	7.5	7.4	7.5
29	---	---	---	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.4
30	---	---	---	7.9	7.5	7.7	7.5	7.4	7.5	7.4	7.3	7.4
31	---	---	---	7.8	7.7	7.8	---	---	---	7.5	7.4	7.5
MONTH	8.1	7.2	7.9	8.0	7.5	7.8	8.0	7.4	7.7	7.6	7.3	7.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.5	7.4	7.5	7.4	7.3	7.3	7.5	7.5	7.5	7.5	7.4	7.4
2	7.5	7.4	7.4	7.3	7.3	7.3	7.5	7.5	7.5	7.4	7.3	7.4
3	7.4	7.4	7.4	7.3	7.3	7.3	7.5	7.5	7.5	7.3	7.3	7.3
4	7.4	7.3	7.3	7.4	7.3	7.4	---	---	---	7.3	7.3	7.3
5	7.3	7.3	7.3	7.5	7.4	7.4	---	---	---	7.3	7.2	7.2
6	7.3	7.3	7.3	7.6	7.3	7.5	---	---	---	7.2	7.2	7.2
7	7.5	7.3	7.4	7.5	7.5	7.5	---	---	---	7.2	7.1	7.2
8	7.5	7.5	7.5	7.5	7.5	7.5	---	---	---	7.2	7.2	7.2
9	7.5	7.4	7.5	7.5	7.5	7.5	---	---	---	7.2	7.2	7.2
10	7.5	7.4	7.5	7.5	7.4	7.5	---	---	---	8.1	7.2	7.5
11	7.5	7.5	7.5	7.5	7.4	7.4	---	---	---	7.4	7.2	7.3
12	7.5	7.4	7.4	7.5	7.4	7.5	---	---	---	7.3	7.2	7.2
13	7.5	7.4	7.4	7.5	7.4	7.5	---	---	---	7.3	7.2	7.2
14	7.5	7.4	7.4	7.5	7.4	7.4	---	---	---	7.3	7.2	7.2
15	7.5	7.4	7.5	7.5	7.4	7.4	---	---	---	---	---	---
16	7.5	7.5	7.5	7.4	7.3	7.4	---	---	---	---	---	---
17	7.5	7.4	7.5	7.3	7.3	7.3	---	---	---	---	---	---
18	7.5	7.4	7.4	7.3	7.2	7.3	---	---	---	---	---	---
19	7.5	7.4	7.4	7.3	7.3	7.3	7.5	7.4	7.5	---	---	---
20	7.5	7.5	7.5	7.4	7.3	7.3	7.6	7.4	7.5	---	---	---
21	7.5	7.4	7.5	7.5	7.3	7.4	7.6	7.4	7.5	---	---	---
22	7.6	7.4	7.5	7.5	7.5	7.6	7.4	7.4	7.4	---	---	---
23	7.6	7.5	7.5	7.5	7.5	7.6	7.4	7.3	7.3	---	---	---
24	7.6	7.5	7.6	7.6	7.5	7.5	7.3	7.3	7.3	---	---	---
25	7.6	7.5	7.6	7.6	7.5	7.6	7.3	7.3	7.3	---	---	---
26	7.6	7.4	7.5	7.8	7.6	7.7	7.3	7.3	7.3	7.4	7.4	7.4
27	7.5	7.3	7.4	7.8	7.6	7.7	7.3	7.3	7.3	7.5	7.4	7.4
28	7.4	7.3	7.3	7.7	7.7	7.7	7.3	7.3	7.3	7.4	7.4	7.4
29	7.4	7.3	7.3	7.7	7.6	7.6	7.3	7.2	7.3	7.4	7.4	7.4
30	7.4	7.3	7.3	7.6	7.5	7.5	7.3	7.2	7.2	7.4	7.4	7.4
31	---	---	---	7.5	7.4	7.5	7.3	---	---	---	---	---
MONTH	7.6	7.3	7.4	7.8	7.2	7.5	7.6	7.2	7.4	8.1	7.1	7.3



## TRINITY RIVER BASIN

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08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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

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

## TRINITY RIVER BASIN

08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

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

## OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	4.4	3.8	4.0	4.1	3.9	4.0	7.4	6.6	7.0	8.7	8.0	8.5
2	4.2	3.8	3.9	4.3	3.9	4.1	6.5	4.6	5.9	8.5	8.0	8.3
3	4.0	3.4	3.7	4.7	1.8	3.3	5.6	3.9	4.9	9.7	8.5	8.9
4	3.9	3.4	3.7	5.4	4.6	5.1	6.1	5.2	5.7	9.7	9.2	9.4
5	4.2	3.5	3.8	5.6	5.3	5.5	6.4	6.1	6.2	9.2	8.6	8.9
6	4.1	3.4	3.8	6.3	5.4	5.9	6.5	6.2	6.4	8.7	8.1	8.5
7	4.0	3.4	3.7	5.6	5.1	5.4	6.8	6.3	6.5	8.1	7.6	7.9
8	4.0	3.3	3.6	5.1	4.7	4.9	6.7	6.4	6.5	7.7	6.3	7.3
9	3.9	3.5	3.7	5.0	4.5	4.7	6.9	6.5	6.6	7.6	6.9	7.4
10	3.6	2.1	2.9	4.8	4.5	4.7	6.8	6.5	6.6	7.9	7.5	7.7
11	4.2	2.8	3.8	4.4	3.9	4.1	6.9	6.2	6.4	7.9	7.7	7.8
12	4.8	3.7	4.1	4.5	4.0	4.2	9.2	7.2	8.4	7.8	7.7	7.8
13	4.9	4.3	4.6	4.9	4.3	4.6	9.7	8.9	9.5	7.7	7.5	7.6
14	4.3	3.9	4.1	5.0	4.4	4.7	9.6	8.7	9.2	7.6	7.5	7.5
15	4.5	3.6	4.0	5.9	4.8	5.3	8.7	8.3	8.5	7.7	7.6	7.7
16	4.7	4.2	4.3	6.2	5.7	5.8	8.4	7.4	7.9	7.7	7.4	7.6
17	4.3	4.0	4.2	6.0	5.7	5.8	7.6	7.2	7.3	7.7	7.4	7.5
18	4.3	4.0	4.1	6.0	5.3	5.7	7.4	6.4	7.0	7.7	7.3	7.5
19	4.3	4.0	4.1	5.3	5.0	5.1	6.8	6.5	6.7	7.7	7.4	7.5
20	4.5	4.1	4.3	5.1	4.7	5.0	6.7	6.3	6.4	7.7	7.4	7.5
21	4.6	4.2	4.4	4.8	4.4	4.6	6.6	6.3	6.4	7.7	7.3	7.5
22	4.9	4.4	4.5	4.4	4.1	4.3	6.5	6.0	6.2	7.8	7.7	7.7
23	4.8	3.9	4.2	4.4	3.8	4.0	6.2	5.6	5.8	7.7	7.3	7.5
24	5.1	4.9	5.0	5.0	4.0	4.6	5.8	5.2	5.4	7.4	4.9	6.6
25	5.3	4.8	5.0	5.3	4.9	5.1	5.6	5.0	5.2	7.4	7.0	7.2
26	5.1	4.9	5.0	5.7	4.8	5.1	5.9	5.3	5.6	7.1	6.6	6.8
27	5.0	4.8	4.9	7.1	4.8	5.7	7.3	5.4	5.9	7.0	6.4	6.7
28	5.0	4.7	4.8	8.2	7.5	7.9	9.6	7.6	8.6	6.7	6.0	6.3
29	4.8	4.1	4.5	8.2	7.8	8.0	9.7	9.6	9.7	6.6	6.1	6.3
30	4.1	3.2	3.6	7.8	7.4	7.6	9.6	9.5	9.6	6.5	6.1	6.3
31	4.2	3.2	3.9	---	---	---	9.6	8.6	9.1	6.2	5.7	6.0
MONTH	5.3	2.1	4.1	8.2	1.8	5.2	9.7	3.9	7.0	9.7	4.9	7.5

## TRINITY RIVER BASIN

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08062500 TRINITY RIVER NEAR ROSSER, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.6	3.0	5.7	8.6	8.1	8.3	7.7	7.4	7.6	4.2	3.8	4.0
2	8.9	4.0	7.6	8.3	7.7	8.0	8.3	7.7	8.1	4.0	3.3	3.6
3	9.9	8.9	9.5	8.1	7.6	7.8	8.4	7.5	8.0	4.0	3.1	3.5
4	9.8	9.6	9.7	8.0	7.0	7.5	7.5	7.3	7.4	3.5	3.0	3.2
5	10.1	9.9	9.9	7.0	6.3	6.7	8.0	6.0	7.3	4.1	3.1	3.6
6	10.2	9.9	10.0	7.0	6.4	6.7	8.1	7.3	7.9	4.8	3.8	4.3
7	10.2	10.1	10.2	7.9	7.0	7.3	8.2	7.9	8.1	4.9	4.2	4.6
8	10.2	9.9	10.1	8.0	7.4	7.7	8.2	7.8	8.0	4.8	4.0	4.4
9	9.9	9.4	9.7	8.0	7.5	7.8	8.2	7.1	7.7	4.2	3.8	4.0
10	9.6	8.8	9.3	8.3	6.4	7.5	7.0	6.6	6.7	4.4	3.7	4.0
11	9.0	8.8	8.9	6.6	6.3	6.4	6.7	5.7	6.2	4.6	3.7	4.0
12	9.2	8.8	9.0	7.7	5.0	6.8	5.9	5.3	5.6	3.8	2.0	2.8
13	9.2	9.1	9.1	7.8	7.6	7.7	5.3	4.8	5.1	3.6	2.0	2.8
14	9.2	9.0	9.1	7.8	7.1	7.4	5.3	4.9	5.0	3.8	3.2	3.5
15	9.2	8.8	9.0	7.4	7.0	7.2	5.0	4.5	4.8	4.8	3.3	4.2
16	9.0	8.7	8.8	7.6	6.9	7.3	5.4	5.0	5.2	4.5	3.4	4.1
17	8.8	8.6	8.7	7.3	6.5	6.9	5.8	5.4	5.6	4.4	3.3	3.8
18	8.9	8.4	8.6	7.9	6.9	7.2	5.9	5.3	5.6	4.7	4.0	4.3
19	8.8	8.1	8.4	8.3	7.7	8.0	5.8	5.3	5.5	3.9	2.2	3.0
20	---	---	---	8.5	7.7	8.1	5.9	5.4	5.7	3.8	2.7	3.3
21	---	---	---	8.7	8.2	8.4	5.8	5.3	5.6	4.6	2.8	3.7
22	---	---	---	8.9	7.8	8.3	5.6	5.3	5.4	5.1	4.4	4.7
23	---	---	---	7.9	7.0	7.5	5.7	5.1	5.4	5.3	4.9	5.1
24	---	---	---	6.9	6.1	6.4	5.4	4.6	4.9	5.5	4.9	5.2
25	7.2	6.4	6.8	6.5	5.7	6.1	5.3	4.6	4.9	5.5	5.2	5.3
26	8.2	6.5	7.4	6.6	5.7	6.3	5.5	4.7	5.1	5.3	4.0	4.5
27	8.5	8.2	8.3	7.4	5.2	6.4	5.4	4.9	5.1	4.0	3.7	3.8
28	8.7	8.4	8.5	7.1	6.8	6.9	5.3	4.8	5.0	4.2	3.7	3.8
29	---	---	---	7.8	6.3	7.1	5.0	3.8	4.4	4.5	2.7	3.6
30	---	---	---	7.8	6.9	7.5	4.2	3.6	4.0	4.1	2.8	3.3
31	---	---	---	7.6	6.7	7.2	---	---	---	5.1	4.2	4.7
MONTH	10.2	3.0	8.8	8.9	5.0	7.3	8.4	3.6	6.0	5.5	2.0	4.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	5.1	4.4	4.9	3.4	.8	2.9	4.3	3.5	3.9	4.6	3.1	4.1
2	5.0	4.7	4.9	3.7	3.3	3.5	4.9	3.6	4.3	2.6	.4	1.5
3	5.1	4.6	4.9	4.1	3.4	3.7	4.8	3.8	4.4	2.0	.8	1.3
4	5.0	3.9	4.4	4.5	3.5	4.0	---	---	---	3.5	2.1	2.8
5	4.1	3.6	3.8	4.5	2.9	4.1	---	---	---	4.3	3.1	3.7
6	4.0	3.4	3.7	3.6	.9	2.4	---	---	---	4.5	3.2	3.8
7	4.2	2.1	3.2	4.5	3.9	4.2	---	---	---	4.1	3.3	3.8
8	4.4	4.2	4.3	4.7	4.5	4.6	---	---	---	4.0	3.3	3.7
9	4.3	3.0	4.1	4.8	3.8	4.4	---	---	---	4.3	3.3	3.8
10	4.4	2.4	4.2	4.1	2.3	3.7	---	---	---	3.8	.8	2.6
11	4.5	4.3	4.4	4.4	3.6	4.0	---	---	---	3.8	2.4	3.3
12	4.4	4.0	4.1	4.5	3.6	4.0	---	---	---	3.9	2.8	3.4
13	4.2	3.7	4.0	4.3	3.7	4.0	---	---	---	3.7	3.0	3.4
14	4.3	3.7	3.9	4.4	3.5	3.8	---	---	---	3.5	3.2	3.3
15	4.1	2.1	3.3	4.3	3.4	3.8	---	---	---	---	---	---
16	4.4	2.8	3.6	3.3	2.1	2.6	---	---	---	---	---	---
17	4.7	4.0	4.4	3.3	2.6	2.8	---	---	---	---	---	---
18	4.5	3.6	3.9	3.3	2.9	3.1	---	---	---	---	---	---
19	4.2	3.7	3.9	4.0	3.2	3.5	4.0	1.7	3.5	---	---	---
20	4.5	4.0	4.1	4.7	3.4	3.9	3.4	1.1	2.0	---	---	---
21	4.3	3.9	4.2	4.7	2.9	4.0	3.3	2.3	3.0	---	---	---
22	4.5	3.9	4.3	4.5	3.7	4.1	3.1	2.3	2.7	---	---	---
23	4.6	3.9	4.3	4.7	3.5	4.1	3.3	2.8	3.0	---	---	---
24	5.2	3.9	4.6	5.4	3.6	4.5	3.3	3.1	3.2	---	---	---
25	5.0	4.3	4.7	5.4	3.4	4.6	3.5	2.8	3.1	---	---	---
26	4.6	2.9	3.6	7.9	4.8	6.3	3.8	2.9	3.4	4.6	4.0	4.2
27	2.9	1.3	2.3	7.1	5.1	6.3	4.4	3.3	3.8	4.2	3.7	3.9
28	3.1	2.8	2.9	6.9	5.5	6.2	4.7	3.2	3.9	4.1	3.6	3.8
29	3.5	2.6	3.1	6.2	5.1	5.8	4.6	3.3	4.0	4.1	3.5	3.8
30	3.8	1.4	2.9	5.9	4.6	5.2	4.5	3.3	4.0	3.9	3.4	3.6
31	---	---	---	4.8	3.8	4.2	4.2	---	---	---	---	---
MONTH	5.2	1.3	4.0	7.9	.8	4.1	4.9	1.1	3.5	4.6	.4	3.4

## TRINITY RIVER BASIN

08062700 TRINITY RIVER AT TRINIDAD, TX  
(National stream-quality accounting network)

LOCATION.--Lat 32°08'05", long 96°06'20", Henderson County, Hydrologic Unit 12030105, on left bank at pumping station of Texas Power and Light Co., near southwest boundary of Trinidad, 0.5 mi downstream from St. Louis Southwestern Railway Lines bridge, 0.9 mi downstream from bridge on State Highway 31, 8 mi upstream from Cedar Creek, and at mile 391.2.

DRAINAGE AREA.--8,538 mi<sup>2</sup>, not including 1,007 mi<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 National Geodetic Vertical Datum of 1929. Prior to May 3, 1967, at site 0.9 mi upstream at datum 1.28 ft higher.

REMARKS.--Water-discharge records good. There are 62 floodwater-retarding structures with a combined detention capacity of 38,690 acre-ft in drainage basin above this station. These structures control runoff from 126 mi<sup>2</sup>. For regulation by upstream reservoirs, see Trinity River near Rosser (station 08062500). The spillway outflow from Cedar Creek Reservoir (station 08062650) enters the Trinity River 13 mi upstream from station. Many diversions above station for municipal supply for the cities of Fort Worth, Dallas, and several small towns. Low flows are maintained by sewage effluent from the Dallas-Fort Worth metroplex. A gage-height telemeter is located at station. Additional telemeter (data collection platform, battery, and antenna) equipment was discontinued Jan. 31, 1982, and subsequently removed.

AVERAGE DISCHARGE.--19 years, 3,697 ft<sup>3</sup>/s (2,678,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 83,000 ft<sup>3</sup>/s May 8, 1969 (gage height, 44.10 ft); minimum daily, 312 ft<sup>3</sup>/s Aug. 9, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1908, 49.8 ft Apr. 25, 1942 (present site and datum), from records of the National Weather Service. Flood in 1908 reached a stage of 48.3 ft, present site and datum, from records of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,100 ft<sup>3</sup>/s Feb. 23 at 1400 hours (gage height, 35.69 ft); minimum daily, 609 ft<sup>3</sup>/s Aug. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	731	831	1560	2750	1200	3700	8540	865	2170	1870	628	734
2	712	753	1340	1590	5510	3580	7350	888	3250	1800	609	854
3	702	899	7740	1920	7850	3680	5170	912	2600	1360	621	1810
4	655	2890	6200	2360	8460	6410	3500	946	1650	865	629	1640
5	612	2320	4690	1850	7260	9540	2320	1110	1330	808	639	966
6	624	1130	4100	1400	8500	12200	2720	1030	1280	1270	645	735
7	641	786	3440	1200	6960	14300	3280	879	2330	4610	620	683
8	696	690	1530	1120	4770	12000	3340	817	2890	4790	622	701
9	910	662	2050	1230	5590	6030	3310	764	2890	2650	792	706
10	906	675	2060	1430	8440	3470	2700	731	3100	1250	1320	694
11	1890	680	3450	1440	5720	2390	1620	906	2060	1280	2090	701
12	1700	674	6280	1430	3630	1480	1320	1160	1880	1240	1420	695
13	988	750	7780	1410	3170	1960	1260	1460	1460	1240	898	673
14	1080	817	6640	1430	3420	2620	1210	1270	1320	1150	745	667
15	1420	817	4530	1370	3460	2750	1210	1030	1630	957	694	677
16	1040	732	1790	1350	3430	2760	1210	2470	5170	1080	638	694
17	767	719	1230	1340	3380	2840	1170	1800	6270	1800	624	669
18	682	696	1070	1320	3380	3230	1030	1250	4410	1660	639	664
19	645	699	1010	1320	3370	3430	945	1120	1790	1210	932	668
20	643	707	971	1330	3660	3040	949	3570	1150	932	1300	695
21	642	727	928	1350	10700	2830	930	5310	1080	841	4960	731
22	674	723	902	1400	21500	2840	921	7840	1010	788	6130	816
23	1070	769	906	1280	26600	2520	940	9270	918	756	4000	774
24	1570	803	900	1100	24600	1670	969	8950	889	732	1630	708
25	1150	705	882	1030	18900	1300	1080	8300	846	704	1040	668
26	801	745	884	945	10100	1520	1010	8610	893	664	887	630
27	710	1020	4350	833	5120	3360	917	4630	1560	665	817	617
28	691	3410	7050	801	4030	6750	887	1870	1940	673	783	629
29	696	5040	8900	817	---	4590	869	1460	1830	661	735	640
30	861	3270	7670	792	---	3980	873	2280	2780	655	736	631
31	999	---	4150	777	---	7160	---	3140	---	644	743	---
TOTAL	27908	36139	106983	41715	222710	139930	63550	86638	64376	41605	39566	23170
MEAN	900	1205	3451	1346	7954	4514	2118	2795	2146	1342	1276	772
MAX	1890	5040	8900	2750	26600	14300	8540	9270	6270	4790	6130	1810
MIN	612	662	882	777	1200	1300	869	731	846	644	609	617
AC-FT	55360	71680	212200	82740	441700	277600	126100	171800	127700	82520	78480	45960
CAL YR 1982	TOTAL	2485563	MEAN	6810	MAX	39600	MIN	612	AC-FT	4930000		
WTR YR 1983	TOTAL	894290	MEAN	2450	MAX	26600	MIN	609	AC-FT	1774000		



## TRINITY RIVER BASIN

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08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1977 to September 1982.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1977 to September 1981.

WATER TEMPERATURES: November 1977 to September 1981.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,000 micromhos Dec. 28, 1977; minimum daily, 240 micromhos June 5, 1981.

WATER TEMPERATURES: Maximum daily, 34.0°C July 17, 1979, and July 9, 13, 1980; minimum daily 3.5°C Jan. 5, 1979.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 KF AGAR (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CAC03)
OCT 25...	1340	1100	632	7.6	17.0	57	4.0	42	23	96	450	130
JAN 18...	1250	1320	582	7.7	10.0	48	8.4	75	18	260	--	160
MAR 01...	1210	3870	434	7.9	12.0	250	8.8	83	4.9	360	100	150
APR 20...	0910	951	700	7.9	18.0	22	7.1	76	14	23	140	200
JUN 07...	1215	2390	627	7.7	25.5	100	3.3	41	22	280	3600	170
SEP 07...	1045	672	545	7.9	29.0	31	6.3	83	11	2400	3500	130

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)	ALKA- LITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)
OCT 25...	4	46	4.5	67	2.6	9.6	130	73	56	1.1	11	380
JAN 18...	20	56	4.7	54	2.0	7.3	140	69	45	.80	7.9	338
MAR 01...	16	52	3.9	28	1.1	4.4	130	46	27	.50	5.5	260
APR 20...	35	68	5.9	65	2.1	8.3	160	90	57	1.8	6.9	412
JUN 07...	22	61	4.8	54	1.9	8.3	150	76	43	.70	8.6	377
SEP 07...	23	46	4.4	51	2.0	10	111	82	38	.70	8.9	333

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (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 25...	358	5.1	3.10	9.50	2.40	2.60	2.40	10	131	389	98
JAN 18...	335	4.5	1.60	3.40	1.80	1.60	1.30	--	108	385	92
MAR 01...	247	1.7	.540	2.50	.900	.470	.310	--	379	3960	89
APR 20...	404	5.5	.620	2.50	1.90	1.80	1.20	--	--	--	--
JUN 07...	351	4.0	.870	2.30	1.60	1.30	1.00	--	520	3360	70
SEP 07...	312	3.7	.180	2.00	1.10	1.00	1.20	--	--	--	--



## TRINITY RIVER BASIN

08062700 TRINITY RIVER AT TRINIDAD, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 25...	1340	3	37	1	<1	<1	<3	4	17	1
JAN 18...	1250	2	46	<1	<1	<1	<3	2	12	<1
APR 20...	0910	3	54	<1	<1	<1	<3	3	5	<1
SEP 07...	1045	6	39	1	<1	<1	<3	3	<3	1
	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 25...	23	2	.1	<10	15	<1	<1	350	<6.0	17
JAN 18...	12	14	<.1	<10	8	<1	<1	530	<6.0	20
APR 20...	17	6	.2	<10	7	<1	<1	550	<6.0	14
SEP 07...	<4	2	.2	<10	10	<1	<1	410	<6.0	10

## 08062800 CEDAR CREEK NEAR KEMP, TX

LOCATION.--Lat 32°30'18", long 96°06'57", Kaufman County, Hydrologic Unit 12030107, on left bank at downstream side of bridge on Farm Road 1836, 3.6 mi upstream from Williams Creek, 8.1 mi northeast of Kemp, and 51.5 mi upstream from mouth.

DRAINAGE AREA.--189 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those below 10 ft<sup>3</sup>/s, which are fair. Flow is affected at times by storage in Terrell Municipal Lake (capacity, 8,300 acre-ft). The city of Terrell diverts water from Terrell Municipal Lake (above this station) for municipal use and returns sewage effluent to a tributary of Kings Creek that enters the creek 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. These structures control runoff from 55.2 mi<sup>2</sup>.

AVERAGE DISCHARGE.--20 years (water years 1964-83), 115 ft<sup>3</sup>/s (83,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft<sup>3</sup>/s Apr. 26, 1966 (gage height, 16.8 ft); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1889, about 20.5 ft 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 and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 3	1400	*15,900	14.90	Mar. 5	0900	6,430	13.73
Dec. 12	1600	2,750	13.00	June 7	1800	5,720	13.59
Dec. 28	2100	2,070	12.75	June 30	1800	2,350	12.86
Feb. 21	2100	6,320	13.71				

Minimum discharge, no flow at many times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	23	59	59	37	356	.00	6.8	686	.00	.00
2	.00	.07	55	46	96	28	139	.00	6.2	77	.00	.00
3	.00	.03	7510	35	32	33	74	.00	5.1	34	.00	.00
4	.00	2.2	5540	27	16	932	43	.00	3.9	18	.00	.00
5	.00	2.6	2220	22	181	4740	32	.00	3.4	13	.00	.00
6	.00	2.5	750	19	537	3190	27	.00	198	13	.00	.00
7	.00	1.9	289	17	208	1500	21	.00	3240	11	.00	.00
8	.00	.86	184	14	92	641	16	.00	3010	6.3	.00	.00
9	.00	.37	136	12	86	281	12	.00	575	4.3	.00	.00
10	.00	.18	106	10	193	93	10	1.6	157	3.9	.00	.00
11	.00	.27	898	8.8	116	53	8.6	6.0	94	3.2	.00	.00
12	.00	.49	2430	7.1	54	40	7.1	16	63	2.7	.00	.00
13	.00	.20	1610	5.9	32	31	6.0	45	42	2.3	.00	.00
14	.00	.12	321	5.0	22	25	5.0	100	27	1.7	.00	.00
15	.00	.05	148	4.4	15	21	4.1	340	17	1.4	.00	.00
16	.00	.02	87	3.9	11	17	3.6	150	14	1.0	.00	.03
17	.00	.01	53	3.8	9.7	15	3.1	50	12	.80	.00	.00
18	.00	.00	40	3.5	8.1	13	2.7	20	12	.50	5.0	.00
19	.00	.00	31	3.1	7.8	10	2.3	5.2	6.3	.20	2.4	.00
20	.00	.00	25	3.2	107	9.6	2.0	4.0	5.1	.00	1.0	.00
21	.00	.00	18	3.2	3320	9.6	1.4	3.5	3.9	.00	.40	.00
22	.00	.00	15	3.0	4450	9.2	1.0	3.0	3.4	.00	.10	.00
23	.00	.05	14	3.2	1960	7.3	.70	2.8	2.6	.00	.08	.00
24	.00	.00	13	3.1	483	8.6	.30	294	2.4	.00	.06	.00
25	.00	.00	12	2.7	183	28	.10	215	3.4	.00	.04	.00
26	.00	.17	10	2.6	93	81	.00	77	19	.00	.05	.00
27	.00	109	369	2.3	63	648	.00	38	73	.00	.02	.00
28	.00	264	1680	2.2	49	298	.00	25	76	.00	.00	.00
29	.00	118	1140	2.1	---	105	.00	16	397	.00	.00	.00
30	.00	38	199	1.9	---	171	.00	10	1740	.00	.00	.00
31	.00	---	89	2.2	---	806	---	8.2	---	.00	.00	---
TOTAL	.00	541.09	26015	338.2	12483.6	13881.3	778.00	1430.30	9818.5	880.30	9.15	.03
MEAN	.000	18.0	839	10.9	446	448	25.9	46.1	327	28.4	.30	.001
MAX	.00	264	7510	59	4450	4740	356	340	3240	686	5.0	.03
MIN	.00	.00	10	1.9	7.8	7.3	.00	.00	2.4	.00	.00	.00
AC-FT	.00	1070	51600	671	24760	27530	1540	2840	19470	1750	18	.06
CAL YR 1982	TOTAL	43331.09	MEAN	119	MAX	7510	MIN	.00	AC-FT	85950		
WTR YR 1983	TOTAL	66175.47	MEAN	181	MAX	7510	MIN	.00	AC-FT	131300		

## TRINITY RIVER BASIN

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 upstream from Big Cottonwood Creek, 4.8 mi downstream from Big Brushy Creek, and 5.3 mi south of Kaufman.

DRAINAGE AREA.--233 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 343.24 ft State Department of Highways and Public Transportation datum.

REMARKS.--Records fair. During the year, the cities of Terrell and Kaufman returned sewage effluent into the creek above this station. Flow is affected at times by discharge from the flood-detention pools of 28 floodwater-retarding structures with a combined detention capacity of 14,560 acre-ft. These structures control runoff from 46.8 mi<sup>2</sup> in the Cedar Creek drainage basins. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--20 years (water years 1964-83), 150 ft<sup>3</sup>/s (108,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,200 ft<sup>3</sup>/s Apr. 19, 1976 (gage height, 26.19 ft), from rating curve extended above 50,000 ft<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, 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 and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 21	0930	*12,600	20.83
Mar. 5	1115	6,220	19.38

Minimum daily discharge, no flow Sept. 16-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	2.0	14	78	174	91	280	.16	4.4	.99	.22	.30
2	1.3	11	5.5	42	221	45	109	.16	3.4	.78	.20	.25
3	1.2	91	253	34	80	12	43	.16	1.8	.49	.17	.20
4	1.4	35	423	27	35	885	20	.13	1.1	.39	.15	.15
5	1.3	11	179	16	184	4870	4.7	.13	.72	.66	.12	.10
6	1.2	6.3	80	14	301	1860	3.5	.13	165	176	.11	.09
7	1.1	3.7	31	13	148	351	2.8	.06	597	40	.10	.08
8	4.0	2.7	12	11	81	195	2.3	.06	105	26	.10	.07
9	2.6	2.6	4.4	10	38	134	1.7	1.2	29	15	.09	.06
10	42	2.6	4.9	9.3	38	86	1.1	2.6	9.9	11	.08	.05
11	18	2.6	478	7.8	56	40	.78	17	4.9	8.4	.08	.04
12	3.0	2.4	1070	7.4	32	24	.44	26	2.4	6.5	.07	.03
13	2.6	2.3	424	6.9	20	15	.39	10	1.8	5.0	.06	.02
14	2.2	2.3	176	7.4	14	9.9	.34	49	1.4	4.0	.05	.01
15	2.0	2.3	65	7.4	10	6.9	.26	415	.92	3.0	.05	.01
16	2.0	2.4	21	6.7	8.1	6.1	.19	111	.92	2.4	.04	.00
17	1.9	2.4	10	5.6	7.6	4.9	.30	21	.85	4.0	.04	.00
18	1.9	2.2	5.8	5.3	8.1	4.0	.26	6.5	.66	1.8	.04	.00
19	1.9	2.3	4.2	5.6	7.1	3.4	.16	6.5	.66	1.3	1.0	.00
20	1.9	2.2	3.2	5.6	795	3.4	.10	549	.99	1.1	5.0	.00
21	1.9	2.1	2.7	5.3	8990	3.2	.19	1140	.99	.90	3.0	.00
22	1.9	2.1	2.6	4.9	3240	4.0	.19	1470	.78	.80	2.0	.00
23	3.2	2.3	2.2	4.7	1040	2.8	.22	884	.99	.70	1.6	.00
24	2.6	2.2	2.0	4.5	474	14	.60	1410	.99	.60	1.3	.00
25	1.8	2.2	1.9	4.9	301	24	.66	364	.85	.55	1.0	.00
26	1.7	2.8	1.8	5.1	230	288	.26	146	1.4	.50	.80	.00
27	1.9	366	588	4.5	183	895	.19	80	1.4	.45	.70	.00
28	2.1	726	1260	4.4	129	202	.15	34	1.4	.40	.60	.00
29	2.6	197	414	5.1	---	91	.13	13	1.8	.35	.50	.00
30	2.6	61	180	5.8	---	824	.16	6.7	1.4	.30	.40	.00
31	2.6	---	123	6.3	---	1140	---	5.5	---	.25	.35	---
TOTAL	119.8	1555.0	5842.2	375.5	16844.9	12134.6	474.07	6768.99	944.82	314.61	20.02	1.46
MEAN	3.86	51.8	188	12.1	602	391	15.8	218	31.5	10.1	.65	.049
MAX	42	726	1260	78	8990	4870	280	1470	597	176	5.0	.30
MIN	1.1	2.0	1.8	4.4	7.1	2.8	.10	.06	.66	.25	.04	.00
AC-FT	238	3080	11590	745	33410	24070	940	13430	1870	624	40	2.9
CAL YR 1982	TOTAL	25448.08	MEAN	69.7	MAX	2080	MIN	.26	AC-FT	50480		
WTR YR 1983	TOTAL	45395.97	MEAN	124	MAX	8990	MIN	.00	AC-FT	90040		

NOTE.--No gage-height record July 12 to Aug. 23.

## TRINITY RIVER BASIN

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08062980 LACY FORK NEAR MABANK, TX

LOCATION.--Lat 32°25'27", long 96°06'33", Kaufman County, Hydrologic Unit 12030107, on left bank at downstream side of bridge on Farm Road 90, 1.7 mi upstream from Caney Creek, 3.4 mi upstream from Cedar Creek Reservoir, and 4.1 mi north of intersection of U.S. Highway 175 and Farm Road 90 in Mabank.

DRAINAGE AREA.--118 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1982 to September 1983.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 326.955 ft, State Department of Highways and Public Transportation datum.

REMARKS.--Records fair. No known diversion or effluent is returned to fork above station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,360 ft<sup>3</sup>/s Dec. 3, 1982 (gage height, 21.43 ft), from rating curve extended above 627 ft<sup>3</sup>/s on basis of velocity-area study; no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,360 ft<sup>3</sup>/s Dec. 3 at 1000 hours (gage height, 21.43 ft), from rating curve extended above 627 ft<sup>3</sup>/s on basis of velocity-area study; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	12	41	92	34	70	1.7	4.4	15	.36	.06
2	.00	.00	212	34	56	27	41	1.8	4.2	7.9	.31	.02
3	.00	.00	3150	28	28	41	24	1.8	3.8	4.6	.25	.02
4	.00	.00	1300	21	18	502	16	1.6	3.4	3.2	.42	.02
5	.00	.00	407	16	249	539	13	1.6	3.1	2.5	.43	.00
6	.00	.00	312	14	263	152	11	1.5	108	2.5	.41	.00
7	.00	.00	283	12	112	92	8.7	1.4	130	2.0	.35	.00
8	.00	.00	251	11	78	68	7.3	1.3	50	1.6	.30	.00
9	.00	.00	214	9.4	72	46	6.4	1.3	24	1.3	.27	.00
10	.00	.00	209	8.9	154	31	5.6	1.3	12	1.1	.23	.00
11	.00	.00	660	7.9	97	23	5.0	2.5	6.3	1.0	.20	.00
12	.00	.00	867	6.9	63	18	4.7	7.9	4.4	.94	.16	.00
13	.00	.00	243	6.1	42	14	4.7	4.9	3.4	.85	.10	.00
14	.00	.00	173	5.4	31	12	4.2	3.5	2.8	.81	.10	.00
15	.00	.00	148	5.5	24	10	3.9	4.2	2.6	.76	.10	.00
16	.00	.00	112	5.0	19	9.1	3.5	6.2	2.3	4.6	.08	.00
17	.00	.00	86	4.7	16	8.1	3.2	3.5	2.1	8.2	.08	.00
18	.00	.00	65	4.6	13	6.8	3.0	2.6	3.9	3.4	.10	.00
19	.00	.00	50	4.5	12	6.1	2.7	2.4	2.8	1.9	.37	.00
20	.00	.00	36	4.6	172	6.5	2.6	45	2.0	1.3	.58	.00
21	.00	.00	27	4.7	1210	9.6	2.5	156	1.7	1.0	1.7	.00
22	.00	.00	22	4.8	793	8.3	2.5	136	1.5	.84	.95	.00
23	.00	.30	18	5.4	228	7.8	2.4	69	1.4	.71	.64	.00
24	.00	5.2	16	4.9	154	10	2.4	38	1.2	.62	.52	.00
25	.00	6.2	14	4.6	108	11	2.2	20	1.5	.56	.41	.00
26	.00	9.6	12	4.5	81	49	2.0	11	1.7	.53	.37	.00
27	.00	209	217	4.4	63	91	1.9	7.4	2.0	.51	.30	.00
28	.00	142	324	4.2	46	46	1.9	8.8	2.4	.49	.22	.00
29	.00	60	116	4.3	---	26	1.8	5.9	72	.46	.18	.00
30	.00	26	77	4.4	---	134	1.7	4.6	46	.43	.12	.00
31	.00	---	55	16	---	121	---	4.5	---	.40	.06	---
TOTAL	.00	458.30	9688	312.7	4294	2159.3	261.8	559.2	506.9	72.01	10.67	.12
MEAN	.000	15.3	313	10.1	153	69.7	8.73	18.0	16.9	2.32	.34	.004
MAX	.00	209	3150	41	1210	539	70	156	130	15	1.7	.06
MIN	.00	.00	12	4.2	12	6.1	1.7	1.3	1.2	.40	.06	.00
CFSM	.000	.13	2.65	.09	1.30	.59	.07	.15	.14	.02	.003	.000
IN.	.00	.14	3.05	.10	1.35	.68	.08	.18	.16	.02	.00	.00
AC-FT	.00	909	19220	620	8520	4280	519	1110	1010	143	21	.2

WTR YR 1983 TOTAL 18323.00 MEAN 50.2 MAX 3150 MIN .00 CFSM .43 IN 5.78 AC-FT 36340

## TRINITY RIVER BASIN

08063003 SOUTH TWIN CREEK NEAR EUSTACE, TX

LOCATION.--Lat 32°19'18", long 96°01'43", Henderson County, Hydrologic Unit 12030107, near left downstream end of bridge on U. S. Highway 175, 1.6 mi northwest of Eustace, 3.2 mi upstream from Cedar Creek Reservoir, and 6.8 mi southeast of Mabank.

DRAINAGE AREA.--27.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1982 to September 1983.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 339.797 ft National Geodetic vertical datum of 1929.

REMARKS.--Records fair. No known diversion or effluent are returned to creek above station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,460 ft<sup>3</sup>/s Dec. 3, 1982 (gage height, 14.00 ft), from rating curve extended above 270 ft<sup>3</sup>/s on basis of velocity-area study; no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,460 ft<sup>3</sup>/s Dec. 3 at 0600 hours (gage height, 14.00 ft), from rating curve extended above 627 ft<sup>3</sup>/s on basis of velocity-area study; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.65	5.7	17	8.2	14	2.4	1.9	3.3	.33	.15
2	.00	.00	.88	5.7	8.0	7.7	8.5	2.4	1.6	1.5	.33	.10
3	.00	.39	894	5.3	3.8	12	6.1	2.4	1.4	1.1	.34	.07
4	.00	.86	144	4.6	3.0	174	5.5	2.0	1.2	.90	.39	.03
5	.00	.57	24	4.3	192	212	5.3	1.8	1.1	.93	.40	.01
6	.00	.47	10	4.1	130	29	5.1	1.7	45	1.4	.40	.00
7	.00	.34	5.9	4.1	24	15	4.6	1.5	16	.86	.36	.00
8	.00	.27	4.6	3.7	14	10	4.5	1.5	4.2	.59	.32	.00
9	.00	.20	3.7	3.6	103	8.5	4.4	1.4	2.2	.52	.31	.00
10	.00	.16	8.2	3.4	200	7.0	4.1	1.5	1.6	.50	.33	.00
11	.00	.14	128	3.3	30	6.5	3.9	62	1.4	.50	.32	.00
12	.00	.14	148	2.8	14	6.1	3.8	30	1.4	.49	.30	.00
13	.00	.12	20	2.8	11	6.1	3.8	6.5	1.3	.47	.27	.00
14	.00	.07	10	2.7	9.3	6.5	3.5	3.6	1.0	.45	.24	.00
15	.00	.02	7.0	2.7	7.0	6.5	3.1	3.0	1.0	.48	.21	.00
16	.00	.00	5.3	2.6	5.6	6.5	3.2	2.7	.93	6.9	.17	.00
17	.00	.11	4.6	2.7	4.8	5.9	3.3	2.2	.89	5.1	.12	.00
18	.00	.23	4.3	2.7	4.8	5.3	3.0	2.1	.87	1.2	.08	.00
19	.00	.34	3.8	2.8	4.8	5.1	3.1	2.2	.87	.69	16	.00
20	.00	.36	3.4	3.3	73	7.7	2.9	36	.80	.52	4.9	.00
21	.00	.37	3.3	3.4	510	7.0	2.9	102	.78	.50	.62	.00
22	.00	.39	3.4	3.0	114	5.5	2.9	68	.75	.47	.43	.00
23	.00	.71	3.7	2.9	38	6.5	2.8	12	.77	.45	.41	.73
24	.00	1.4	3.6	2.7	20	8.5	2.5	5.7	1.5	.39	.34	.36
25	.00	.86	3.0	2.4	15	7.0	2.4	3.2	1.3	.38	.25	.26
26	.00	1.1	3.2	2.4	12	54	2.1	2.2	1.0	.37	.68	.20
27	.00	17	79	2.2	9.6	20	2.3	1.8	1.4	.38	.35	.14
28	.00	2.9	56	2.2	8.3	9.6	2.2	1.5	1.4	.37	.25	.09
29	.00	1.4	12	2.1	---	7.0	2.2	1.4	62	.36	.20	.04
30	.00	.86	6.8	2.2	---	59	2.4	1.3	32	.35	.23	.01
31	.00	---	5.9	2.3	---	39	---	1.6	---	.32	.19	---
TOTAL	.00	31.78	1697.35	100.7	1586.0	768.7	120.4	369.6	189.56	32.74	30.07	2.19
MEAN	.000	1.06	54.8	3.25	56.6	24.8	4.01	11.9	6.32	1.06	.97	.073
MAX	.00	17	894	5.7	510	212	14	102	62	6.9	16	.73
MIN	.00	.00	.65	2.1	3.0	5.1	2.1	1.3	.75	.32	.08	.00
CFSM	.000	.04	2.00	.12	2.07	.91	.15	.43	.23	.04	.04	.003
IN.	.00	.04	2.30	.14	2.15	1.04	.16	.50	.26	.04	.04	.00
AC-FT	.00	63	3370	200	3150	1520	239	733	376	65	60	4.3

WTR YR 1983 TOTAL 4929.09 MEAN 13.5 MAX 894 MIN .00 CFSM .49 IN 6.69 AC-FT 9780



## 08063010 CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX

LOCATION.--Lat 32°14'35", long 96°08'26", Henderson County, Hydrologic Unit 12030107, inside pumphouse on lower level, 1,000 ft north of spillway, 5.5 mi upstream from Joe B. Hogsett Dam on Cedar Creek, and 8.0 mi northwest of Trinidad.

DRAINAGE AREA.--1,007 mi<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 north and upstream from pumphouse at same datum.

REMARKS.--The reservoir is formed by a rolled earthfill dam 17,539 ft long. The spillway is located on the right bank 5.5 mi upstream from the dam and discharges into the Trinity River through a cut channel 2 mi long. Deliberate impoundment began July 2, 1965, and the dam was completed in February 1966. The spillway is 474 ft long and has eight 40- by 24-foot radial gates and two automatically operated 40- by 8.5-foot hinged gates. Low-flow releases may be made downstream through a 5.0-foot-diameter conduit through the dam. The dam is the property of Tarrant County Water Control and Improvement District No. 1 and was built for municipal and industrial supply and for recreational purposes. The area and capacity tables were based on a survey during the period 1940-58. Water is diverted from the reservoir for municipal and industrial uses by lakeside developments and by the cities of Arlington, Fort Worth, Mansfield, Kemp, Trinidad, and Mabank. Flow is affected at times by discharge from the flood-detention pools of 82 floodwater-retarding structures with a combined detention capacity of 54,490 acre-ft. These structures control runoff from 173 mi<sup>2</sup>. Figures given herein represent total contents. Gage-height telemeter located at station. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	340.0	-
Top of radial gates.....	325.0	785,100
Top of automatic gates.....	322.5	696,400
Top of conservation pool.....	322.0	679,200
Crest of spillway (automatic gates).....	314.0	441,000
Crest of spillway (radial gates).....	302.0	197,800
Lowest gated outlet (invert).....	263.5	430

COOPERATION.--Records of diversions furnished by the Tarrant County Water Control and Improvement District No. 1. The area and capacity tables were furnished by Freese and Nichols, Consulting Engineers, for Tarrant County Water Control and Improvement District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 722,000 acre-ft June 4, 1973 (elevation, 323.24 ft); minimum since first appreciable storage in 1966, 332,900 acre-ft Mar. 19, 1967 (elevation, 309.42 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 689,500 acre-ft Feb. 21 at 1000 hours (elevation, 322.30 ft); minimum, 591,100 acre-ft Nov. 25 (elevation, 319.27 ft).

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

319.0	582,600
321.0	646,000
323.0	713,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	606000	594200	605100	677900	675900	678200	682000	669300	678600	681600	669900	657700
2	605400	599800	629000	678600	677200	678200	679600	670300	678200	681600	668900	657000
3	604800	598900	664600	677200	674900	679200	678900	668900	678200	680900	668300	655700
4	604200	597600	680600	677200	679200	681600	680600	667600	678200	680300	667600	653700
5	603500	596000	683700	677600	682000	684400	679600	666900	678900	682300	666600	652000
6	604200	595400	680300	677600	678900	687100	680900	664300	679200	681300	666000	649700
7	603500	595400	679200	677900	678200	679600	679200	666600	681300	680900	665000	650300
8	602300	595700	680900	678200	679200	678900	677900	665600	679200	683300	664300	648700
9	604500	595700	678200	677900	678900	677900	677600	664600	682700	678200	663300	649400
10	603500	595100	680300	677600	677200	679200	677600	665000	679200	677600	663000	649000
11	601700	596000	684000	676900	677600	677900	675900	666900	678900	676600	662600	648000
12	603200	596000	680900	676900	677900	677600	676200	668300	679900	675900	661000	647700
13	602300	592900	678600	678200	677600	677600	677600	669900	679200	675600	660000	647400
14	601700	594200	678200	676200	676600	677600	676600	671600	679600	674300	659300	646400
15	600400	591400	676900	675900	678900	677600	675600	673300	679200	674300	658600	644700
16	600400	592600	677200	675900	678600	679600	674600	673900	677900	679200	658000	647700
17	599200	592000	676900	675900	678900	678900	674300	673600	677600	679200	657700	645700
18	598200	591400	678600	675600	677900	676600	673600	674900	676200	678900	658600	645400
19	599800	592000	677600	675900	677600	679900	673300	675900	675900	678200	663000	646000
20	597000	592300	677600	675600	687800	677600	671900	676900	675900	677600	663300	649000
21	596700	592000	676900	675600	686400	676200	671900	677600	675600	677600	663300	643800
22	596400	591700	676900	674300	682700	676600	671300	678600	675600	676600	662600	642800
23	595700	594500	677600	674300	680300	676600	670900	678900	674300	675900	662300	641800
24	594800	592000	677900	674300	678200	676200	670900	679900	676600	674600	661600	640600
25	594200	591100	678900	673600	677200	674300	669900	680300	675900	674300	661000	640600
26	592900	595700	679900	675600	677600	680900	669300	678900	679200	672900	661000	639600
27	591400	600700	680900	672600	676200	680900	668600	678600	674300	672600	660300	639300
28	596000	602600	680300	672600	676200	679200	669300	679200	673300	671900	659300	638300
29	594800	603800	678200	672900	---	678900	669300	679200	681600	671300	659000	638300
30	593900	604500	678200	672900	---	680600	668900	679200	680900	671300	658000	637700
31	593900	---	677600	674300	---	678600	---	678900	---	670900	658000	---
MAX	606000	604500	684000	678600	687800	687100	682000	680300	683300	682300	669900	657700
MIN	591400	591100	605100	672600	674900	674300	668600	664300	673300	670900	657700	637700
(†)	319.36	319.70	321.95	321.85	321.91	321.98	321.69	321.99	322.05	321.75	321.36	320.74
(‡)	-13100	+10600	+73100	-3300	+1900	+2400	-9700	+10000	+2000	-10000	-12900	-20300
CAL YR 1982	MAX	689500	MIN	591100	†	+4700						
WTR YR 1983	MAX	687800	MIN	591100	†	+30700						

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## 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 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
11...	1335	1.00	222	7.5	10.5	9.5	86
11...	1336	10.0	222	7.5	10.0	9.5	84
11...	1337	20.0	222	7.5	9.5	9.4	82
11...	1338	30.0	222	7.5	9.5	9.3	82
11...	1339	40.0	222	7.4	9.5	9.1	80
11...	1340	48.0	222	7.4	9.5	9.0	79
MAY							
16...	1430	1.00	218	7.6	22.0	6.7	77
16...	1431	10.0	218	7.6	21.0	6.6	75
16...	1432	20.0	218	7.5	20.5	6.4	72
16...	1433	30.0	218	7.4	20.5	6.4	72
16...	1434	40.0	218	7.4	20.5	6.4	72
16...	1435	50.0	218	7.1	19.0	4.2	46
AUG							
03...	1315	1.00	213	8.6	29.5	6.7	89
03...	1316	10.0	213	8.4	29.0	6.5	85
03...	1317	20.0	214	8.2	28.5	5.8	76
03...	1318	30.0	215	6.8	27.0	.2	3
03...	1319	40.0	221	6.8	22.5	.2	2
03...	1320	50.0	230	6.8	22.0	.2	2

321113096041201 CEDAR CREEK RESERVOIR SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)
JAN									
11...	1325	1.00	222	7.5	10.5	1.20	9.5	86	67
11...	1326	10.0	222	7.5	10.0	--	9.5	84	--
11...	1327	20.0	222	7.5	9.5	--	9.4	82	--
11...	1328	30.0	222	7.5	9.5	--	9.4	82	--
11...	1329	40.0	222	7.4	9.5	--	9.2	81	--
11...	1330	50.0	222	7.4	9.5	--	9.0	79	--
11...	1331	54.0	222	7.4	9.5	--	9.0	79	67
MAY									
16...	1400	1.00	213	7.6	22.0	.90	6.8	79	64
16...	1401	10.0	218	7.6	21.0	--	6.6	75	--
16...	1402	20.0	218	7.5	20.5	--	6.5	73	--
16...	1403	30.0	218	7.5	20.5	--	6.5	73	--
16...	1404	40.0	218	7.4	20.5	--	6.5	73	--
16...	1405	50.0	218	7.1	19.0	--	4.6	50	--
16...	1406	60.0	218	7.0	18.5	--	3.2	34	65
AUG									
03...	1250	1.00	213	8.6	29.5	1.50	6.7	89	64
03...	1251	10.0	213	8.5	29.5	--	6.6	88	--
03...	1252	20.0	213	8.1	29.5	--	6.2	82	--
03...	1253	25.0	213	7.3	28.5	--	4.3	56	--
03...	1254	30.0	214	6.8	27.0	--	.2	3	--
03...	1255	40.0	221	6.8	24.0	--	.2	2	--
03...	1256	50.0	227	6.8	22.0	--	.2	2	--
03...	1257	60.0	237	6.8	21.0	--	.2	2	70

## 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 1982 TO SEPTEMBER 1983

DATE	HARD- NESS, NONCAR- BONATE (MG/L CA CO3)	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 FIELD (MG/L AS CA CO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
11...	8	20	4.2	15	.8	4.4	59	22	17
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	10	20	4.1	15	.8	4.4	57	22	17
MAY									
16...	13	19	4.1	15	.8	4.2	51	26	17
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	13	19	4.2	15	.8	4.3	52	24	17
AUG									
03...	13	19	4.1	15	.8	3.9	51	22	16
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	0	21	4.2	15	.8	4.3	74	15	16
DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	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	2.5	121	.10	.90	1.0	.010	5	<1
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.10	1.00	1.1	.020	20	<10
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	2.6	119	.10	.60	.70	.020	10	19
MAY									
16...	.10	3.9	120	.30	1.00	1.3	.030	34	10
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	.30	.90	1.2	.030	50	40
16...	--	--	--	.40	.80	1.2	.050	30	160
16...	--	5.4	120	.50	1.60	2.1	.060	36	330
AUG									
03...	.20	4.2	115	<.10	.90	--	.050	24	9
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	.70	--	.040	20	70
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	.80	--	.060	110	360
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	7.7	131	<.10	2.00	--	.490	1000	2100

## TRINITY RIVER BASIN

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321116096035301 CEDAR CREEK RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
11...	1400	1.00	222	7.5	10.5	9.5	86
11...	1401	10.0	222	7.5	10.0	9.5	84
11...	1402	20.0	222	7.5	9.5	9.4	82
11...	1403	30.0	222	7.5	9.5	9.2	81
11...	1404	40.0	222	7.4	9.5	9.1	80
11...	1405	47.0	222	7.4	9.5	9.0	79
MAY							
16...	1447	1.00	218	7.6	22.0	6.7	77
16...	1448	10.0	218	7.6	21.0	6.6	75
16...	1449	20.0	218	7.5	20.5	6.5	73
16...	1450	30.0	218	7.5	20.5	6.4	72
16...	1451	40.0	218	7.4	20.5	6.4	72
16...	1452	50.0	218	7.1	19.0	4.2	46
AUG							
03...	1330	1.00	213	8.5	29.5	6.4	85
03...	1331	10.0	213	8.3	29.5	6.4	85
03...	1332	20.0	213	7.7	28.5	5.1	66
03...	1333	30.0	215	6.8	26.5	.2	3
03...	1334	40.0	221	6.8	24.5	.2	2
03...	1335	51.0	230	6.8	22.5	.2	2

321227096032701 CEDAR CREEK RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
11...	1415	1.00	224	7.6	10.5	--	9.5
11...	1416	10.0	224	7.5	10.0	1.30	9.5
11...	1417	20.0	224	7.4	10.0	--	9.2
11...	1418	30.0	224	7.4	10.0	--	9.2
11...	1419	40.0	224	7.4	10.0	--	9.1
11...	1420	49.0	224	7.4	10.0	--	9.1
MAY							
16...	1500	1.00	215	7.8	22.5	1.10	6.8
16...	1501	10.0	215	7.6	21.0	--	6.7
16...	1502	20.0	215	7.5	21.0	--	6.5
16...	1503	30.0	215	7.5	20.5	--	6.4
16...	1504	40.0	215	7.1	19.5	--	5.1
16...	1505	50.0	220	7.0	18.5	--	3.0
AUG							
03...	1350	1.00	213	7.5	28.5	1.50	4.8
03...	1351	10.0	213	7.4	28.5	--	4.7
03...	1352	20.0	213	7.2	28.0	--	3.8
03...	1353	25.0	213	6.8	26.5	--	.2
03...	1354	30.0	214	6.8	25.5	--	.2
03...	1355	40.0	223	6.8	23.0	--	.2
03...	1356	47.0	230	6.8	22.0	--	.2

## TRINITY RIVER BASIN

395

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

## 321227096032701 CEDAR CREEK RESERVOIR SITE BC--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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...	86	.10	.80	.90	<.010	90	30
11...	84	--	--	--	--	--	--
11...	81	--	--	--	--	--	--
11...	81	--	--	--	--	--	--
11...	81	--	--	--	--	--	--
11...	81	.10	.80	.90	.010	120	50
MAY							
16...	79	.20	.90	1.1	.020	50	10
16...	76	--	--	--	--	--	--
16...	74	--	--	--	--	--	--
16...	72	.30	1.20	1.5	.030	60	10
16...	56	.30	1.40	1.7	.040	70	40
16...	32	.40	1.40	1.8	.050	50	220
AUG							
03...	63	<.10	1.00	--	.040	20	50
03...	61	--	--	--	--	--	--
03...	49	<.10	1.20	--	.050	30	130
03...	3	--	--	--	--	--	--
03...	2	<.10	1.00	--	.070	350	560
03...	2	--	--	--	--	--	--
03...	2	<.10	1.90	--	.250	910	1700

## 321403096060601 CEDAR CREEK RESERVOIR SITE CC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
11...	1445	1.00	221	7.6	10.0	9.7	86
11...	1446	10.0	221	7.5	10.0	9.6	85
11...	1447	20.0	221	7.5	9.5	9.4	82
11...	1448	30.0	221	7.5	9.5	9.3	82
11...	1449	40.0	221	7.5	9.5	9.3	82
11...	1450	50.0	221	7.4	9.5	9.2	81
MAY							
16...	1520	1.00	214	7.9	22.5	7.0	82
16...	1521	10.0	214	7.5	21.0	6.4	73
16...	1522	20.0	214	7.5	21.0	6.4	73
16...	1523	30.0	214	7.5	21.0	6.4	73
16...	1524	40.0	214	7.5	20.5	6.4	72
16...	1525	50.0	219	7.2	20.5	5.1	57
AUG							
03...	1420	1.00	213	8.3	29.5	6.4	85
03...	1421	10.0	213	8.2	29.0	6.3	83
03...	1422	20.0	215	6.9	28.5	2.1	27
03...	1423	30.0	216	6.8	26.0	.2	2
03...	1424	40.0	225	6.8	23.5	.2	2
03...	1425	52.0	237	6.8	22.5	.2	2



## TRINITY RIVER BASIN

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321548096082301 CEDAR CREEK RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (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...	1225	1.00	209	7.3	10.0	.70	9.5	84	64
11...	1226	10.0	209	7.2	9.0	--	9.2	80	--
11...	1227	20.0	209	7.2	9.0	--	9.1	79	--
11...	1228	30.0	209	7.2	9.0	--	9.1	79	--
11...	1229	40.0	209	7.1	9.0	--	9.0	78	--
11...	1230	44.0	209	7.1	9.0	--	9.0	78	60
MAY									
16...	1305	1.00	207	7.6	22.0	.50	6.6	76	61
16...	1306	10.0	202	7.5	21.5	--	6.3	72	--
16...	1307	20.0	202	7.5	21.0	--	6.3	71	--
16...	1308	30.0	202	7.5	21.0	--	6.3	71	--
16...	1309	42.0	202	7.4	21.0	--	6.3	71	60
AUG									
03...	1204	1.00	213	8.2	29.5	1.00	5.7	76	64
03...	1205	10.0	213	8.0	29.5	--	5.6	74	--
03...	1206	20.0	213	8.0	29.5	--	5.5	73	--
03...	1207	25.0	219	6.9	29.0	--	1.5	20	--
03...	1208	30.0	220	6.8	26.0	--	.2	2	--
03...	1209	40.0	235	6.8	24.0	--	.2	2	--
03...	1210	46.0	240	6.8	23.5	--	.2	2	73

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 FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
11...	12	19	3.9	14	.8	4.3	52	24	16
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	8	18	3.7	14	.8	4.3	52	22	16
MAY									
16...	12	18	3.9	14	.8	4.2	49	26	16
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	11	18	3.7	14	.8	4.1	49	25	15
AUG									
03...	12	19	4.0	15	.8	4.4	52	24	16
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	0	22	4.5	15	.8	4.1	75	14	16

DATE	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								
11...	3.2	116	.10	.80	.90	.050	99	26
11...	--	--	--	--	--	--	--	--
11...	--	--	.20	.90	1.1	.050	110	20
11...	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--
11...	3.3	113	.20	1.00	1.2	.030	99	24
MAY								
16...	4.3	116	.30	.90	1.2	.050	29	1
16...	--	--	--	--	--	--	--	--
16...	--	--	.50	.80	1.3	.100	50	10
16...	--	--	--	--	--	--	--	--
16...	4.9	114	.40	1.10	1.5	.090	49	7
AUG								
03...	4.3	118	<.10	.90	--	.060	12	19
03...	--	--	--	--	--	--	--	--
03...	--	--	<.10	.80	--	.060	30	190
03...	--	--	--	--	--	--	--	--
03...	--	--	<.10	1.00	--	.060	40	300
03...	--	--	--	--	--	--	--	--
03...	9.2	134	<.10	2.10	--	.760	2400	2300

## TRINITY RIVER BASIN

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## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

321818096064301 CEDAR CREEK RESERVOIR SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
DATE	TIME						
JAN							
11...	1545	1.00	217	7.6	9.5	.70	9.8
11...	1546	10.0	217	7.6	9.5	--	9.8
11...	1547	20.0	217	7.5	9.5	--	9.7
MAY							
16...	1540	1.00	220	8.3	23.0	.60	8.1
16...	1541	5.00	220	8.3	23.0	--	8.1
16...	1542	10.0	208	7.6	21.5	--	6.5
16...	1543	19.0	208	7.5	21.5	--	6.2
AUG							
03...	1500	1.00	213	7.6	29.0	.80	4.8
03...	1501	10.0	213	7.5	29.0	--	4.7
03...	1502	20.0	213	7.1	28.5	--	1.0
	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)
DATE							
JAN							
11...	86	.10	.80	.90	.030	260	30
11...	86	--	--	--	--	--	--
11...	85	.10	.70	.80	.030	220	20
MAY							
16...	95	<.10	1.40	--	.050	50	<10
16...	95	--	--	--	--	--	--
16...	74	--	--	--	--	--	--
16...	71	.30	1.00	1.3	.080	90	10
AUG							
03...	63	<.10	1.30	--	.060	30	50
03...	62	--	--	--	--	--	--
03...	13	<.10	1.00	--	.100	60	280

321843096101701 CEDAR CREEK RESERVOIR SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
11...	1615	1.00	195	7.4	9.0	9.6	83
11...	1616	10.0	196	7.4	9.0	9.5	83
11...	1617	20.0	196	7.4	9.0	9.4	82
11...	1618	31.0	197	7.4	9.0	9.4	82
MAY							
16...	1600	1.00	203	7.7	23.0	6.9	81
16...	1601	5.00	203	7.7	22.0	6.8	79
16...	1602	10.0	195	7.6	21.5	6.6	76
16...	1603	20.0	195	7.6	21.0	6.5	74
16...	1604	32.0	195	7.6	21.0	6.3	71
AUG							
03...	1515	1.00	213	8.6	30.0	6.5	87
03...	1516	20.0	213	8.2	29.5	6.2	82
03...	1517	30.0	220	7.0	28.5	.2	3

## TRINITY RIVER BASIN

## CEDAR CREEK RESERVOIR NEAR TRINIDAD, TX--Continued

322119096095401 CEDAR CREEK RESERVOIR SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		SPE- CIFIC CON- DUCT- ANCE		PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	
DATE	TIME	SAM- PLING DEPTH (FEET)	(UMHOS)							
JAN										
11...	1630	1.00	187	7.4	9.0	--	9.6	83	57	
11...	1631	10.0	187	7.4	9.0	--	9.6	83	--	
11...	1632	22.0	187	7.3	8.5	--	9.4	81	57	
MAY										
16...	1620	1.00	194	7.5	22.5	.20	6.5	76	--	
16...	1621	10.0	194	7.5	21.5	--	6.5	74	--	
16...	1622	23.0	194	7.5	21.5	--	6.3	72	59	
AUG										
03...	1600	1.00	213	8.7	30.5	.60	5.9	80	64	
03...	1601	10.0	213	8.6	30.5	--	5.9	80	--	
03...	1602	18.0	213	8.3	30.0	--	5.7	76	64	
DATE		HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN										
11...	9	17	3.5	13	.8	4.2	48	29	14	
11...	--	--	--	--	--	--	--	--	--	
11...	9	17	3.6	13	.8	4.1	48	28	14	
MAY										
16...	--	--	--	--	--	--	--	--	--	
16...	--	--	--	--	--	--	--	--	--	
16...	11	18	3.4	13	.8	3.9	48	25	14	
AUG										
03...	10	19	4.0	15	.8	4.6	54	24	16	
03...	--	--	--	--	--	--	--	--	--	
03...	12	19	3.9	15	.9	3.7	52	25	17	

DATE	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								
11...	4.7	115	.20	1.10	1.3	.070	370	40
11...	--	--	--	--	--	--	--	--
11...	4.9	114	.20	.90	1.1	.090	400	44
MAY								
16...	--	--	.50	1.20	1.7	.120	--	--
16...	--	--	--	--	--	--	--	--
16...	6.3	112	.50	1.70	2.2	.120	58	5
AUG								
03...	4.4	119	<.10	1.00	--	.060	5	6
03...	--	--	--	--	--	--	--	--
03...	4.4	119	<.10	1.20	--	.090	7	19

322119096104901 CEDAR CREEK RESERVOIR SITE GR

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAY							
16...	1700	1.00	194	7.5	22.5	6.6	77
16...	1701	10.0	194	7.5	21.5	6.5	74
16...	1702	18.0	194	7.5	21.5	6.4	73

## 08063050 NAVARRO MILLS LAKE NEAR DAWSON, TX

LOCATION.--Lat 31°57'27", long 96°41'21", Navarro County, Hydrologic Unit 12030108, in left abutment of spillway of Navarro Mills Dam on Richland Creek, 1.7 mi upstream from bridge on State Highway 31, 3.0 mi upstream from St. Louis Southwestern Railway Lines bridge, 4.2 mi upstream from Post Oak Creek, 4.6 mi north of Dawson, and 63.9 mi upstream from mouth.

DRAINAGE AREA.--320 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1962 to current year. Prior to October 1970, published as Navarro Mills Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 8, 1962, nonrecording gage in low-water channel at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 7,570 ft long, including a 240-foot off-channel gated spillway with six 40.0- by 29.0-foot tainter gates. From Aug. 27, 1962, to Mar. 14, 1963, 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 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 the flood-detention pools of 51 floodwater-retarding structures with a combined detention capacity of 26,160 acre-ft. These structures control runoff from 86.9 mi<sup>2</sup> in the Richland Creek drainage basin. An unknown amount of water is diverted for municipal and industrial uses. Gage-height tele-meter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	457.0	-
Design flood.....	451.9	329,500
Top of gates (top of flood-control storage pool).....	443.0	206,200
Top of conservation pool.....	424.5	56,960
Crest of spillway.....	414.0	18,840
Lowest gated outlet (invert).....	400.0	1,150

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 183,300 acre-ft May 18, 1968 (elevation, 440.36 ft); minimum since initial filling in May 1965, 32,490 acre-ft Dec. 28, 1978 (elevation, 418.89 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 69,650 acre-ft Feb. 24 at 1200 hours (elevation, 426.87 ft); minimum daily, 44,720 acre-ft Jan. 31 (elevation, 421.93 ft).

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

421.0	40,710	425.0	59,520
423.0	49,590	427.0	70,390

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48180	45900	45730	45460	45550	62560	58750	57570	61660	57980	54560	52200
2	48130	46670	45810	45500	45330	61080	58390	57520	61340	57620	54360	52050
3	48040	46530	45860	45240	45200	59570	58230	57420	60980	57320	54110	51910
4	47950	46400	45860	45240	45550	62820	58640	56960	60770	56860	54060	51760
5	47850	46310	45680	45370	45810	64380	58490	56710	60300	56660	53960	51610
6	47850	46220	45640	45420	45900	63250	58340	56710	60610	56560	53860	51520
7	47810	46170	45590	45460	45950	62080	58290	56460	60720	56100	53860	51370
8	47810	46220	45460	45370	45950	60770	57470	56360	60250	55750	53770	51320
9	47810	46080	45640	45370	48690	59260	56710	56260	59730	55250	53770	51370
10	47620	46040	45810	45280	49780	58030	56460	56810	59260	54660	53620	51320
11	47530	46170	45950	45280	50070	57420	56560	58340	58850	55960	53420	51230
12	47720	45900	45900	45240	50120	57470	56610	58490	58340	55960	53370	51130
13	47620	45860	45900	45200	50170	57470	56660	58290	57930	55450	53080	50980
14	47530	45770	45950	45150	50220	57570	56510	58440	58180	55600	52780	51470
15	47530	45590	45860	45150	50310	57620	56710	59210	58340	55650	52440	51320
16	47300	45640	45810	45070	50310	57830	57110	58950	58240	56160	52250	51230
17	47300	45590	45770	44980	50310	57770	60300	58850	58290	56100	51910	51080
18	47210	45590	45770	44930	50310	57670	60300	58900	58130	56000	52340	51030
19	47070	45550	45730	44930	50310	57930	59880	58640	57980	56060	53470	51130
20	46670	45500	45680	44980	60350	58340	59260	59060	57670	55850	52830	50980
21	46580	45500	45680	45110	66900	57980	58590	59520	57320	55650	52590	50740
22	46710	45500	45680	45070	68350	57770	58230	59620	57270	55700	52980	50650
23	46580	45370	45730	44980	69250	57470	57830	60090	57270	55550	53370	50550
24	46350	45240	45640	44930	69360	57320	57770	60140	57570	55350	52980	50410
25	46220	45280	45550	44930	68570	57220	57520	60140	57930	55150	52880	50360
26	46080	45500	45590	44890	66730	58230	57520	59990	57780	55400	52780	50260
27	46080	45770	45730	44800	65360	58230	57470	59470	57620	55250	52740	50220
28	46170	45730	45640	44800	64000	58290	57570	59780	57570	55100	52590	50120
29	46310	45590	45590	44800	---	58340	57570	59990	57980	54900	52490	50020
30	46170	45590	45500	44720	---	58490	57620	60720	58030	54860	52340	49980
31	45990	---	45460	45150	---	58700	---	61660	---	54760	52200	---
MAX	48180	46670	45950	45500	69360	64380	60300	61660	61660	57980	54560	52200
MIN	45990	45240	45460	44720	45200	57220	56460	56260	57270	54660	51910	49980
(†)	422.22	422.13	422.10	422.03	425.85	424.84	424.63	425.41	424.71	424.06	423.54	423.08
(‡)	-2280	-400	-130	-310	+18850	-5300	-1080	+4040	-3630	-3270	-2560	-2200

CAL YR 1982 MAX 75270 MIN 45240 † -11550  
WTR YR 1983 MAX 69360 MIN 44720 ‡ +1710

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## TRINITY RIVER BASIN

08063100 RICHLAND CREEK NEAR DAWSON, TX

LOCATION.--Lat 31°56'18", long 96°40'52", Navarro County, Hydrologic Unit 12030108, at downstream side of bridge on State Highway 31, 1.3 mi upstream from St. Louis Southwestern Railway Lines bridge, 1.7 mi downstream from Navarro Mills Dam, 2.5 mi upstream from Post Oak Creek, and 3.6 mi northeast of Dawson.

DRAINAGE AREA.--333 mi<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 367.52 ft (revised) National Geodetic Vertical Datum of 1929. Nov. 21, 1960, to Sept. 30, 1982, water-stage recorder at same site and 3.00-foot higher datum. 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. This structure controls runoff from 1.28 mi<sup>2</sup> below Navarro Mills Lake and above this station. On Apr. 21, 1983, gage-height telemeter was reinstalled.

AVERAGE DISCHARGE.--23 years, 142 ft<sup>3</sup>/s (102,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,500 ft<sup>3</sup>/s July 3, 1961 (gage height, 25.50 ft, revised), from rating curve extended above 14,000 ft<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 Nov. 24, 1974 (gage height, 22.85 ft, revised).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1895, about 31 ft (revised) June 19, 1929, from information by local residents. Floods in 1946 and 1957 reached a stage of about 26 ft (revised), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 963 ft<sup>3</sup>/s Apr. 9 at 0100 hours (gage height, 14.20 ft); minimum daily, 0.03 ft<sup>3</sup>/s Aug. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	4.8	.59	.20	1.4	830	2.3	.38	101	.44	.03	.22
2	5.8	5.6	.20	.20	.48	820	2.3	.30	160	.52	.04	.25
3	6.0	5.3	.25	.20	.48	811	2.3	.30	239	.15	.04	.20
4	6.2	4.8	.10	.20	.71	825	2.1	.30	239	.06	.18	.22
5	6.2	2.0	.05	.16	1.2	855	2.0	.30	236	.87	.17	.17
6	5.9	1.9	.08	.13	1.3	839	1.8	.30	239	.46	.19	.13
7	5.6	1.9	.08	.13	1.1	831	1.6	.30	242	.14	.32	.13
8	5.1	1.9	.08	.13	.59	822	369	.30	239	.13	.52	.15
9	5.2	1.5	.08	.13	51	815	420	.30	236	.93	.17	.21
10	4.8	1.6	.20	.13	9.6	677	2.5	.59	236	.31	.22	.17
11	4.7	1.7	.71	.13	1.4	375	1.9	8.2	235	2.5	.11	.19
12	5.1	1.7	.43	1.8	.25	5.2	1.9	2.5	234	1.7	.14	.17
13	5.0	1.8	.19	1.5	.16	3.6	1.1	.85	133	1.1	.16	.25
14	4.7	1.9	.17	1.4	.13	3.2	.38	.30	2.1	.79	.14	.75
15	4.4	1.9	.17	.48	.10	2.8	.38	.38	1.2	.90	.17	2.4
16	4.3	2.0	.17	.25	.10	2.7	.38	.25	1.7	2.8	.35	.67
17	4.3	2.1	.17	.25	.20	2.4	.38	.20	.72	2.1	.21	.17
18	4.3	2.2	.17	.25	.16	2.4	.30	5.0	.25	2.4	.47	.17
19	4.3	2.1	.17	.25	.38	2.5	258	1.8	.17	1.8	2.0	.17
20	5.5	1.9	.10	.25	211	3.2	445	1.8	.17	.57	.73	.43
21	4.4	2.0	.10	.30	67	2.5	438	1.8	.13	.30	.24	.22
22	4.2	2.0	.10	.30	3.8	147	345	2.2	.09	.81	.24	.46
23	4.2	2.3	.10	.30	1.9	255	2.8	11	.08	.33	.22	.18
24	4.3	2.4	.10	.25	291	202	1.5	5.2	.10	.35	.30	.24
25	4.4	2.4	.10	.20	764	3.7	1.0	1.4	.13	.17	.27	.31
26	4.4	2.8	.10	.25	871	5.2	.85	44	.13	.13	.25	.23
27	4.0	3.0	.30	1.0	857	5.2	.71	83	.20	.43	.33	.17
28	4.3	2.6	.30	1.3	842	3.0	.59	84	.15	.37	.20	.13
29	4.7	2.5	.20	1.7	---	2.5	.48	86	2.6	.21	.35	.13
30	4.4	2.1	.16	1.6	---	2.3	.38	86	1.1	.05	.29	.18
31	4.4	---	.16	1.7	---	2.3	---	289	---	.10	.42	---
TOTAL	151.1	74.7	5.88	17.07	3979.44	9158.7	2306.93	718.25	2780.02	23.92	9.47	9.47
MEAN	4.87	2.49	.19	.55	142	295	76.9	23.2	92.7	.77	.31	.32
MAX	6.2	5.6	.71	1.8	871	855	445	289	242	2.8	2.0	2.4
MIN	4.0	1.5	.05	.13	.10	2.3	.30	.20	.08	.05	.03	.13
AC-FT	300	148	12	34	7890	18170	4580	1420	5510	47	19	19
CAL YR 1982	TOTAL	19531.68	MEAN	53.5	MAX	1100	MIN	.00	AC-FT	38740		
WTR YR 1983	TOTAL	19234.95	MEAN	52.7	MAX	871	MIN	.03	AC-FT	38150		



## TRINITY RIVER BASIN

401

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 downstream from Texas and New Orleans Railroad Co. bridge, 1.0 mi north of Richland, 3.5 mi downstream from Pin Oak Creek, and 36.7 mi upstream from mouth.

DRAINAGE AREA.--734 mi<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 National Geodetic Vertical Datum of 1929. Dec. 11, 1924, to Feb. 11, 1925, nonrecording gage at site 800 ft upstream. Mar. 17, 1939, to Feb. 14, 1958, water-stage recorder at site 50 ft upstream. Feb. 15, 1958, to Jan. 28, 1959, nonrecording gage at present site. June 8, 1955, to Feb. 14, 1958, and since Feb. 6, 1959, supplementary water-stage recorder at overflow channel 3,900 ft to right of main channel gage. All gages at present datum.

REMARKS.--Records fair. Since October 1962, flow is partly regulated by Navarro Mills Lake (station 08063050) about 25 mi upstream. Flow is also affected at times by discharge from the flood-detention pools of 73 floodwater-retarding structures with a combined detention capacity of 42,060 acre-ft. These structures control runoff from 143 mi<sup>2</sup> in the Richland Creek drainage basin. Several observations of water temperature were made during the year. On Feb. 1, 1982, telemeter (data-collection platform, solar panel, battery, and antenna) was removed. On Apr. 22, 1983, gage-height telemeter was reinstalled.

AVERAGE DISCHARGE.--23 years (water years 1940-62) prior to regulation by Navarro Mills Lake, 404 ft<sup>3</sup>/s (292,700 acre-ft/yr); 21 years (water years 1963-83) regulated, unadjusted, 326 ft<sup>3</sup>/s (236,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,900 ft<sup>3</sup>/s May 12, 1948 (gage height, 24.16 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1899, 25.5 ft in December 1913 (discharge not determined), from information by Texas and New Orleans Railroad Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,990 ft<sup>3</sup>/s Feb. 21 at 1800 hours (gage height, 21.48 ft); no flow Nov. 13-25 and Sept. 8-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	4.7	11	.80	63	870	47	11	701	154	4.6	2.7
2	5.9	9.0	28	.65	84	865	43	9.8	276	78	4.3	2.1
3	9.8	23	512	.60	37	852	39	8.3	248	51	3.3	1.7
4	5.5	23	271	.58	34	1010	38	7.3	251	35	3.3	1.0
5	3.6	17	64	.55	311	2020	34	7.3	235	41	3.3	.29
6	2.4	12	32	.53	964	1310	29	6.8	264	67	3.0	.15
7	3.0	7.1	20	.54	267	1030	24	6.4	567	71	3.2	.05
8	4.7	3.9	13	.50	106	937	21	5.1	362	44	3.3	.00
9	5.5	3.9	6.4	.44	1430	889	696	5.1	266	28	3.2	.00
10	4.4	.22	5.8	.42	3430	867	207	5.1	236	22	3.4	.00
11	3.7	.25	32	.40	1520	638	55	20	220	19	3.9	.00
12	4.8	.02	107	.40	583	281	39	19	214	15	4.0	.00
13	5.5	.00	98	.38	349	72	30	53	211	11	3.5	.00
14	5.9	.00	51	.38	189	51	27	46	116	9.8	2.7	.00
15	5.5	.00	28	.36	122	45	23	32	154	9.8	2.1	.00
16	2.4	.00	19	.35	72	42	19	25	75	11	1.8	.00
17	2.7	.00	14	.35	43	42	17	22	58	37	1.5	.00
18	2.4	.00	9.4	.35	31	38	16	19	42	43	2.2	.00
19	3.7	.00	4.1	1.2	24	36	14	23	32	26	6.1	.00
20	3.2	.00	2.2	.98	487	52	266	77	27	21	18	.00
21	3.3	.00	1.9	.75	3920	61	474	112	17	16	18	.00
22	9.1	.00	1.7	19	2430	53	481	241	13	14	16	.00
23	8.9	.00	1.3	25	819	126	233	138	9.8	10	12	.00
24	7.5	.00	.84	25	511	220	59	124	8.3	7.3	9.5	.00
25	5.6	.00	.46	21	486	153	35	92	11	6.8	6.8	.00
26	6.8	12	.30	16	804	152	28	63	10	6.1	5.3	.00
27	5.5	160	4.0	11	916	269	22	65	7.8	5.5	4.3	.00
28	8.4	75	3.0	6.2	895	131	17	117	6.4	5.2	3.4	.00
29	11	28	1.8	4.0	---	79	15	118	702	4.7	2.3	.00
30	11	17	1.3	2.6	---	59	14	153	436	5.0	1.9	.00
31	6.1	---	1.1	14	---	52	---	524	---	4.7	2.0	---
TOTAL	168.9	396.09	1345.60	155.31	20927	13302	3062	2155.2	5776.3	878.9	162.2	7.99
MEAN	5.45	13.2	43.4	5.01	747	429	102	69.5	193	28.4	5.23	.27
MAX	11	160	512	25	3920	2020	696	524	702	154	18	2.7
MIN	1.1	.00	.30	.35	24	36	14	5.1	6.4	4.7	1.5	.00
AC-FT	335	786	2670	308	41510	26380	6070	4270	11460	1740	322	16
CAL YR 1982	TOTAL	47886.78	MEAN 131	MAX 3760	MIN .00	AC-FT 94980						
WTR YR 1983	TOTAL	48337.49	MEAN 132	MAX 3920	MIN .00	AC-FT 95880						

## TRINITY RIVER BASIN

08063700 BARDWELL LAKE NEAR ENNIS, TX

LOCATION.--Lat 32°15'00", long 96°38'49", Ellis County, Hydrologic Unit 12030109, in intake structure of Bardwell Dam on Waxahachie Creek, 5 mi south of Ennis, and 5.6 mi upstream from mouth.

DRAINAGE AREA.--178 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1965 to current year. Prior to October 1970, published as Bardwell Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Corps of Engineers benchmark). Prior to Apr. 25, 1966, nonrecording gage on intake structure at same datum.

REMARKS.--The lake is formed by a rolled earthfill dam 15,400 ft long, including a 350-foot uncontrolled off-channel concrete-gravity spillway with ogee weir section. Deliberate impoundment began Nov. 20, 1965, and the dam was completed Mar. 27, 1966. The controlled low-flow outlet works consists of a 10.0-foot-diameter concrete conduit with two 5.0- by 10.0-foot 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> above this lake is modified by Lake Waxahachie, with a capacity of 13,500 acre-ft at spillway elevation. The city of Waxahachie diverted water from Lake Waxahachie and returned an unknown amount of effluent to Waxahachie Creek. Inflow is affected at times by discharge from the flood-detention pools of 23 floodwater-retarding structures with a combined detention capacity of 15,370 acre-ft. These structures control runoff from 52.4 mi<sup>2</sup> in the Chambers Creek watershed. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	460.0	-
Design flood.....	455.9	-
Crest of spillway (top of flood-control pool).....	439.0	137,600
Top of conservation pool.....	421.0	52,300
Lowest gated outlet (invert).....	391.0	690

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 103,300 acre-ft May 19, 1969 (elevation, 432.35 ft); minimum since initial filling, 39,720 acre-ft Nov. 10, 1978 (elevation, 417.21 ft).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 61,680 acre-ft June 19 (elevation, 423.52 ft); minimum daily, 44,960 acre-ft Nov. 24 (elevation, 418.87 ft).

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 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46490	45490	45520	46420	46490	52610	53650	52110	55220	54850	52580	51620
2	46420	45790	45990	46390	46530	52680	53650	52260	55220	54420	52470	51580
3	46390	45720	46090	46360	46530	52750	53650	52220	54960	53910	52430	51510
4	46360	45620	46060	46320	46660	55920	53580	52180	54490	53400	52360	51400
5	46320	45520	46060	46290	46900	56550	53220	52110	54120	53290	52330	51300
6	46260	45460	45990	46320	46960	56810	52790	52040	54120	53150	52290	51190
7	46220	45460	45960	46320	46960	56960	52400	52080	53840	53110	52220	51160
8	46220	45420	45960	46320	47000	56740	52220	52010	53400	53080	52220	50980
9	46390	45390	45990	46320	47170	56330	52220	51940	53180	53040	52220	50980
10	46290	45360	46220	46320	47200	55810	52220	52010	53180	53010	52180	50980
11	46220	45490	46420	46320	47230	55150	52180	52290	53260	52970	52110	50980
12	46220	45360	46390	46290	47200	54450	52180	52330	53260	52900	52040	50840
13	46220	45190	46360	46290	47200	53830	52400	52330	53220	52930	51970	50800
14	46160	45160	46390	46260	47200	53220	52290	52580	56930	52900	51900	50800
15	46120	45100	46360	46260	47270	52830	52220	52900	59380	52970	51830	50800
16	46020	45100	46320	46220	47270	53220	52180	53080	60180	53260	51760	50800
17	45990	45060	46260	46220	47270	53040	52180	53180	60790	53360	51690	50770
18	45920	45060	46220	46190	47300	53040	52110	53400	61330	53400	51650	50700
19	45890	45060	46220	46290	47300	53330	52150	53510	61680	53360	52150	50740
20	45820	45060	46220	46220	52290	53220	52150	53690	61560	53330	52180	50800
21	45790	45060	46220	46220	53540	53260	52150	53940	61020	53330	52150	50560
22	45760	45060	46220	46220	53830	53220	52180	54090	60410	53260	52110	50450
23	45690	45230	46290	46190	54120	52720	52180	54310	59870	53220	52080	50350
24	45620	44960	46390	46190	54160	52470	52150	54310	59220	53110	52040	50280
25	45560	45060	46390	46160	53830	52470	52110	54380	58880	53040	51970	50240
26	45490	45390	46460	46190	53470	52930	52080	54380	58090	52970	51940	50210
27	45490	45520	46420	46120	53110	53080	52040	54380	57560	52900	51830	50170
28	45520	45520	46420	46120	52720	53080	52080	54490	56850	52830	51830	50100
29	45490	45560	46390	46120	---	53150	52150	54600	56410	52760	51760	50070
30	45460	45520	46420	46090	---	53470	52110	54960	55440	52720	51690	50030
31	45460	---	46420	46390	---	53540	---	55150	---	52650	51620	---
MAX	46490	45790	46460	46420	54160	56960	53650	55150	61680	54850	52580	51620
MIN	45460	44960	45520	46090	46490	52470	52040	51940	53180	52650	51620	50030
(†)	419.02	419.04	419.31	419.30	421.12	421.35	420.95	421.79	421.87	421.10	420.81	420.36
(‡)	-1170	+60	+900	-30	+6330	+820	-1430	+3040	+290	-2790	-1030	-1590

CAL YR 1982 MAX 64100 MIN 44960 ‡ -6690  
WTR YR 1983 MAX 61680 MIN 44960 ‡ +3400

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

## TRINITY RIVER BASIN

403

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 downstream from Bardwell Dam, 3.6 mi southeast of Bardwell, 3.8 mi downstream from bridge on State Highway 34, and 4.1 mi upstream from mouth.

DRAINAGE AREA.--178 mi<sup>2</sup>.

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

Water-quality records.--Chemical and biochemical analyses: October 1980 to September 1982.

GAGE.--Water-stage recorder. Datum of gage is 370.18 ft National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark).

REMARKS.--Water-discharge records good. Flow is regulated by Bardwell Lake (station 08063700) 0.8 mi upstream. Gage-height telemeter at station was reinstalled during year.

AVERAGE DISCHARGE.--20 years, 71.4 ft<sup>3</sup>/s (51,730 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,960 ft<sup>3</sup>/s Feb. 9, 1965 (gage height, 17.55 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1944, about 23 ft in 1944 and 1945, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 396 ft<sup>3</sup>/s Mar. 10 at 1345 hours (gage height, 7.47 ft); no flow Aug. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.8	1.1	.78	1.0	93	3.7	2.3	5.4	287	1.0	1.4
2	1.5	2.0	1.3	.80	1.0	4.0	2.2	2.3	127	213	1.0	1.2
3	1.7	2.0	1.2	.80	.95	3.9	2.2	1.9	241	216	.97	1.2
4	1.7	2.2	.94	.80	.85	4.4	125	1.8	240	214	.81	1.2
5	1.7	2.2	1.1	.79	1.1	3.8	215	2.0	239	213	.58	1.4
6	1.6	2.4	1.2	.74	.92	3.5	211	2.2	238	116	.62	1.4
7	1.5	2.6	1.1	.78	.67	45	208	2.3	237	3.0	.64	1.2
8	1.3	2.4	.86	.69	.25	173	87	2.2	237	2.0	.36	.87
9	.98	2.2	.69	.68	.40	226	5.8	1.2	136	1.8	.00	1.1
10	.77	2.2	.71	.68	1.3	318	5.4	.69	3.8	1.5	.00	1.4
11	.70	2.3	.77	.71	1.9	396	4.9	1.1	3.7	1.3	.45	1.3
12	.82	2.4	.68	.73	2.0	396	4.6	.38	3.4	1.2	.73	1.4
13	.90	2.4	.68	.72	1.9	386	4.3	.36	3.2	1.2	.67	1.4
14	.95	2.3	.67	.77	1.7	372	3.9	.37	6.5	1.3	.58	1.6
15	1.2	2.3	.65	.71	1.6	225	3.6	.31	3.2	1.4	.44	1.6
16	1.2	2.4	.64	.68	1.3	4.0	3.4	.22	2.7	1.6	.49	1.5
17	1.3	2.3	.61	.69	1.1	3.2	3.3	.20	2.5	2.0	.54	1.5
18	1.3	2.3	.66	.61	1.1	3.2	3.4	.32	2.3	1.6	.65	1.3
19	1.2	2.3	.68	.50	1.0	3.1	3.3	.30	2.0	1.4	.89	1.5
20	.67	2.2	.70	.43	4.3	3.0	3.0	.82	208	1.4	.77	1.3
21	.72	2.1	.56	.43	5.2	3.0	3.0	.74	381	1.4	.77	.54
22	.86	2.0	.52	.43	.70	2.8	3.0	.42	380	1.3	.80	.82
23	.96	2.0	.45	.50	.61	77	3.0	.44	378	1.3	.77	1.0
24	.85	1.8	.63	.54	138	214	3.4	.31	375	1.3	.80	1.1
25	.83	1.8	.46	.63	251	136	3.6	.27	372	1.3	.80	1.3
26	1.0	1.7	.47	.66	246	6.3	2.9	.26	369	1.3	.80	1.5
27	1.4	2.4	.58	.56	244	5.7	2.9	.34	368	1.1	.74	1.6
28	1.7	1.8	.75	.51	233	5.4	2.8	.33	367	.91	.90	1.6
29	1.6	1.7	.76	.50	---	5.4	2.8	.34	367	.90	.95	1.5
30	1.6	1.1	.75	.56	---	5.2	2.5	.34	367	.99	.99	1.5
31	1.6	---	.72	.80	---	4.9	---	1.8	---	1.0	1.2	---
TOTAL	37.31	63.6	23.59	20.21	1144.85	3131.8	932.9	28.86	5665.7	1294.50	21.71	39.23
MEAN	1.20	2.12	.76	.65	40.9	101	31.1	.93	189	41.8	.70	1.31
MAX	1.7	2.6	1.3	.80	251	396	215	2.3	381	287	1.2	1.6
MIN	.67	1.1	.45	.43	.25	2.8	2.2	.20	2.0	.90	.00	.54
AC-FT	74	126	47	40	2270	6210	1850	57	11240	2570	43	78
CAL YR 1982	TOTAL	12757.63	MEAN	35.0	MAX	722	MIN	.08	AC-FT	25300		
WTR YR 1983	TOTAL	12404.26	MEAN	34.0	MAX	396	MIN	.00	AC-FT	24600		

## TRINITY RIVER BASIN

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 upstream from St. Louis Southwestern Railway Lines bridge, 6,000 ft upstream from city of Corsicana diversion dam, 5.3 mi east of Corsicana, and 23.0 mi upstream from mouth.

DRAINAGE AREA.--963 mi<sup>2</sup>.

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

Water-quality records.--Chemical analyses: September 1961 to September 1981. Water temperatures: September 1961 to September 1970.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 294.28 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for Feb. 7 to Mar. 1, which are fair. Since November 1965, flow from 178 mi<sup>2</sup> above station has been affected by Bardwell Lake (station 08063700). In addition, flow is affected at times by discharge from the flood-detention pools of 106 floodwater-retarding structures with a combined detention capacity of 84,920 acre-ft. These structures control runoff from 295 mi<sup>2</sup>. During the year, the city of Ennis may have discharged sewage effluent into a tributary that enters Chambers Creek above the gage. Gage-height telemeter reinstalled Apr. 23, 1983.

AVERAGE DISCHARGE.--44 years (water years 1940-83), 429 ft<sup>3</sup>/s (310,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 48,000 ft<sup>3</sup>/s May 3, 1944; maximum gage height, 28.10 ft May 3, 1958; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, 30 ft Aug. 27, 1887, from information by local residents. Flood in December 1913 reached a stage of 27.5 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,570 ft<sup>3</sup>/s Feb. 21 at about 1600 hours (gage height, 23.78 ft), no peak above base of 13,000 ft<sup>3</sup>/s; minimum, 1.0 ft<sup>3</sup>/s Oct. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	2.4	20	22	34	412	144	21	119	422	10	5.1
2	5.2	3.9	38	18	108	250	105	20	131	287	11	5.3
3	2.5	6.1	161	15	109	107	82	20	295	245	9.8	5.6
4	1.2	6.0	71	13	51	436	67	20	315	240	9.8	4.5
5	1.1	5.7	29	12	377	3660	187	20	554	258	11	4.0
6	1.5	3.5	14	12	486	2170	220	18	446	254	10	3.4
7	4.2	3.2	9.5	11	200	518	214	16	396	79	9.3	3.3
8	5.7	4.4	7.6	10	100	378	207	14	416	36	8.6	3.2
9	6.3	5.4	6.4	10	50	374	82	13	337	27	10	3.2
10	5.9	4.9	8.1	9.8	60	337	49	13	119	23	15	3.1
11	5.6	5.1	81	9.4	46	400	46	25	48	20	15	2.7
12	5.0	7.0	214	9.2	30	388	43	35	39	18	10	2.5
13	4.7	7.1	82	9.6	20	375	40	33	34	17	5.0	2.6
14	3.8	6.9	36	9.1	12	368	37	24	96	17	6.4	2.9
15	3.6	6.6	20	8.6	11	360	34	16	1180	17	7.4	3.1
16	4.4	7.0	14	8.1	9.8	171	32	403	902	20	6.5	3.0
17	4.4	7.9	11	8.3	9.0	81	30	164	404	46	11	3.2
18	4.1	8.5	9.6	8.0	9.0	99	29	64	216	69	20	2.9
19	4.0	9.1	8.8	8.2	8.0	87	28	42	124	47	46	4.5
20	4.5	9.7	8.7	8.9	117	84	27	118	97	41	92	8.2
21	5.2	8.1	8.3	9.1	7380	89	27	135	452	31	41	8.3
22	5.9	8.4	7.7	9.4	3830	85	27	229	452	26	23	6.8
23	6.0	8.6	7.2	9.8	685	215	27	109	439	24	15	6.3
24	6.8	8.0	6.9	10	433	231	26	189	434	21	11	4.6
25	7.0	13	6.9	9.7	414	131	25	166	431	18	9.3	3.6
26	6.7	13	15	9.3	421	143	24	71	477	16	7.9	2.7
27	6.7	56	199	8.7	421	306	24	46	475	15	6.9	2.9
28	7.3	30	98	8.9	422	209	23	33	440	13	5.8	3.6
29	8.9	16	44	8.6	---	129	22	43	433	12	5.3	4.6
30	9.8	9.9	30	8.1	---	197	21	90	427	11	5.2	5.4
31	8.6	---	29	25	---	241	---	56	---	9.8	5.0	---
TOTAL	162.0	291.4	1301.7	336.8	15852.8	13031	1949	2266	10728	2379.8	459.2	125.1
MEAN	5.23	9.71	42.0	10.9	566	420	65.0	73.1	358	76.8	14.8	4.17
MAX	9.8	56	214	25	7380	3660	220	403	1180	422	92	8.3
MIN	1.1	2.4	6.4	8.0	8.0	81	21	13	34	9.8	5.0	2.5
AC-FT	321	578	2580	668	31440	25850	3870	4490	21280	4720	911	248

CAL YR 1982 TOTAL 52161.47 MEAN 143 MAX 4000 MIN .97 AC-FT 103500  
WTR YR 1983 TOTAL 48882.80 MEAN 134 MAX 7380 MIN 1.1 AC-FT 96960

NOTE.--No gage-height record Feb. 7 to Mar. 1.



## TRINITY RIVER BASIN

405

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 upstream from Alligator Creek, 5.4 mi upstream from mouth, 9.0 mi downstream from Chambers Creek, and 16 mi north of Fairfield.

DRAINAGE AREA.--1,957 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1972 to August 1983 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 230.83 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records poor. 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 182 floodwater-retarding structures with a combined detention capacity of 128,500 acre-ft. These structures control runoff from 443 mi<sup>2</sup> in the Richland and Chambers Creeks drainage basins. The city of Corsicana discharged sewage effluent into a tributary upstream. Station discontinued Aug. 16, 1983.

AVERAGE DISCHARGE.--10 years (water years 1973-82), 907 ft<sup>3</sup>/s (657,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 29,500 ft<sup>3</sup>/s Apr. 26, 1973 (gage height, 28.76 ft); no flow Oct. 16-23 and Nov. 25, 26. 182, result of construction upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1971 reached a stage of 31.5 ft, from floodmark.

EXTREMES FOR PERIOD OCTOBER 1982 TO JULY 1983.--Maximum discharge, 10,800 ft<sup>3</sup>/s Feb. 10 at 1900 hours (gage height, 26.99 ft), maximum gage height, 27.09 ft Feb. 23 (backwater from Trinity River); no flow Oct. 16-23 and Nov. 25, 26, result of construction upstream.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	.02	80	147	24	1330	1410	25	1060	614	.44	
2	16	1.7	159	102	858	1270	1110	20	671	457	.38	
3	14	57	6290	75	430	1040	375	16	488	312	.33	
4	12	134	7060	56	292	1280	196	12	585	254	.35	
5	18	58	3160	46	879	3380	139	21	603	274	.31	
6	21	32	1270	38	3250	5500	284	28	1070	471	.25	
7	21	20	433	43	2900	5240	318	29	1020	262	.25	
8	16	14	108	30	1420	3340	308	27	965	154	.28	
9	22	9.6	52	25	1540	1650	300	23	709	52	.32	
10	26	7.1	41	22	8620	1310	738	22	554	35	.34	
11	26	6.9	192	18	7480	1180	277	177	373	22	.26	
12	16	7.6	1150	17	3540	1020	121	491	298	17	.17	
13	3.0	9.6	709	15	1190	686	86	186	275	16	.14	
14	.11	9.9	238	15	692	546	70	102	260	14	.11	
15	.03	8.5	129	12	469	512	63	79	462	12	.10	
16	.00	3.8	80	12	348	487	56	61	1370	43	.08	
17	.00	.27	58	11	269	259	49	446	896	226	---	
18	.00	.10	49	9.9	212	163	48	231	477	128	---	
19	.00	.06	38	11	175	184	43	172	330	98	---	
20	.00	.01	33	15	248	187	38	894	145	43	---	
21	.00	.01	28	19	4310	186	258	1760	206	38	---	
22	.00	.01	27	27	8260	203	453	2050	405	33	---	
23	.00	.01	23	22	7540	193	474	1050	397	22	---	
24	.01	.01	22	24	4450	410	280	387	384	17	---	
25	.01	.00	18	41	2840	530	93	201	381	11	---	
26	.01	.00	22	38	1940	489	54	165	386	9.3	---	
27	.01	274	1790	29	1510	1010	44	139	471	8.6	---	
28	.86	592	2470	22	1380	888	40	132	407	7.4	---	
29	.11	208	1110	18	---	598	37	167	642	6.0	---	
30	.04	129	429	15	---	362	31	212	1330	3.8	---	
31	.03	---	214	14	---	780	---	722	---	.58	---	
TOTAL	229.22	1583.20	27482	988.9	67066	36213	7793	10047	17620	3660.68	---	
MEAN	7.39	52.8	887	31.9	2395	1168	260	324	587	118	---	
MAX	26	592	7060	147	8620	5500	1410	2050	1370	614	---	
MIN	.00	.00	18	9.9	24	163	31	12	145	.58	---	
AC-FT	455	3140	54510	1960	133000	71830	15460	19930	34950	7260	---	
CAL YR 1982	TOTAL	145711.52	MEAN	399	MAX	7060	MIN	.00	AC-FT	289000		
WTR TY 1983	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		



## 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 September 1983 (discontinued).

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1956 to September 1966, March 1972 to September 1983 (discontinued).

WATER TEMPERATURES: April 1956 to September 1966, March 1972 to September 1983 (discontinued).

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 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, 2,000 micromhos Oct. 10; minimum daily, 166 micromhos Dec. 4.

WATER TEMPERATURES: Maximum daily, 32.5°C July 31; minimum daily, 6.0°C Jan. 3.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L 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 09...	2130	23	2000	25.0	830	710	260	43	140
JAN 19...	0930	11	1140	8.0	250	64	86	9.5	130
FEB 28...	1930	1670	363	13.0	130	5	48	3.6	21
APR 15...	2200	55	719	19.0	200	54	72	5.7	67
JUL 31...	1500	.54	870	32.5	210	36	70	7.4	94

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 09...	2.2	16	120	780	160	1.5	4.1	1480
JAN 19...	3.7	6.7	190	130	170	.50	7.3	654
FEB 28...	.8	4.2	130	42	15	.40	6.4	219
APR 15...	2.1	4.7	150	91	78	.40	2.5	411
JUL 31...	3.0	6.3	170	89	120	.70	4.3	494

## TRINITY RIVER BASIN

407

08064600 RICHLAND CREEK NEAR FAIRFIELD, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	229.22	1200	696	431	210	128	140	84	250
NOV.	1982	1583.20	619	359	1540	57	243	78	332	190
DEC.	1982	27482	215	124	9220	5.9	437	29	2150	84
JAN.	1983	988.9	741	430	1150	84	223	91	242	210
FEB.	1983	67066	294	170	30800	11	2010	39	7100	110
MAR.	1983	36213	378	219	21400	18	1790	50	4870	140
APR.	1983	7793	495	287	6030	32	678	64	1350	170
MAY	1983	10047	471	273	7400	30	807	61	1660	160
JUNE	1983	17620	369	213	10200	17	821	49	2320	130
JULY	1983	3660.68	402	233	2300	21	211	53	522	140
TOTAL		172683.00	**	**	90400	**	7350	**	20600	**
WTD. AVG.		568	335	194	**	16	**	44	**	120

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	EQUIVALENT MEAN										
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	925	1080	325	353	1060	368	478	900	340	320	
2	924	1050	359	392	450	372	484	920	400	350	
3	922	1030	189	433	597	375	533	960	410	380	
4	907	943	166	500	777	378	551	940	450	360	
5	926	895	180	560	586	330	588	830	420	350	
6	913	853	233	670	300	303	573	810	430	440	
7	919	826	289	700	282	350	421	740	400	430	
8	1280	804	330	785	332	370	437	712	380	440	
9	1550	802	363	991	323	376	441	770	420	430	
10	2000	808	420	938	235	371	377	790	400	500	
11	1430	812	452	975	231	381	463	802	390	520	
12	1040	811	336	1010	272	378	589	690	395	560	
13	988	817	285	1060	299	379	602	580	400	600	
14	1010	823	320	1070	318	395	660	570	420	630	
15	1030	826	354	1080	361	411	719	610	290	660	
16	---	834	386	1090	400	402	715	720	250	570	
17	---	872	395	1110	423	440	724	610	400	260	
18	---	927	405	1140	469	470	718	560	410	520	
19	---	929	436	1240	524	497	765	460	440	570	
20	---	938	480	1200	476	607	713	440	490	620	
21	---	847	510	1140	269	663	697	410	420	560	
22	---	809	543	1030	260	717	415	390	360	620	
23	---	792	595	1100	290	640	413	375	340	720	
24	1120	815	632	1120	305	537	466	390	345	680	
25	1370	---	672	1090	334	415	551	470	350	690	
26	1170	---	716	1080	343	404	632	520	360	660	
27	1200	867	266	985	361	478	698	600	330	740	
28	975	482	200	918	363	437	815	670	390	720	
29	1090	343	232	990	---	457	850	580	350	780	
30	1080	315	253	978	---	476	875	530	270	770	
31	1070	---	370	1040	---	548	---	425	---	870	
MEAN	1120	820	377	928	401	443	599	638	382	559	

## TRINITY RIVER BASIN

08064600 RICHLAND CREEK NEAR FAIRFIELD, TX--Continued

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983											
	OCT	NOV	DEC	JAN	FEB	ONCE-DAILY MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	23.5	15.0	8.0	8.0	14.0	15.0	24.0	20.0	28.0		
2	27.0	---	18.0	7.5	---	15.5	15.0	22.0	22.0	27.5		
3	27.0	17.5	15.5	6.0	9.0	---	16.0	21.0	24.0	30.0		
4	27.0	17.0	14.0	6.5	8.5	16.0	17.0	24.0	25.0	30.0		
5	26.5	16.5	13.0	7.5	8.0	17.0	18.0	26.5	26.0	29.0		
6	26.5	16.5	13.0	8.0	6.5	17.0	15.0	24.0	24.0	28.0		
7	26.0	19.0	13.0	9.0	7.5	18.0	14.0	25.0	24.0	---		
8	26.5	17.0	12.0	10.5	8.5	17.0	15.0	24.0	24.0	29.5		
9	25.0	20.0	13.0	10.5	12.0	15.5	15.0	23.5	25.0	29.0		
10	23.5	---	---	12.0	13.0	15.0	16.0	24.0	---	30.0		
11	21.0	19.0	10.5	---	13.0	14.0	18.0	23.0	25.0	30.0		
12	19.0	16.5	9.5	10.5	12.0	15.0	20.0	23.0	26.0	30.0		
13	20.5	15.5	7.0	10.5	12.0	15.0	22.0	24.0	22.0	29.0		
14	---	15.5	9.0	11.0	12.5	16.5	---	24.0	25.0	29.0		
15	18.5	15.5	10.0	10.5	13.0	16.5	19.0	23.0	24.0	28.5		
16	---	14.5	9.0	10.5	---	17.0	20.0	23.0	25.0	26.5		
17	---	14.5	---	10.5	14.0	15.0	20.0	22.0	25.0	28.0		
18	---	15.5	12.0	9.5	15.0	---	20.0	22.0	26.0	29.5		
19	---	17.5	12.0	8.5	15.5	15.5	16.0	23.0	28.0	---		
20	---	18.0	11.0	8.5	15.0	14.0	19.0	---	28.0	30.0		
21	---	18.5	13.0	7.5	13.5	12.0	18.0	22.0	---	32.0		
22	---	17.0	14.0	7.5	13.0	13.0	19.0	23.0	27.0	31.0		
23	---	15.0	15.5	7.5	14.0	14.0	18.0	23.0	26.0	31.5		
24	18.0	---	15.5	8.0	15.0	12.5	19.0	24.0	27.0	30.5		
25	16.0	---	14.0	8.0	14.5	13.0	20.0	25.0	27.0	32.0		
26	16.5	---	13.0	8.0	13.0	15.0	21.0	25.0	28.0	31.0		
27	18.0	13.5	13.5	8.0	12.5	15.0	22.0	26.0	29.0	32.0		
28	18.5	13.0	14.0	9.0	13.0	14.5	23.0	27.0	29.0	30.5		
29	20.0	12.5	9.0	10.0	---	15.5	---	27.0	28.0	31.0		
30	21.0	13.0	7.5	12.0	---	17.5	24.0	26.0	27.0	32.0		
31	22.5	---	8.0	12.0	---	17.5	---	21.0	---	32.5		
MEAN	22.5	16.5	12.0	9.0	12.0	15.5	18.5	24.0	25.5	30.0		

## TRINITY RIVER BASIN

409

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 southeast of Streetman, 3.1 mi downstream from Chicago, Rock Island, and Pacific Railroad Co. bridge, 3.8 mi upstream from Caney Creek, and 25 mi upstream from mouth.

DRAINAGE AREA.--142 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair except those for May 11 to July 19 and Sept. 2-30, which are poor.

AVERAGE DISCHARGE.--15 years, 70.7 ft<sup>3</sup>/s (6.76 in/yr), 51,220 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,100 ft<sup>3</sup>/s May 10, 1968 (gage height, 25.00 ft); 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, 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 and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 3	1030	*8,160	23.84	Feb. 9	2230	3,110	21.59
Dec. 27	1330	2,670	20.64	Aug. 19	2200	7,580	23.73
Feb. 5	1700	2,820	21.03				

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.03	.51	13	209	7.7	2.8	1.0	13	1.7	.12	1.2
2	.00	.32	373	12	49	6.7	1.8	1.1	6.2	.48	.11	.96
3	.00	99	6310	14	19	6.2	1.4	1.1	4.3	.52	.11	.63
4	.00	8.7	1180	9.9	11	11	1.2	1.0	4.9	.45	.11	.36
5	.00	.65	95	7.3	1290	108	1.2	1.0	9.5	1.2	.11	.31
6	.00	.03	38	5.7	844	41	1.1	1.0	16	.56	.11	.24
7	.00	.00	23	5.8	91	18	.96	.96	7.6	.56	.11	.20
8	.00	.00	16	6.3	42	9.8	.95	.91	3.6	.52	5.3	.20
9	.00	.00	12	4.2	724	6.4	.91	.91	.91	.56	2.7	.19
10	.00	.00	12	3.3	1310	4.4	.95	1.1	.36	.56	.42	.19
11	.00	.00	222	2.7	134	3.3	.96	198	.20	.52	.19	.18
12	.00	.00	249	2.3	48	2.6	.96	75	.17	.48	.16	.17
13	.00	.00	48	1.9	30	2.3	.96	13	.16	.45	.14	.17
14	.00	.00	23	1.7	22	2.2	.95	7.3	.14	.42	.13	.16
15	.00	.00	14	1.5	16	2.0	.88	4.5	.13	.45	.13	.15
16	.00	.00	9.2	1.3	13	2.2	.86	3.2	.12	.45	.12	.14
17	.00	.00	6.9	1.3	10	2.3	.86	3.0	2.0	.39	.12	.12
18	.00	.00	5.5	1.2	9.8	1.9	.86	2.6	17	.39	.12	.10
19	.00	26	4.5	4.0	9.5	1.7	1.0	2.5	2.2	.39	3640	1.5
20	.00	82	3.6	60	144	2.7	1.1	4.5	.67	.42	3270	1.7
21	.00	2.8	3.2	39	1200	3.6	1.1	10	.45	.31	237	1.1
22	.00	.19	3.0	42	143	3.1	1.1	8.4	.39	.31	39	.66
23	.00	.02	2.6	44	50	2.8	1.1	7.4	.33	.24	21	.52
24	.00	.00	2.5	20	31	2.8	1.1	5.0	.31	.22	10	.40
25	.00	.00	2.3	12	20	2.8	1.0	3.7	.28	.16	6.5	.34
26	.00	.03	8.8	8.4	14	35	.96	2.8	.76	.13	4.3	.26
27	.00	1010	1900	6.3	11	66	.91	2.4	.56	.13	3.2	.20
28	.07	171	572	5.0	8.8	18	.96	2.1	.39	.12	3.3	.19
29	.84	13	64	4.4	---	8.2	1.0	1.8	5.9	.12	3.4	.18
30	1.5	1.7	28	3.8	---	4.8	1.0	1.7	14	.12	2.3	.16
31	.07	---	16	4.6	---	3.4	---	5.2	---	.12	1.6	---
TOTAL	2.48	1415.47	11247.61	348.9	6503.1	392.9	32.89	374.18	112.53	13.45	7251.91	12.88
MEAN	.080	47.2	363	11.3	232	12.7	1.10	12.1	3.75	.43	234	.43
MAX	1.5	1010	6310	60	1310	108	2.8	198	17	1.7	3640	1.7
MIN	.00	.00	.51	1.2	8.8	1.7	.86	.91	.12	.12	.11	.10
CFSM	.001	.33	2.56	.08	1.63	.09	.008	.09	.03	.003	1.65	.003
IN.	.00	.37	2.95	.09	1.70	.10	.01	.10	.03	.00	1.90	.00
AC-FT	4.9	2810	22310	692	12900	779	65	742	223	27	14380	26

CAL YR 1982	TOTAL	21438.97	MEAN	58.7	MAX	6310	MIN	.00	CFSM	.41	IN	5.62	AC-FT	42520
WTR YR 1983	TOTAL	27708.30	MEAN	75.9	MAX	6310	MIN	.00	CFSM	.54	IN	7.26	AC-FT	54960

## 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 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
NOV 30...	1220	3.6	245	13.5	64	18	16	5.9	21
JAN 19...	1235	3.7	1020	8.0	260	110	64	25	110
MAR 02...	1145	6.6	741	16.5	200	79	50	18	74
APR 20...	1715	1.1	1590	18.0	410	190	97	40	180
JUN 08...	1215	3.6	440	24.0	120	41	29	11	42
JUL 26...	1115	.13	1860	31.0	460	200	110	45	230
SEP 08...	0745	.20	1360	28.0	360	130	88	33	150

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 30...	1.2	4.8	46	39	21	.20	8.8	144
JAN 19...	3.0	4.7	150	160	140	.30	42	636
MAR 02...	2.4	4.3	120	110	100	.20	9.3	438
APR 20...	4.0	4.8	220	230	260	.40	12	956
JUN 08...	1.7	5.6	77	58	52	.20	9.4	253
JUL 26...	4.8	5.1	260	250	330	.60	11	1140
SEP 08...	3.6	6.0	230	200	200	--	14	829



## TRINITY RIVER BASIN

411

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 downstream from bridge on U.S. Highway 287, 2 mi upstream from Beaver Creek, 3.5 mi northwest of Tennessee Colony, 12 mi downstream from Coon Creek Lake, and 12 mi upstream from mouth.

DRAINAGE AREA.--207 mi<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 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.--21 years, 100 ft<sup>3</sup>/s (72,450 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,550 ft<sup>3</sup>/s May 11, 1968 (gage height, 15.90 ft); minimum daily, 0.8 ft<sup>3</sup>/s Aug. 19-21, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1927, 22 ft in June 1944 as a result of dam failure at Coon Creek Lake, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,380 ft<sup>3</sup>/s Dec. 5 at 0500 hours (gage height, 11.16 ft), no peak above base of 1,400 ft<sup>3</sup>/s; minimum daily (estimated), 2.7 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	38	89	154	81	178	237	45	121	77	15	16
2	3.2	23	69	138	84	159	228	45	145	91	16	16
3	3.0	46	360	130	91	148	203	46	151	98	15	15
4	2.9	72	667	132	97	231	183	50	137	94	14	15
5	2.8	70	1260	134	129	321	163	50	112	78	14	15
6	2.7	49	724	127	167	467	145	45	205	69	14	14
7	2.8	29	469	117	227	474	135	38	243	60	13	12
8	2.9	19	347	110	306	359	128	31	286	54	13	11
9	3.3	14	262	104	292	276	122	26	247	48	12	10
10	3.7	13	212	99	321	217	113	24	203	49	12	9.2
11	4.1	11	196	96	345	179	104	59	157	54	14	9.0
12	4.2	11	187	92	362	152	96	90	121	57	20	9.7
13	4.5	11	218	89	297	132	95	102	102	67	19	11
14	5.0	11	270	85	243	121	98	122	90	81	16	10
15	5.1	11	245	81	199	117	104	133	79	87	13	9.0
16	4.7	11	198	79	167	117	119	125	72	85	12	7.9
17	4.5	11	169	77	144	120	123	110	82	82	10	6.9
18	4.4	12	147	74	130	122	111	104	107	85	9.4	5.9
19	4.2	14	129	76	121	126	96	137	100	94	12	6.1
20	4.0	17	116	85	128	135	83	234	90	101	21	6.3
21	3.9	18	108	95	375	132	74	500	80	95	36	8.3
22	4.0	18	104	103	656	141	68	723	70	71	38	13
23	4.1	16	101	102	808	165	64	770	65	54	32	14
24	4.2	15	100	97	556	164	61	571	61	42	24	9.9
25	4.3	14	99	93	405	163	60	389	58	33	19	7.7
26	4.3	15	98	97	312	198	56	283	56	26	16	6.6
27	4.3	76	114	100	248	208	50	209	54	21	16	6.1
28	6.0	108	131	96	206	253	46	162	52	18	16	5.8
29	24	123	156	89	---	272	44	133	55	15	16	5.7
30	61	126	188	82	---	244	44	119	65	14	16	5.6
31	61	---	182	80	---	231	---	122	---	14	16	---
TOTAL	256.4	1022	7715	3113	7497	6322	3253	5597	3466	1914	529.4	297.7
MEAN	8.27	34.1	249	100	268	204	108	181	116	61.7	17.1	9.92
MAX	61	126	1260	154	808	474	237	770	286	101	38	16
MIN	2.7	11	69	74	81	117	44	24	52	14	9.4	5.6
AC-FT	509	2030	15300	6170	14870	12540	6450	11100	6870	3800	1050	590
CAL YR 1982	TOTAL	30708.3	MEAN	84.1	MAX	1260	MIN	2.7	AC-FT	60910		
WTR YR 1983	TOTAL	40982.5	MEAN	112	MAX	1260	MIN	2.7	AC-FT	81290		

## 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 upstream from Missouri Pacific Railroad Co. bridge, 6 mi northeast of Oakwood, and at mile 313.4.

DRAINAGE AREA.--12,833 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1923 to September 1924 (monthly discharge only), October 1924 to current year. Records of January 1905 to September 1923, published in WSP 850 and 878, have been found unreliable and should not be used. Gage-height records collected in this vicinity since 1904 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1442: 1934. See also PERIOD OF RECORD. WSP 1922: Drainage area. WRD TX-81-1: 1980 (M,m).

GAGE.--Water-stage recorder. Datum of gage is 175.06 ft National Geodetic Vertical Datum of 1929. Prior to July 15, 1932, nonrecording gage at site 1.5 mi downstream at datum 1.06 ft lower. July 15, 1932, to Oct. 7, 1934, non-recording gage at present site and datum.

REMARKS.--Records good. Twenty-one major reservoirs with a capacity of 4,200,000 acre-ft. of which 1,362,000 acre-ft is for flood control, partly regulate the flow. Flow is affected at times by discharge from the flood-detention pools of 251 floodwater-retarding structures with a combined detention capacity of 183,200 acre-ft. These structures control runoff from 613 mi<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 upstream. The diversion to Big Brown Lake is used to maintain the normal pool elevation for that lake. Gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years (water years 1924-53) unregulated, 5,045 ft<sup>3</sup>/s (3,655,000 acre-ft/yr); 30 years (water years 1954-83) regulated, 4,502 ft<sup>3</sup>/s (3,262,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 153,000 ft<sup>3</sup>/s Apr. 29, 1942 (gage height, 51.64 ft); minimum observed, 28 ft<sup>3</sup>/s Aug. 24, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1890 reached a stage of 53 ft (discharge about 180,000 ft<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, present site and datum, from information by the National Weather Service (discharge about 164,000 ft<sup>3</sup>/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,000 ft<sup>3</sup>/s Feb. 28 at 1400 hours (gage height, 38.27 ft); minimum daily, 640 ft<sup>3</sup>/s Oct. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	842	1010	5060	8500	1150	20500	7380	1170	3930	4120	793	878
2	829	1110	3300	5650	1330	16100	9020	1150	4280	3820	766	906
3	796	1140	5940	3380	4450	10500	9400	1130	4420	3010	746	921
4	775	1120	12200	2590	7560	11900	8290	1160	4190	2510	762	1260
5	759	2180	15400	2900	9800	13400	6150	1150	3320	1880	757	1920
6	715	3140	17300	2850	11200	14600	4190	1260	3380	1520	752	1600
7	663	2200	17600	2320	12100	14800	3520	1320	4200	1680	756	1090
8	696	1300	14500	1890	12700	15400	4020	1190	5050	3770	755	851
9	732	900	7970	1670	11300	15900	4310	1060	5150	5390	752	790
10	825	765	4040	1580	10900	16000	4340	1020	4630	4510	782	811
11	931	722	3530	1730	12600	13200	4310	1330	4570	2660	1010	811
12	1260	700	4640	1840	14100	8270	3340	2450	3770	1700	1770	781
13	1870	671	7640	1840	13500	4850	2330	3030	2990	1570	2040	779
14	1490	667	9010	1810	9630	3550	1950	2540	2480	1540	1480	769
15	1040	733	8990	1790	6400	3720	1800	2120	2100	1510	1050	745
16	1240	795	7460	1770	5200	4010	1720	1790	2070	1430	876	740
17	1320	788	4700	1710	4790	4070	1700	2620	4830	1570	803	756
18	991	727	2630	1690	4550	3960	1670	3050	7070	2530	756	762
19	770	701	1890	1700	4390	4020	1600	3430	6800	2560	835	757
20	683	708	1630	1730	4450	4360	1450	5350	4470	2130	1610	749
21	651	774	1510	1760	8750	4340	1370	7690	2450	1610	3920	750
22	640	849	1430	1850	12800	4050	1400	10500	1730	1330	5570	776
23	645	782	1360	1880	15000	4170	1630	11800	1740	1190	7700	842
24	705	786	1320	1870	16700	4100	1730	12300	1740	1090	7230	917
25	1270	849	1300	1700	18200	3500	1660	12300	1690	1010	4360	865
26	1460	867	1260	1520	19800	3500	1500	11700	1750	953	2140	799
27	1090	1460	1360	1420	21200	4000	1450	11000	1730	892	1320	750
28	813	2530	4900	1300	21800	5030	1340	9280	1880	848	1140	692
29	855	4640	9530	1180	---	7340	1240	5510	2620	835	1070	663
30	868	5670	10900	1130	---	7510	1200	2970	2800	864	1050	671
31	830	---	10700	1120	---	6190	---	2750	---	823	947	---
TOTAL	29054	41284	201000	67670	296350	258840	97010	137120	103830	62855	56298	26401
MEAN	937	1376	6484	2183	10580	8350	3234	4423	3461	2028	1816	880
MAX	1870	5670	17600	8500	21800	20500	9400	12300	7070	5390	7700	1920
MIN	640	667	1260	1120	1150	3500	1200	1020	1690	823	746	663
AC-FT	57630	81890	398700	134200	587800	513400	192400	272000	205900	124700	111700	52370
CAL YR 1982	TOTAL	2587420	MEAN	7089	MAX	33300	MIN	640	AC-FT	5132000		
WTR YR 1983	TOTAL	1377712	MEAN	3775	MAX	21800	MIN	640	AC-FT	2733000		

## TRINITY RIVER BASIN

413

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 downstream from bridge on U.S. Highway 79, 1.9 mi upstream from Missouri Pacific Railroad Co. bridge, 2 mi southwest of Oakwood, 11 mi upstream from Buffalo Creek, and 21 mi upstream from mouth.

DRAINAGE AREA.--150 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. No known diversions or regulation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--21 years (water years 1963-83), 76.8 ft<sup>3</sup>/s (6.95 in/yr), 55,640 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 ft<sup>3</sup>/s May 16, 1965 (gage height, 14.91 ft), and Apr. 25, 1966, from rating curve extended above 5,800 ft<sup>3</sup>/s; maximum gage height, 15.46 ft Oct. 31, 1974; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, about 21 ft in 1932, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 4	0300	3,080	13.50	Mar. 5	1400	2,390	13.19
Feb. 21	2000	*3,200	13.54	Mar. 24	unknown	2,000	unknown

Minimum discharge, 0.07 ft<sup>3</sup>/s Oct. 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	4.3	25	39	66	56	58	8.2	113	7.4	1.4	1.8
2	.07	7.8	28	57	44	56	50	8.0	112	7.1	1.2	36
3	.07	18	882	53	33	79	45	10	42	7.0	1.7	22
4	.07	23	1940	47	29	735	40	12	32	6.3	3.3	7.0
5	.07	17	800	39	423	1960	35	9.6	29	6.8	3.4	3.2
6	.19	14	329	35	628	1300	31	8.3	178	7.2	2.3	2.2
7	.44	9.9	66	32	707	600	28	7.4	275	6.7	1.9	1.6
8	.95	6.0	46	31	411	300	26	6.9	141	5.3	6.6	1.4
9	2.3	4.8	38	30	208	150	24	6.7	48	4.7	9.0	1.6
10	3.3	4.0	44	28	446	100	22	6.7	29	3.6	16	1.8
11	3.5	3.6	96	26	848	80	20	115	22	3.0	7.2	1.5
12	4.0	4.3	114	25	487	70	19	251	19	2.7	5.4	1.9
13	5.5	4.3	119	24	123	65	18	207	16	2.4	4.4	1.8
14	6.2	4.6	70	23	67	60	17	93	14	2.2	3.2	1.4
15	4.7	4.5	46	22	63	57	16	42	14	2.2	2.4	1.4
16	4.5	4.3	38	22	56	80	15	39	14	7.5	1.9	1.3
17	3.7	6.7	33	22	50	70	15	28	12	20	1.6	1.2
18	3.5	12	31	22	48	65	14	25	11	36	4.5	1.3
19	4.0	13	29	31	46	100	14	118	10	17	41	2.1
20	3.7	13	27	49	87	150	13	343	9.7	9.5	44	2.4
21	2.7	13	25	42	1280	120	13	622	8.9	6.5	40	2.2
22	2.5	10	26	43	1460	100	12	936	8.8	4.9	17	2.3
23	2.1	14	26	40	683	1000	12	1010	8.3	3.7	8.2	2.1
24	1.9	12	27	36	317	1800	11	634	7.5	2.8	5.0	1.8
25	1.8	11	26	33	98	1000	11	155	7.7	2.5	3.6	1.6
26	1.7	19	24	31	73	500	10	51	20	2.9	2.6	1.2
27	1.6	97	46	28	65	250	10	36	16	3.3	2.2	1.1
28	1.9	76	63	27	60	150	9.5	27	9.5	2.1	2.6	.93
29	2.7	51	64	26	---	100	9.0	24	7.9	1.6	3.2	.75
30	2.9	33	45	27	---	78	8.5	21	7.7	2.1	2.4	.60
31	3.4	---	36	30	---	68	---	40	---	1.6	2.1	---
TOTAL	76.03	515.1	5209	1020	8906	11299	626.0	4900.8	1243.0	198.6	251.3	109.48
MEAN	2.45	17.2	168	32.9	318	364	20.9	158	41.4	6.41	8.11	3.65
MAX	6.2	97	1940	57	1460	1960	58	1010	275	36	44	36
MIN	.07	3.6	24	22	29	56	8.5	6.7	7.5	1.6	1.2	.60
CFSM	.02	.12	1.12	.22	2.12	2.43	.14	1.05	.28	.04	.05	.02
IN.	.02	.13	1.29	.25	2.21	2.80	.16	1.22	.31	.05	.06	.03
AC-FT	151	1020	10330	2020	17670	22410	1240	9720	2470	394	498	217

CAL YR 1982	TOTAL	13791.29	MEAN	37.8	MAX	1940	MIN	.02	CFSM	.25	IN	3.42	AC-FT	27360
WTR YR 1983	TOTAL	34354.31	MEAN	94.1	MAX	1960	MIN	.07	CFSM	.63	IN	8.52	AC-FT	68140

NOTE.--No gage-height record Mar. 6 to May 4.

## 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 downstream from bridge on State Highway 7, 7.1 mi downstream from Upper Keechi Creek, 11.9 mi west of Crockett, and at mile 265.2.

DRAINAGE AREA.--13,911 mi<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 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> of Elkhart Creek basin affected by storage in Houston County Lake near Crockett (capacity 19,500 acre-ft). Diversions above station for irrigation, municipal, and industrial uses. Gage-height telemeter at gage.

AVERAGE DISCHARGE.--19 years (water years 1965-83), 5,741 ft<sup>3</sup>/s (4,159,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,000 ft<sup>3</sup>/s May 15, 1969 (gage height, 52.24 ft); minimum, 275 ft<sup>3</sup>/s Aug. 13, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 56.1 ft Apr. 30 or May 1, 1942, from information by Texas Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21,600 ft<sup>3</sup>/s Mar. 1 at 1400 hours (gage height, 32.91 ft); minimum daily, 723 ft<sup>3</sup>/s Oct. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	933	924	5760	11300	1380	21500	7650	1520	4010	3190	877	1100
2	927	1100	4900	9120	1410	20800	8890	1490	5000	4330	835	1040
3	912	1300	4230	6040	1900	17200	10300	1480	5100	3830	848	1040
4	870	1320	8860	3840	4860	13800	10400	1460	5180	3110	852	1050
5	841	1290	13400	3220	9930	18900	8820	1460	4650	2570	878	1550
6	830	2470	17600	3370	14700	20900	6540	1430	4450	1980	864	2070
7	812	2890	20000	3180	14400	20500	4790	1510	5360	1650	844	1710
8	784	2110	20100	2660	14600	18700	4390	1590	5600	1940	860	1240
9	817	1390	15900	2230	15700	17700	4760	1480	6100	4270	840	1060
10	834	1020	8470	2000	17200	17000	4960	1330	5900	5400	840	1030
11	922	861	5070	1900	15600	16100	5030	1460	5280	4300	900	1080
12	1040	815	4960	2010	15400	13500	4850	1950	4960	2630	1100	1020
13	1450	780	6500	2080	16200	8460	3800	2880	4060	1810	2200	982
14	1870	754	9020	2080	15000	5260	3000	3770	3380	1660	2400	952
15	1530	742	10100	2050	10900	4290	2600	3530	2860	1620	1600	927
16	1160	776	9670	2030	7250	4410	2400	3030	2560	1650	1200	893
17	1300	879	7510	2000	5850	4630	2260	2410	2900	1640	1000	872
18	1360	888	4710	1940	5380	4650	2180	2900	5990	1880	900	902
19	1080	846	2930	1930	5100	4550	2100	3750	7540	2690	900	961
20	867	814	2230	1960	4970	4790	1970	6300	6710	2660	1100	978
21	776	809	1940	2020	8490	5140	1840	11600	4360	2200	2000	956
22	737	854	1810	2120	12900	5010	1790	16100	2630	1710	4500	918
23	726	911	1730	2200	16400	6290	1860	17100	1970	1410	6770	910
24	723	909	1800	2210	18500	8620	2050	16400	1940	1260	8240	927
25	792	890	1690	2170	18600	7000	2110	15600	1950	1160	6860	1000
26	1300	989	1740	1980	19000	6730	2000	14700	2070	1080	4030	1040
27	1460	1830	1900	1790	20000	7410	1850	13500	2290	1000	2200	969
28	1150	2380	2410	1660	20900	6560	1780	12200	2000	940	1500	906
29	953	3260	7050	1520	---	7880	1660	9430	2190	897	1300	848
30	957	5040	10500	1390	---	9260	1560	5630	2810	892	1200	791
31	963	---	11600	1360	---	8680	---	3770	---	910	1160	---
TOTAL	31676	41841	226090	87360	332520	336220	120190	182760	121800	68269	61598	31722
MEAN	1022	1395	7293	2818	11880	10850	4006	5895	4060	2202	1987	1057
MAX	1870	5040	20100	11300	20900	21500	10400	17100	7540	5400	8240	2070
MIN	723	742	1690	1360	1380	4290	1560	1330	1940	892	835	791
AC-FT	62830	82990	448400	173300	659600	666900	238400	362500	241600	135400	122200	62920
CAL YR 1982	TOTAL	2755874	MEAN	7550	MAX	31100	MIN	723	AC-FT	5466000		
WTR YR 1983	TOTAL	1642046	MEAN	4499	MAX	21500	MIN	723	AC-FT	3257000		

## TRINITY RIVER BASIN

415

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1964 to current year. Chemical and biochemical analyses: October 1967 to current year. Pesticide analyses: October 1971 to September 1981. 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.--Beginning March 1975, a four-parameter water-quality monitor records temperature, DO, pH, and specific conductance continuously at this station.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 2,370 micromhos Sept. 22, 1964; minimum, 105 micromhos July 28, 1979.

pH: Maximum, 9.6 units Aug. 11, 12, 1981; minimum, 5.9 units Aug. 12, 1977.

WATER TEMPERATURES: Maximum, 37.0°C July 4, 1970, Sept. 4, 1978; minimum, 1.0°C Jan. 17, 1978.

DISSOLVED OXYGEN: Maximum, 19.3 mg/L Feb. 10, 1981; minimum, 0.0 mg/L Apr. 20, 1976.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 815 micromhos Aug. 16; minimum, 146 micromhos Dec. 6.

pH: Maximum, 9.3 units Aug. 1, 2; minimum, 7.0 units May 20.

WATER TEMPERATURES: Minimum, 33.5°C on several days during July and August; minimum, 7.5°C Jan. 6.

DISSOLVED OXYGEN: Maximum, 13.1 mg/L July 31; minimum, 1.9 mg/L Aug. 18, 24.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS (MG/L AS CACO3)
NOV 09...	1200	1360	614	7.4	18.5	20	56	6.7	71	1.7	150
JAN 31...	1300	1330	581	7.7	12.0	<1	23	10.3	99	2.6	160
MAR 21...	1300	5180	418	7.8	14.0	10	25	8.4	81	1.9	140
APR 25...	1240	2120	658	8.1	19.0	15	18	9.2	100	2.1	190
JUL 18...	1215	1820	509	7.8	29.0	10	37	7.0	91	1.3	160
AUG 24...	1000	8320	384	7.2	28.5	500	420	1.8	23	3.9	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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)
NOV 09...	27	50	5.3	68	2.6	8.7	120	74	57	.80	11
JAN 31...	47	52	6.5	52	1.9	6.0	110	72	57	.60	10
MAR 21...	25	50	4.8	32	1.2	5.1	120	50	33	.40	5.8
APR 25...	51	65	6.8	61	2.0	6.6	140	85	62	.70	9.0
JUL 18...	35	54	4.9	45	1.6	6.6	120	55	50	.40	9.7
AUG 24...	24	43	3.5	37	1.5	6.7	98	45	40	.60	14



## TRINITY RIVER BASIN

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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)
NOV 09...	347	89	23	6.0	.050	6.0	.090	1.7	1.80	1.10	6.9
JAN 31...	322	59	29	3.5	.150	3.6	.450	1.3	1.70	1.20	6.7
MAR 21...	253	240	43	2.3	.050	2.3	.200	1.5	1.70	.730	9.2
APR 25...	380	<1	<1	3.9	.100	4.0	.080	1.6	1.70	1.20	8.2
JUL 18...	298	60	15	2.3	.060	2.4	.090	.91	1.00	.680	6.2
AUG 24...	250	664	171	2.3	.780	3.1	.110	2.3	2.40	1.60	19

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 09...	1200	4	57	<1	<10	5	22
AUG 24...	1000	4	67	<1	<10	7	1300

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 09...	<1	17	.1	<1	<1	24
AUG 24...	10	110	.1	<1	<1	34

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	31676	641	358	30600	60	5110	77	6560	160
NOV.	1982	41841	584	326	36800	52	5840	69	7770	150
DEC.	1982	226090	305	171	104000	20	12300	33	20300	100
JAN.	1983	87360	482	270	63600	39	9200	55	13100	140
FEB.	1983	332520	325	182	164000	21	19200	35	31800	110
MAR.	1983	336220	326	183	166000	22	19500	36	32300	110
APR.	1983	120190	462	259	84000	36	11800	53	17100	140
MAY	1983	182760	366	205	101000	27	13400	41	20300	110
JUNE	1983	121800	448	251	82400	34	11200	51	16600	140
JULY	1983	68269	500	280	51500	40	7460	57	10600	150
AUG.	1983	61598	504	282	46800	43	7170	59	9780	140
SEPT	1983	31722	661	369	31600	63	5380	80	6810	160
TOTAL		1642046	**	**	962000	**	128000	**	193000	**
WTD. AVG.		4499	388	217	**	29	**	44	**	120

## TRINITY RIVER BASIN

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08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	617	548	584	732	683	704	630	418	537	380	322	346
2	574	546	563	682	583	620	573	378	431	339	322	329
3	563	534	546	611	526	577	389	348	377	376	339	359
4	631	568	608	666	544	616	349	263	292	384	354	371
5	642	631	638	621	571	592	274	147	184	376	355	362
6	---	629	636	630	570	594	157	146	149	438	385	413
7	669	635	653	730	568	649	198	152	171	551	445	502
8	696	670	682	679	590	644	235	201	222	565	546	557
9	698	689	693	678	559	626	262	228	244	565	548	561
10	702	675	688	554	505	527	286	254	267	564	542	554
11	683	670	678	504	464	479	343	287	300	555	531	539
12	686	671	681	495	464	477	414	354	383	558	539	548
13	690	664	672	518	496	509	376	354	363	584	552	568
14	705	690	696	526	518	522	384	313	344	628	581	600
15	740	707	724	530	510	517	419	326	377	661	628	646
16	722	712	717	541	530	538	402	350	366	660	579	625
17	722	685	706	553	534	542	364	358	361	588	576	583
18	681	621	645	596	554	575	363	358	361	589	580	585
19	614	525	557	649	597	623	369	363	366	590	579	585
20	524	487	503	687	650	669	394	368	376	581	575	578
21	572	489	532	718	690	704	447	397	428	600	583	593
22	609	571	594	738	718	726	476	448	462	584	559	577
23	603	565	582	770	738	756	510	478	493	579	560	570
24	611	564	583	763	750	754	516	445	476	598	578	591
25	626	599	615	754	701	740	524	479	503	595	581	590
26	604	589	595	699	665	680	495	464	479	580	568	575
27	628	571	612	601	453	548	519	489	504	580	568	574
28	643	613	624	514	433	472	540	445	470	582	566	575
29	797	628	671	593	455	524	642	287	548	593	576	585
30	697	679	685	529	439	491	261	239	251	605	593	600
31	764	703	732	---	---	---	419	263	358	612	597	602
MONTH	797	487	635	770	433	600	642	146	369	661	322	537

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	619	611	615	---	---	279	444	404	432	724	704	711
2	671	620	638	---	---	282	447	331	388	737	727	733
3	641	617	630	---	---	297	---	---	342	735	723	730
4	733	591	670	---	---	340	---	---	341	725	720	722
5	763	340	491	---	---	289	---	---	357	750	725	739
6	343	---	310	---	---	260	---	---	425	750	732	741
7	---	---	312	---	---	250	---	---	460	737	729	733
8	---	---	311	---	---	289	---	---	470	762	732	745
9	---	---	304	291	---	286	---	---	461	776	763	771
10	---	---	297	299	---	291	---	---	456	774	762	771
11	---	---	305	313	287	302	464	449	457	762	699	745
12	---	---	306	321	283	344	463	447	457	699	678	687
13	---	---	302	374	314	345	491	467	480	704	621	667
14	---	---	308	402	353	391	463	449	451	641	554	611
15	---	---	337	417	397	410	468	452	461	570	474	531
16	---	---	377	465	412	428	506	468	486	516	427	455
17	429	401	404	574	473	535	550	505	529	621	522	571
18	407	395	404	530	445	463	596	551	575	644	625	639
19	414	404	410	457	442	448	636	596	612	647	449	586
20	418	406	413	458	452	455	639	637	639	440	316	405
21	405	309	345	455	437	451	642	635	638	301	186	220
22	309	264	288	486	450	472	657	641	650	281	215	249
23	---	---	301	478	303	407	666	657	662	294	252	266
24	---	---	291	309	263	289	669	659	663	---	---	271
25	---	---	290	348	276	309	672	664	668	---	---	275
26	---	---	289	356	307	329	686	630	670	---	---	280
27	---	---	285	313	284	299	624	608	611	---	---	287
28	---	---	283	373	299	341	635	611	622	---	---	297
29	---	---	---	437	375	396	671	636	650	---	---	321
30	---	---	---	515	412	461	703	673	685	382	362	372
31	---	---	---	485	397	431	---	---	---	400	383	393
MONTH	763	264	376	574	263	360	703	331	527	776	186	533

## TRINITY RIVER BASIN

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	425	380	403	---	---	494	679	624	652	513	489	500
2	518	432	464	---	---	455	700	681	690	526	510	514
3	554	523	543	---	---	470	707	687	699	602	530	558
4	---	---	414	---	---	497	716	692	707	646	603	619
5	---	---	427	---	---	523	726	699	712	696	646	662
6	---	---	432	---	---	561	750	726	733	719	698	703
7	376	321	352	---	---	589	762	746	755	747	724	740
8	412	370	391	---	---	544	758	735	748	744	729	737
9	410	356	380	---	---	437	745	710	730	734	695	716
10	474	363	405	---	---	410	736	715	728	715	653	688
11	512	463	484	---	---	436	737	705	720	651	569	620
12	514	390	465	---	---	460	782	719	747	566	521	539
13	385	332	350	---	---	450	785	742	766	596	568	586
14	353	337	344	---	---	435	778	727	749	595	567	579
15	485	353	424	465	446	456	808	778	795	610	568	580
16	528	491	516	495	462	480	815	783	803	665	616	651
17	507	486	498	534	497	518	781	705	745	664	629	645
18	560	479	511	546	532	539	707	537	641	643	629	636
19	547	442	486	538	511	522	524	428	483	643	622	633
20	484	389	432	516	454	490	410	343	377	660	643	654
21	492	423	471	546	423	475	554	337	415	705	659	680
22	499	490	495	667	554	611	586	293	491	777	706	741
23	514	498	505	690	669	679	313	242	261	777	722	747
24	530	514	520	697	677	689	565	317	410	725	721	723
25	538	528	533	671	603	632	385	359	380	728	718	723
26	558	411	493	600	551	566	400	384	391	717	711	715
27	503	357	401	562	550	553	421	400	413	720	714	717
28	546	---	539	558	546	551	427	418	422	722	709	716
29	---	---	526	597	560	577	438	428	431	723	709	716
30	---	---	491	628	596	610	460	439	450	741	629	718
31	---	---	---	628	608	618	490	460	474	---	---	---
MONTH	560	321	457	697	423	527	815	242	597	777	489	659

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.9	7.7	7.8	8.1	7.8	7.9	8.3	8.2	8.2	7.8	7.7	7.8
2	7.9	7.7	7.8	7.8	7.7	7.7	8.6	8.2	8.5	7.8	7.7	7.8
3	7.9	7.7	7.8	7.9	7.7	7.8	8.5	7.8	8.1	7.7	7.7	7.7
4	8.1	7.7	7.9	8.0	7.8	7.8	7.9	7.8	7.8	7.7	7.7	7.7
5	8.0	7.8	7.9	8.1	7.8	7.9	8.2	7.8	8.0	7.7	7.7	7.7
6	7.9	7.7	7.8	8.1	7.7	7.9	8.1	7.8	8.0	7.8	7.7	7.7
7	7.8	7.7	7.7	7.9	7.6	7.7	7.9	7.5	7.8	7.8	7.7	7.7
8	8.0	7.7	7.8	7.8	7.5	7.6	7.9	7.5	7.6	7.7	7.7	7.7
9	7.9	7.7	7.8	8.0	7.7	7.9	7.9	7.5	7.7	7.7	7.6	7.7
10	7.9	7.7	7.8	8.2	7.9	8.1	7.8	7.6	7.7	7.7	7.6	7.6
11	7.9	7.8	7.8	8.2	8.0	8.1	7.8	7.6	7.7	7.7	7.7	7.7
12	7.9	7.8	7.9	8.1	7.9	8.0	7.5	7.4	7.4	7.7	7.7	7.7
13	8.1	7.9	7.9	8.1	7.9	8.0	7.6	7.4	7.5	7.8	7.7	7.8
14	8.1	7.9	8.0	8.2	7.9	8.0	7.8	7.5	7.7	7.8	7.8	7.8
15	8.1	7.7	7.8	8.2	7.9	8.0	8.0	7.7	7.8	7.8	7.8	7.8
16	8.0	7.7	7.8	8.0	7.9	8.0	7.9	7.4	7.6	7.8	7.8	7.8
17	8.0	7.7	7.8	8.2	8.0	8.1	7.9	7.4	7.7	7.8	7.8	7.8
18	8.0	7.7	7.8	8.3	8.1	8.2	7.9	7.8	7.9	7.9	7.8	7.8
19	8.2	7.8	8.0	8.5	8.3	8.4	7.8	7.8	7.8	7.8	7.8	7.8
20	8.1	7.8	7.9	8.5	8.2	8.4	7.8	7.7	7.8	7.8	7.8	7.8
21	8.1	7.8	7.9	8.7	8.4	8.5	7.7	7.7	7.7	7.8	7.8	7.8
22	8.2	7.9	8.0	8.5	8.3	8.4	7.7	7.7	7.7	7.8	7.8	7.8
23	8.2	7.9	8.0	8.4	8.0	8.2	7.7	7.7	7.7	7.8	7.8	7.8
24	8.2	7.9	8.0	8.0	7.8	7.9	7.7	7.5	7.6	7.9	7.8	7.8
25	8.3	7.9	8.0	7.8	7.8	7.8	7.7	7.6	7.6	7.9	7.8	7.8
26	8.2	7.9	8.0	7.7	7.4	7.6	7.6	7.5	7.5	7.9	7.8	7.8
27	8.2	7.9	8.1	7.8	7.6	7.7	7.6	7.6	7.6	7.9	7.8	7.8
28	8.3	8.0	8.1	7.8	7.6	7.6	7.6	7.5	7.5	7.8	7.8	7.8
29	8.4	7.9	8.0	8.1	7.6	7.9	8.1	7.5	7.7	7.9	7.8	7.8
30	8.1	7.9	8.0	8.2	7.9	8.1	8.1	7.9	8.0	7.8	7.8	7.8
31	8.1	7.9	8.0	---	---	---	7.9	7.6	7.7	7.8	7.7	7.8
MONTH	8.4	7.7	7.9	8.7	7.4	8.0	8.6	7.4	7.8	7.9	7.6	7.8

## TRINITY RIVER BASIN

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08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.8	7.7	7.8	---	---	---	7.7	7.7	7.7	7.9	7.8	7.8
2	7.8	7.7	7.8	---	---	---	7.9	7.7	7.7	7.9	7.8	7.9
3	7.8	7.7	7.7	---	---	---	---	---	---	8.0	7.9	7.9
4	7.8	7.6	7.7	---	---	---	---	---	---	8.0	7.8	7.9
5	7.9	7.4	7.7	---	---	---	---	---	---	8.1	7.9	8.0
6	---	---	---	---	---	---	---	---	---	8.2	8.0	8.0
7	---	---	---	---	---	---	---	---	---	8.0	7.8	7.9
8	---	---	---	8.2	8.0	8.1	---	---	---	8.0	7.8	7.9
9	---	---	---	8.1	8.0	8.1	---	---	---	8.0	7.9	7.9
10	---	---	---	8.3	8.0	8.1	---	---	---	7.9	7.8	7.9
11	---	---	---	8.3	8.3	8.3	7.9	7.8	7.9	7.8	7.7	7.8
12	---	---	---	8.4	8.3	8.3	7.9	7.9	7.9	7.7	7.5	7.6
13	---	---	---	8.4	8.1	8.2	7.9	7.7	7.8	7.5	7.3	7.4
14	---	---	---	8.0	7.8	7.9	7.8	7.8	7.8	7.4	7.3	7.3
15	---	---	---	7.9	7.8	7.8	7.8	7.8	7.8	7.4	7.3	7.4
16	---	---	---	7.8	7.8	7.8	7.8	7.8	7.8	7.5	7.3	7.4
17	7.9	7.6	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.4	7.3	7.3
18	7.8	7.8	7.8	7.8	7.7	7.8	7.8	7.8	7.8	7.3	7.2	7.3
19	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.8	7.9	7.2	7.1	7.2
20	7.8	7.8	7.8	7.9	7.8	7.8	7.9	7.8	7.9	7.6	7.0	7.3
21	7.8	7.7	7.7	7.9	7.8	7.8	7.9	7.9	7.9	7.7	7.4	7.5
22	7.9	7.8	7.8	7.9	7.8	7.9	7.9	7.8	7.9	7.4	7.4	7.4
23	8.0	7.8	7.9	7.8	7.6	7.8	7.9	7.9	7.9	7.5	7.3	7.4
24	---	---	---	7.7	7.6	7.6	8.1	7.9	8.0	---	---	---
25	---	---	---	7.7	7.6	7.7	8.1	8.0	8.0	---	---	---
26	---	---	---	7.7	7.7	7.7	8.0	7.9	8.0	---	---	---
27	---	---	---	7.7	7.6	7.7	7.9	7.8	7.9	---	---	---
28	---	---	---	7.8	7.7	7.7	7.8	7.8	7.8	---	---	---
29	---	---	---	7.8	7.7	7.8	7.8	7.8	7.8	---	---	---
30	---	---	---	7.7	7.6	7.7	7.8	7.8	7.8	7.6	7.4	7.5
31	---	---	---	7.7	7.6	7.7	---	---	---	7.5	7.5	7.5
MONTH	8.0	7.4	7.8	8.4	7.6	7.9	8.1	7.7	7.9	8.2	7.0	7.6

PH (STANDARD UNITS), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.5	7.5	7.5	---	---	---	9.3	9.0	9.2	7.9	7.7	7.8
2	7.6	7.5	7.6	---	---	---	9.3	9.0	9.2	7.9	7.7	7.8
3	7.6	7.5	7.6	---	---	---	9.2	8.5	8.9	8.0	7.7	7.8
4	---	---	---	---	---	---	8.5	8.2	8.3	8.0	7.7	7.8
5	---	---	---	---	---	---	8.2	7.5	7.8	7.9	7.8	7.8
6	---	---	---	---	---	---	7.5	7.5	7.5	7.8	7.7	7.8
7	7.5	7.5	7.5	---	---	---	7.5	7.4	7.5	7.8	7.6	7.7
8	7.5	7.5	7.5	---	---	---	7.6	7.4	7.5	7.9	7.7	7.7
9	7.6	7.5	7.6	---	---	---	7.7	7.6	7.6	7.7	7.6	7.7
10	7.6	7.5	7.5	---	---	---	7.8	7.6	7.7	7.8	7.6	7.6
11	7.5	7.5	7.5	---	---	---	7.7	7.6	7.7	7.7	7.5	7.6
12	7.6	7.5	7.5	---	---	---	7.9	7.7	7.8	7.7	7.5	7.6
13	7.6	7.5	7.6	---	---	---	7.8	7.6	7.6	7.9	7.5	7.7
14	7.6	7.6	7.6	---	---	---	7.6	7.5	7.5	7.9	7.6	7.7
15	7.6	7.6	7.6	7.7	7.6	7.7	7.7	7.6	7.6	8.0	7.7	7.8
16	7.6	7.6	7.6	7.8	7.7	7.7	7.8	7.6	7.7	8.0	7.7	7.8
17	7.7	7.6	7.6	7.8	7.7	7.7	7.7	7.6	7.6	8.1	7.7	7.9
18	7.7	7.5	7.6	7.7	7.7	7.7	7.7	7.5	7.6	7.8	7.7	7.8
19	7.5	7.5	7.5	7.7	7.7	7.7	7.7	7.4	7.6	7.8	7.7	7.7
20	7.6	7.5	7.5	7.7	7.6	7.6	7.4	7.4	7.4	7.7	7.6	7.7
21	7.6	7.5	7.6	7.6	7.6	7.6	7.5	7.4	7.4	7.9	7.7	7.8
22	7.6	7.5	7.5	7.7	7.7	7.7	7.6	7.4	7.5	7.9	7.7	7.8
23	7.6	7.5	7.5	7.7	7.7	7.7	7.7	7.6	7.7	7.8	7.6	7.7
24	7.6	7.6	7.6	7.8	7.7	7.7	7.5	7.2	7.4	7.7	7.6	7.7
25	7.7	7.6	7.7	7.8	7.7	7.7	7.5	7.5	7.5	7.8	7.6	7.7
26	7.7	7.5	7.6	7.9	7.7	7.8	7.5	7.5	7.5	7.8	7.6	7.7
27	7.6	7.5	7.5	8.0	7.7	7.9	7.5	7.5	7.5	7.8	7.7	7.7
28	---	---	---	8.1	7.8	7.9	7.6	7.5	7.5	7.8	7.7	7.7
29	---	---	---	8.0	7.8	7.9	7.7	7.5	7.6	7.8	7.6	7.7
30	---	---	---	8.0	7.8	7.9	7.7	7.6	7.6	7.7	7.6	7.7
31	---	---	---	9.2	7.8	8.6	7.8	7.6	7.7	---	---	---
MONTH	7.7	7.5	7.6	9.2	7.6	7.8	9.3	7.2	7.8	8.1	7.5	7.7

## TRINITY RIVER BASIN

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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

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



## TRINITY RIVER BASIN

421

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

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

## OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.8	5.7	6.4	7.2	5.7	6.3	8.6	3.2	6.8	10.7	9.4	10.0
2	8.1	5.8	6.5	6.1	5.6	5.8	7.7	2.9	5.7	11.1	10.8	11.0
3	8.2	5.9	6.7	7.2	6.0	6.8	8.6	7.8	8.3	11.2	11.1	11.2
4	8.9	6.0	7.1	7.2	7.0	7.1	8.5	7.9	8.2	11.6	11.2	11.3
5	8.1	6.0	6.8	7.3	6.5	7.0	8.8	7.7	8.3	11.7	11.5	11.6
6	7.7	5.7	6.2	7.5	6.4	7.2	9.2	8.8	9.0	11.6	11.5	11.6
7	7.2	5.8	6.2	6.3	3.8	5.1	9.4	6.4	8.6	11.4	10.7	11.1
8	7.2	5.6	6.1	4.4	3.0	3.4	7.3	3.9	5.7	10.7	10.2	10.4
9	7.7	6.0	6.5	6.3	4.6	5.7	8.3	3.5	5.1	10.2	10.0	10.1
10	7.0	6.0	6.3	7.0	5.7	6.6	9.7	4.6	7.1	10.2	9.9	10.0
11	6.8	5.9	6.3	7.9	7.0	7.4	9.0	8.5	8.7	10.4	10.2	10.4
12	6.8	6.3	6.5	8.3	7.6	7.9	9.1	8.4	8.7	10.5	10.4	10.4
13	7.5	6.5	6.9	8.6	7.8	8.1	9.4	9.0	9.2	10.5	10.1	10.3
14	7.2	6.5	6.9	8.6	7.9	8.2	9.6	9.1	9.3	10.1	9.7	10.0
15	6.8	5.9	6.3	9.0	8.1	8.4	9.7	9.0	9.3	9.7	9.6	9.6
16	7.1	5.8	6.2	8.7	8.3	8.6	9.8	9.0	9.4	9.6	9.5	9.5
17	6.6	5.6	6.0	9.1	8.7	8.9	10.3	9.7	9.9	9.7	9.5	9.6
18	6.9	5.8	6.2	9.5	8.9	9.1	10.3	9.5	9.9	9.7	9.5	9.6
19	7.9	5.9	6.9	9.3	8.9	9.1	9.8	9.4	9.6	9.8	9.5	9.7
20	8.9	7.1	7.7	9.4	8.7	9.0	9.7	9.5	9.6	9.9	9.7	9.8
21	8.6	7.3	7.8	9.3	8.5	8.8	9.6	9.4	9.5	10.0	9.8	9.9
22	8.8	7.2	7.8	9.1	8.5	8.7	9.5	9.4	9.4	10.3	9.9	10.1
23	9.1	7.1	7.8	8.7	8.2	8.4	9.4	9.3	9.4	10.5	10.2	10.4
24	9.2	6.7	7.8	8.5	8.1	8.3	9.3	8.7	8.9	10.6	10.4	10.5
25	8.6	6.7	7.4	8.4	8.0	8.2	9.0	8.7	8.9	10.7	10.5	10.6
26	9.3	6.9	8.4	8.2	8.0	8.0	9.0	8.8	8.9	10.7	10.4	10.5
27	9.2	7.2	8.7	9.0	8.5	8.8	9.4	9.0	9.2	10.7	10.5	10.6
28	10.4	8.2	9.1	9.2	8.8	9.0	9.6	9.4	9.5	12.4	10.7	11.5
29	9.2	7.3	8.6	9.2	8.3	8.9	10.2	8.0	9.0	12.3	11.7	12.0
30	8.6	7.0	8.1	8.7	8.3	8.5	10.8	10.3	10.6	12.0	11.5	11.7
31	7.6	6.2	6.8	---	---	---	10.8	9.0	9.9	11.5	11.1	11.3
MONTH	10.4	5.6	7.1	9.5	3.0	7.7	10.8	2.9	8.7	12.4	9.4	10.5

## TRINITY RIVER BASIN

08065350 TRINITY RIVER NEAR CROCKETT, TX--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983--Continued

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	11.2	10.9	11.0	---	---	---	7.5	7.2	7.4	8.1	7.5	7.7
2	11.3	10.7	11.0	---	---	---	9.9	7.4	8.1	8.6	7.4	8.0
3	11.2	10.1	10.8	---	---	---	---	---	---	9.1	8.0	8.4
4	10.6	7.3	9.4	---	---	---	---	---	---	9.2	7.7	8.5
5	10.5	2.4	6.9	---	---	---	---	---	---	9.7	8.2	8.9
6	---	---	---	---	---	---	---	---	---	9.9	8.6	9.1
7	---	---	---	---	---	---	---	---	---	8.7	7.8	8.2
8	---	---	---	---	---	---	---	---	---	8.5	7.4	7.9
9	---	---	---	7.6	2.7	5.0	---	---	---	8.7	7.5	8.0
10	---	---	---	5.9	3.0	4.0	---	---	---	8.4	7.5	7.8
11	---	---	---	6.1	3.4	4.6	---	---	---	8.0	7.3	7.6
12	---	---	---	8.0	3.8	4.7	---	---	---	7.4	6.8	7.1
13	---	---	---	8.6	3.3	5.0	8.4	7.5	7.6	6.6	5.4	5.8
14	---	---	---	10.6	4.0	5.8	7.8	7.6	7.7	5.4	4.8	5.1
15	---	---	---	10.2	4.6	7.2	7.8	7.7	7.7	5.6	5.0	5.3
16	12.0	---	---	9.7	7.4	9.3	7.9	7.7	7.8	5.8	5.6	5.7
17	10.0	4.3	9.4	6.7	4.2	5.7	8.0	7.9	7.9	5.8	5.5	5.7
18	9.9	9.9	9.9	8.7	6.7	7.8	7.9	7.7	7.8	5.4	4.3	4.9
19	9.8	9.7	9.7	9.6	8.7	9.2	7.8	7.6	7.7	4.9	3.9	4.4
20	9.7	9.4	9.5	9.8	9.1	9.5	7.9	7.5	7.7	5.5	4.9	5.1
21	9.5	8.9	9.2	10.3	9.0	9.7	8.0	7.7	7.8	6.0	5.4	5.8
22	9.1	8.8	9.0	10.3	8.4	9.9	8.2	7.7	8.0	5.9	4.4	5.3
23	11.1	---	8.9	10.4	9.7	10.0	8.4	8.1	8.2	5.8	4.3	4.7
24	---	---	---	10.4	10.2	10.3	9.3	8.2	8.8	---	---	---
25	---	---	---	10.3	10.0	10.2	9.7	8.7	9.1	---	---	---
26	---	---	---	10.1	9.4	9.8	9.0	8.2	8.5	---	---	---
27	---	---	---	9.4	9.1	9.3	8.3	8.0	8.1	---	---	---
28	---	---	---	9.5	9.1	9.3	8.1	7.8	7.9	---	---	---
29	---	---	---	9.2	8.1	8.8	7.8	7.5	7.7	---	---	---
30	---	---	---	8.0	6.7	7.4	7.9	7.5	7.6	5.2	5.0	5.1
31	---	---	---	7.3	5.7	6.5	---	---	---	5.2	5.1	5.2
MONTH	12.0	2.4	9.6	10.6	2.7	7.8	9.9	7.2	8.0	9.9	3.9	6.6

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	5.7	5.2	5.4	---	---	---	11.8	8.8	10.3	8.1	6.9	7.4
2	5.7	5.4	5.6	---	---	---	12.3	7.7	9.8	8.4	6.9	7.5
3	5.4	4.9	5.1	---	---	---	10.7	8.0	9.1	8.1	6.6	7.2
4	---	---	---	---	---	---	9.7	7.5	8.5	8.2	6.5	7.2
5	---	---	---	---	---	---	8.3	6.1	7.2	7.6	6.5	6.9
6	---	---	---	---	---	---	6.6	5.7	6.1	6.6	5.5	6.1
7	5.0	4.8	4.9	---	---	---	6.7	5.7	6.0	5.9	5.2	5.5
8	5.1	4.8	5.0	---	---	---	6.7	5.8	6.1	6.9	5.2	5.9
9	5.2	4.9	5.0	---	---	---	7.3	6.3	6.6	6.4	5.4	5.8
10	5.1	4.6	4.9	---	---	---	7.3	6.2	6.7	7.0	5.4	6.0
11	4.6	4.3	4.5	---	---	---	6.4	5.5	5.9	6.7	5.4	5.9
12	4.9	4.5	4.7	---	---	---	7.1	6.0	6.5	7.5	5.7	6.4
13	5.6	4.9	5.4	---	---	---	6.6	5.2	5.6	7.9	5.9	6.6
14	5.6	5.5	5.5	---	---	---	5.2	4.7	4.9	8.3	6.0	6.8
15	5.5	5.3	5.4	6.6	6.3	6.6	5.2	4.5	4.8	8.7	6.4	7.2
16	5.4	5.3	5.4	6.8	6.6	6.7	5.8	4.5	5.0	8.5	6.4	7.2
17	5.8	5.4	5.6	6.9	6.6	6.8	5.8	4.7	5.1	9.0	6.8	7.6
18	5.8	3.7	5.1	6.8	6.5	6.6	5.8	1.9	5.1	7.4	6.6	6.9
19	4.2	3.4	3.7	6.7	6.2	6.5	6.0	5.7	5.8	6.8	6.2	6.6
20	4.5	4.2	4.3	6.3	6.0	6.2	5.8	5.3	5.5	6.8	6.0	6.3
21	5.0	4.5	4.8	6.3	6.0	6.1	5.7	5.3	5.5	8.1	6.5	7.2
22	5.0	5.0	5.0	6.2	6.0	6.1	5.4	4.7	5.0	7.8	7.0	7.3
23	5.2	5.0	5.1	6.3	5.9	6.1	5.1	4.6	4.9	7.5	6.2	7.0
24	5.4	5.2	5.3	6.9	5.8	6.3	4.2	1.9	3.1	7.5	6.2	6.7
25	5.6	5.4	5.5	7.2	6.2	6.6	5.1	4.2	4.7	7.8	6.5	7.0
26	5.6	5.5	5.5	7.8	6.2	6.9	5.7	5.1	5.5	7.8	6.6	7.0
27	5.5	5.4	5.4	8.3	6.3	7.7	5.9	5.6	5.8	7.6	6.4	6.9
28	---	---	---	8.7	6.4	7.3	6.5	5.9	6.2	7.3	6.3	6.7
29	---	---	---	8.2	6.6	7.2	7.2	6.3	6.7	7.3	6.0	6.5
30	---	---	---	7.8	6.5	7.1	7.7	6.6	7.0	7.1	5.6	6.2
31	---	---	---	13.1	6.8	9.6	8.0	6.8	7.2	---	---	---
MONTH	5.8	3.4	5.1	13.1	5.8	6.9	12.3	1.9	6.2	9.0	5.2	6.7

## TRINITY RIVER BASIN

423

08065800 BEDIAS CREEK NEAR MADISONVILLE, TX

LOCATION.--Lat 30°53'03", long 95°46'39", Madison-Walker County line, Hydrologic Unit 12030202, on right bank at downstream side of bridge on U.S. Highways 75 and 190, 0.5 mi upstream from Interstate Highway 45, 1.5 mi downstream from Caney Creek, and 9.5 mi southeast of Madisonville.

DRAINAGE AREA.--321 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, which are poor. No diversion above station. Flow is affected at times by discharge from the flood-detention pools of three floodwater-retarding structures with a combined detention capacity of 1,290 acre-ft. These structures control runoff from 2.71 mi<sup>2</sup> in the Upper Caney Creek and Town Branch drainage basins. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years, 218 ft<sup>3</sup>/s (9.22 in/yr), 157,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,800 ft<sup>3</sup>/s Sept. 14, 1974 (gage height, 25.07 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 34 ft in May 1922 (discharge unknown), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	unknown	3,860	17.93	Mar. 5	1800	3,940	17.98
Feb. 6	2100	5,490	18.78	Mar. 24	2400	4,320	18.20
Feb. 22	1200	3,860	17.93	May 22	0200	*9,720	20.27

Minimum discharge, no flow Oct. 1-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.26	100	440	191	40	62	4.8	20	2.4	.84	7.2
2	.00	.30	50	766	347	35	49	4.6	24	2.4	.84	8.9
3	.00	.86	300	785	177	32	41	4.5	30	2.0	.93	11
4	.00	.99	600	262	60	158	34	3.4	20	1.6	1.3	7.0
5	.00	.74	550	72	573	1970	31	3.5	15	1.4	1.4	4.9
6	.00	.40	200	38	3330	2650	27	3.6	83	1.1	2.3	4.2
7	.00	.33	80	24	3580	1540	25	2.9	425	.99	21	4.0
8	.37	.27	50	16	1640	322	23	2.5	489	.82	57	4.1
9	1.8	.23	30	13	412	94	21	2.1	170	.74	19	3.7
10	3.9	.17	30	9.8	505	62	19	2.0	52	.74	187	3.2
11	1.5	.17	50	7.6	951	48	18	3.3	31	.74	64	3.1
12	2.6	.13	60	6.1	1060	40	16	127	20	.74	171	2.9
13	1.4	.13	50	5.4	261	35	15	149	13	.66	115	3.2
14	5.8	.13	30	4.3	92	32	14	50	9.3	.64	76	2.5
15	2.1	.13	20	3.8	62	29	13	28	46	.69	27	1.9
16	.93	.20	15	3.2	49	27	13	18	463	1.2	14	1.2
17	.88	.47	11	2.9	41	25	12	26	226	3.7	7.5	1.3
18	.79	5.0	9.0	2.8	34	23	12	35	57	32	83	2.8
19	.74	20	7.0	2.9	29	22	11	98	27	92	772	6.9
20	.74	18	5.5	19	30	28	9.3	310	15	17	828	266
21	.69	12	4.3	83	833	76	8.5	2990	9.1	22	2020	925
22	.69	8.0	3.4	51	3300	112	8.3	8200	6.5	47	1230	1910
23	.61	12	3.3	26	2250	420	7.5	4220	6.2	11	295	1020
24	.51	10	3.1	16	732	2330	6.8	2200	6.4	5.4	51	172
25	.45	30	2.7	12	148	3410	6.0	611	14	3.1	30	46
26	.38	25	2.8	8.6	86	1890	5.7	102	45	2.0	21	27
27	.38	2500	45	6.6	60	1080	5.4	58	10	1.1	15	19
28	.42	3000	79	6.4	47	1200	5.0	39	12	.75	12	14
29	.40	1500	45	5.9	---	810	4.8	28	6.5	.85	14	10
30	.39	400	35	4.5	---	147	4.8	18	4.1	.76	14	8.0
31	.33	---	24	58	---	81	---	14	---	.81	7.6	---
TOTAL	28.80	7545.91	2495.1	2761.8	20880	18768	528.1	19358.2	2355.1	258.33	6158.71	4501.0
MEAN	.93	252	80.5	89.1	746	605	17.6	624	78.5	8.33	199	150
MAX	5.8	3000	600	785	3580	3410	62	8200	489	92	2020	1910
MIN	.00	.13	2.7	2.8	29	22	4.8	2.0	4.1	.64	.84	1.2
CFSM	.003	.79	.25	.28	2.32	1.89	.06	1.94	.25	.03	.62	.47
IN.	.00	.87	.29	.32	2.42	2.17	.06	2.24	.27	.03	.71	.52
AC-FT	57	14970	4950	5480	41420	37230	1050	38400	4670	512	12220	8930
GAL YR 1982	TOTAL	58297.58	MEAN 160	MAX 16200	MIN .00	CFSM .50	IN 6.76	AC-FT 115600				
WTR YR 1983	TOTAL	85639.05	MEAN 235	MAX 8200	MIN .00	CFSM .73	IN 9.92	AC-FT 169900				

NOTE.--No gage-height record Nov. 18 to Dec. 19.

## TRINITY RIVER BASIN

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 upstream from Little White Rock Creek, 4.1 mi upstream from Tantaboque Creek, 7.3 mi north of Trinity, and 16.1 mi upstream from mouth.

DRAINAGE AREA.--222 mi<sup>2</sup>. Prior to June 1974, 228 mi<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 National Geodetic Vertical Datum of 1929. Prior to June 19, 1974, at site 1.9 mi downstream at same datum.

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

AVERAGE DISCHARGE.--14 years (water years 1967-71, 1975-83), 117 ft<sup>3</sup>/s (7.16 in/yr), 84,770 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,800 ft<sup>3</sup>/s Apr. 21, 1979 (gage height, 33.87 ft), from rating curve extended above 6,000 ft<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 and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 31	a2400	3,600	a19.0
Mar. 24	unknown	4,800	unknown
May 22	0500	*6,020	22.33

a Estimated.

Minimum discharge, no flow Oct. 1-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.27	22	295	2700	39	100	7.8	52	16	5.0	26
2	.00	1.7	14	749	1720	38	70	7.8	59	14	4.0	113
3	.00	3.6	10	404	465	37	55	7.6	55	13	10	53
4	.00	1.2	37	119	118	46	45	5.8	52	11	20	21
5	.00	.95	46	69	750	500	37	5.2	54	10	10	12
6	.00	.88	21	48	1410	400	32	4.8	126	8.5	8.0	7.3
7	.00	.88	13	39	1360	200	29	4.7	608	7.5	20	4.7
8	.02	.81	9.7	32	297	120	27	4.0	305	6.5	78	7.9
9	.08	.69	6.8	29	169	80	24	2.9	87	5.5	91	25
10	.16	.63	6.0	26	513	60	22	3.5	54	4.8	88	24
11	.15	.69	7.0	23	507	50	20	22	45	4.4	27	27
12	.28	.69	30	20	168	40	19	49	40	3.7	21	30
13	.40	.63	25	17	97	35	18	38	39	3.7	20	17
14	.37	.69	15	15	72	32	17	19	33	3.6	66	9.3
15	.44	.33	30	14	59	30	17	15	35	3.3	22	5.3
16	.44	.12	120	14	52	29	16	16	42	11	12	3.7
17	.37	.40	59	13	46	28	16	32	57	18	7.0	2.6
18	.31	1.5	33	13	42	28	15	31	41	13	51	3.2
19	.29	12	21	15	39	27	14	565	33	9.4	362	5.9
20	.21	13	14	19	40	101	14	1200	28	7.0	287	28
21	.12	6.4	8.6	19	537	266	13	3770	24	5.5	87	270
22	.19	2.2	8.6	20	849	100	12	5090	23	4.5	33	290
23	.19	1.7	7.5	18	268	1000	12	2250	22	3.7	18	150
24	.16	5.0	7.5	16	119	3000	11	455	26	3.2	12	90
25	.14	10	71	15	78	4000	8.9	147	121	2.8	7.7	60
26	.14	50	471	14	58	2200	8.8	101	103	2.5	6.3	40
27	.14	1000	765	13	46	1000	8.4	75	106	2.3	4.6	30
28	.14	600	907	13	41	1200	8.0	65	39	2.1	3.6	22
29	.24	102	495	13	---	600	7.8	59	25	2.0	3.0	16
30	.26	38	113	12	---	300	7.8	51	21	15	1.8	12
31	.27	---	65	939	---	150	---	52	---	8.0	1.3	---
TOTAL	5.51	1856.96	3458.7	3065	12620	15736	704.7	14156.1	2355	225.5	1387.3	1405.9
MEAN	.18	61.9	112	98.9	451	508	23.5	457	78.5	7.27	44.8	46.9
MAX	.44	1000	907	939	2700	4000	100	5090	608	18	362	290
MIN	.00	.12	6.0	12	39	27	7.8	2.9	21	2.0	1.3	2.6
CFSM	.001	.28	.51	.45	2.03	2.29	.11	2.06	.35	.03	.20	.21
IN.	.00	.31	.58	.51	2.11	2.64	.12	2.37	.39	.04	.23	.24
AC-FT	11	3680	6860	6080	25030	31210	1400	28080	4670	447	2750	2790

CAL YR 1982	TOTAL	46324.77	MEAN 127	MAX 11200	MIN .00	CFSM .57	IN 7.76	AC-FT 91890
WTR YR 1983	TOTAL	56976.67	MEAN 156	MAX 5090	MIN .00	CFSM .70	IN 9.55	AC-FT 113000

## TRINITY RIVER BASIN

425

## 08066170 KICKAPOO CREEK NEAR ONALASKA, TX

LOCATION.--Lat 30°54'25", long 95°05'18", Polk County, Hydrologic Unit 12030202, on right bank 114 ft downstream from old bridge site, 1.2 mi downstream from Magnolia Creek, 6.2 mi upstream from Rocky Creek, 7.3 mi northeast of Onalaska, and 15.9 mi upstream from mouth.

DRAINAGE AREA.--57.0 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 139.85 ft 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.--17 years (water years 1967-83), 44.2 ft<sup>3</sup>/s (10.53 in/yr), 32,020 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft<sup>3</sup>/s June 7, 1981, from rating curve extended above 6,800 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow (gage height, 30.37 ft); minimum, 0.01 ft<sup>3</sup>/s July 19, 20, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 27	0400	2,660	12.56	Mar. 23	1400	3,930	14.61
Dec. 17	unknown	4,090	a14.85	May 20	2230	4,430	15.28
Jan. 31	unknown	3,600	unknown	May 21	1500	*5,030	16.14
Feb. 5	1300	2,580	12.43				

a From peak mark.

Minimum daily discharge, 0.15 ft<sup>3</sup>/s Oct. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.29	1.1	64	333	556	10	26	2.5	6.4	4.5	1.6	17
2	.25	44	73	216	102	8.8	19	2.4	5.9	3.6	1.6	13
3	.25	60	224	88	57	8.3	16	2.4	4.9	3.0	1.5	7.5
4	.21	12	71	53	44	70	14	2.3	4.0	2.3	1.5	6.1
5	.21	3.7	40	38	1070	134	12	2.3	4.0	2.0	1.3	4.2
6	.18	1.9	20	29	201	35	11	2.2	82	1.9	1.3	3.2
7	.18	1.1	12	26	78	16	10	2.2	42	1.8	1.2	2.7
8	.15	.92	9.0	24	50	11	9.0	2.1	13	1.8	3.3	2.4
9	.15	.64	7.2	20	617	9.0	8.0	2.1	7.3	1.7	31	11
10	10	.52	24	15	244	9.0	7.0	2.0	4.7	1.7	19	8.9
11	2.1	.42	140	11	82	8.3	6.5	52	3.5	1.6	26	4.7
12	26	.42	92	7.8	50	7.8	6.0	20	2.8	1.6	12	3.3
13	17	.42	29	6.0	36	7.2	5.5	8.2	2.3	1.5	5.2	2.4
14	5.0	.34	211	5.7	28	7.2	5.0	5.9	2.0	1.5	3.0	1.7
15	1.9	.34	381	5.5	23	7.2	4.7	62	150	1.5	1.8	1.4
16	1.3	.34	70	5.0	20	7.8	4.4	24	49	37	1.2	1.3
17	.92	94	40	4.5	15	7.8	4.0	9.2	14	17	.90	1.2
18	.64	20	30	4.1	12	7.5	3.7	7.1	7.8	7.5	600	1.1
19	.42	211	22	53	11	6.9	3.5	7.1	5.2	3.6	565	2.8
20	.42	42	16	68	28	29	3.3	1160	3.8	2.4	82	7.8
21	.34	9.6	13	33	391	22	3.1	2450	3.9	2.3	44	12
22	.34	6.0	11	18	79	13	3.0	321	4.7	18	28	4.3
23	.29	4.5	53	12	44	1400	2.9	92	9.7	11	18	2.4
24	.29	35	77	14	29	272	2.8	54	91	5.5	12	1.8
25	.25	7.2	57	20	22	86	2.7	34	37	3.6	9.2	1.4
26	.25	309	570	17	16	539	2.6	22	59	2.6	7.4	1.3
27	.25	999	1940	9.0	13	115	2.8	16	37	2.2	5.7	1.3
28	.25	97	178	13	11	49	2.8	12	13	2.0	4.2	1.2
29	16	34	78	74	---	34	2.7	9.8	8.5	2.0	3.1	1.2
30	8.3	35	46	57	---	34	2.6	7.3	5.8	1.8	2.3	1.0
31	2.4	---	89	1050	---	38	---	6.4	---	1.8	1.9	---
TOTAL	96.53	2031.46	4687.2	2329.6	3929	3009.8	206.6	4402.5	684.2	152.3	1496.20	131.6
MEAN	3.11	67.7	151	75.1	140	97.1	6.89	142	22.8	4.91	48.3	4.39
MAX	26	999	1940	1050	1070	1400	26	2450	150	37	600	17
MIN	.15	.34	7.2	4.1	11	6.9	2.6	2.0	2.0	1.5	.90	1.0
CFSM	.06	1.19	2.65	1.32	2.46	1.70	.12	2.49	.40	.09	.85	.08
IN.	.06	1.33	3.06	1.52	2.56	1.96	.13	2.87	.45	.10	.98	.09
AC-FT	191	4030	9300	4620	7790	5970	410	8730	1360	302	2970	261
CAL YR 1982	TOTAL	21597.61	MEAN	59.2	MAX	3400	MIN	.15	CFSM	1.04	IN	14.10
WTR YR 1983	TOTAL	23156.99	MEAN	63.4	MAX	2450	MIN	.15	CFSM	1.11	IN	15.11
										AC-FT	42840	
										AC-FT	45930	



## TRINITY RIVER BASIN

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 northwest of Goodrich, 7 mi southwest of Livingston, 11.7 mi upstream from Long King Creek, and at mile 129.2.

DRAINAGE AREA.--16,583 mi<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 upstream and at same datum.

REMARKS.--The reservoir is formed by an earthfill dam 14,400 ft long. The dam was completed Sept. 29, 1968, and deliberate impoundment began June 26, 1969. The reservoir is operated for industrial water supply in the Houston metropolitan area. The spillway has twelve 40- by 35-foot tainter gates located near the left end of dam. Low-flow releases may be made through multi-gated inlet tower. There are five gated openings at various elevations located in the tower, and all discharge into a 10-foot-diameter concrete conduit through the dam. Flow is affected at times by discharge from the flood-detention pools of 254 floodwater-retarding structures with a combined detention capacity of 184,400 acre-ft. These structures control runoff from 616 mi<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, 1,948,000 acre-ft May 23, 1983 (elevation, 132.88 ft); minimum since conservation pool capacity was reached on Nov. 2, 1971, 1,415,000 acre-ft Nov. 19, 1978 (elevation, 126.19 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,948,000 acre-ft May 23 at 1800 hours (elevation, 132.88 ft); minimum, 1,761,000 acre-ft Aug. 6, 7 (elevation, 130.67 ft).

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

130.0	1,707,000
131.5	1,830,000
133.0	1,958,000

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1778000	1800000	1789000	1867000	1846000	1862000	1801000	1788000	1786000	1793000	1772000	1793000
2	1777000	1813000	1790000	1869000	1837000	1863000	1802000	1790000	1784000	1793000	1771000	1792000
3	1778000	1816000	1807000	1859000	1827000	1857000	1795000	1788000	1793000	1793000	1762000	1786000
4	1778000	1801000	1805000	1836000	1819000	1862000	1802000	1786000	1802000	1795000	1765000	1783000
5	1776000	1792000	1817000	1823000	1856000	1868000	1812000	1780000	1803000	1800000	1762000	1782000
6	1778000	1788000	1826000	1811000	1874000	1878000	1805000	1774000	1824000	1801000	1761000	1780000
7	1777000	1792000	1835000	1807000	1877000	1885000	1798000	1783000	1830000	1798000	1761000	1782000
8	1775000	1795000	1843000	1802000	1878000	1882000	1792000	1778000	1827000	1793000	1764000	1784000
9	1788000	1796000	1845000	1798000	1892000	1876000	1788000	1778000	1819000	1793000	1765000	1787000
10	1792000	1794000	1846000	1796000	1880000	1864000	1791000	1779000	1815000	1790000	1764000	1787000
11	1794000	1795000	1834000	1797000	1866000	1847000	1793000	1784000	1808000	1795000	1765000	1788000
12	1803000	1796000	1807000	1793000	1848000	1829000	1799000	1785000	1805000	1797000	1768000	1788000
13	1801000	1782000	1795000	1793000	1826000	1815000	1812000	1786000	1798000	1795000	1770000	1787000
14	1801000	1796000	1812000	1798000	1811000	1802000	1810000	1793000	1798000	1794000	1772000	1784000
15	1801000	1780000	1821000	1797000	1802000	1794000	1803000	1807000	1812000	1794000	1773000	1778000
16	1804000	1784000	1825000	1794000	1793000	1796000	1799000	1805000	1812000	1805000	1773000	1775000
17	1802000	1797000	1822000	1796000	1787000	1793000	1794000	1807000	1804000	1801000	1772000	1776000
18	1802000	1796000	1824000	1797000	1788000	1794000	1795000	1815000	1802000	1798000	1797000	1780000
19	1800000	1805000	1816000	1803000	1784000	1798000	1789000	1805000	1805000	1798000	1816000	1782000
20	1803000	1800000	1803000	1802000	1802000	1801000	1793000	1863000	1807000	1798000	1804000	1802000
21	1802000	1791000	1792000	1802000	1827000	1809000	1794000	1930000	1813000	1798000	1798000	1794000
22	1800000	1786000	1789000	1802000	1836000	1817000	1794000	1946000	1809000	1793000	1794000	1793000
23	1798000	1796000	1787000	1802000	1844000	1875000	1797000	1947000	1804000	1788000	1793000	1794000
24	1796000	1788000	1789000	1806000	1853000	1883000	1795000	1930000	1804000	1788000	1790000	1794000
25	1794000	1786000	1810000	1798000	1854000	1859000	1788000	1900000	1809000	1786000	1793000	1794000
26	1792000	1805000	1817000	1808000	1856000	1878000	1790000	1864000	1808000	1783000	1791000	1796000
27	1790000	1827000	1838000	1801000	1859000	1869000	1789000	1835000	1802000	1782000	1785000	1794000
28	1798000	1809000	1844000	1798000	1861000	1848000	1788000	1817000	1798000	1779000	1783000	1794000
29	1801000	1805000	1837000	1801000	---	1827000	1788000	1804000	1796000	1779000	1783000	1794000
30	1799000	1801000	1836000	1798000	---	1823000	1786000	1793000	1794000	1776000	1783000	1794000
31	1798000	---	1851000	1832000	---	1812000	---	1793000	---	1774000	1780000	---
MAX	1804000	1827000	1851000	1869000	1892000	1885000	1812000	1947000	1830000	1805000	1816000	1802000
MIN	1775000	1780000	1787000	1793000	1784000	1793000	1786000	1774000	1784000	1774000	1761000	1775000
(†)	131.12	131.15	131.75	131.52	131.87	131.28	130.97	131.05	131.07	130.82	130.90	131.07
(#)	+20000	+3000	+50000	-19000	+29000	-49000	-26000	+7000	+1000	-20000	+6000	+14000
CAL YR 1982	MAX	1940000	MIN	1775000	#	+38000						
WTR YR 1983	MAX	1947000	MIN	1761000	#	+16000						

† 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 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (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)
JAN										
18...	1238	1.00	346	7.9	11.0	.53	9.1	82	120	
18...	1240	10.0	346	7.9	11.0	--	9.1	82	--	
18...	1242	20.0	346	7.9	11.0	--	9.1	82	--	
18...	1244	30.0	346	7.9	11.0	--	9.1	82	--	
18...	1246	40.0	346	7.9	11.0	--	9.1	82	--	
18...	1248	50.0	346	7.9	11.0	--	9.1	82	--	
18...	1250	60.0	346	7.9	11.0	--	9.1	82	--	
18...	1252	70.0	346	7.9	11.0	--	9.5	86	120	
AUG										
10...	1200	1.00	312	9.6	31.0	.43	11.6	178	100	
10...	1202	10.0	312	9.3	29.5	--	8.4	110	--	
10...	1204	20.0	312	8.8	29.0	--	5.2	67	--	
10...	1206	30.0	326	7.3	27.0	--	.0	0	--	
10...	1208	40.0	326	7.2	26.0	--	.0	0	--	
10...	1210	50.0	326	7.0	25.0	--	.0	0	--	
10...	1212	60.0	326	7.0	23.0	--	.0	0	--	
10...	1214	72.0	344	6.9	21.5	--	.0	0	110	
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)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN										
18...	13	43	3.8	22	.9	4.7	110	31	23	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	23	43	3.8	22	.9	4.7	100	31	23	
AUG										
10...	15	35	3.6	23	1.0	4.7	87	35	24	
10...	--	--	--	--	--	--	--	--	--	
10...	--	--	--	--	--	--	--	--	--	
10...	--	--	--	--	--	--	--	--	--	
10...	--	--	--	--	--	--	--	--	--	
10...	--	--	--	--	--	--	--	--	--	
10...	0	39	3.8	21	.9	3.2	120	23	22	
DATE		FLUO- RIDE, DIS- SOLVED (MG/L AS F)	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										
18...	.30	7.8	202	.50	1.10	1.6	.160	12	1	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	.50	1.00	1.5	.180	20	<10	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	--	7.8	195	.50	.80	1.3	.170	23	18	
AUG										
10...	.30	5.1	183	<.10	1.20	--	.130	<3	3	
10...	--	--	--	--	--	--	--	--	--	
10...	--	--	--	<.10	1.10	--	.130	50	70	
10...	--	--	--	<.10	1.00	--	.350	50	350	
10...	--	--	--	--	--	--	--	--	--	
10...	--	--	--	--	--	--	--	--	--	
10...	--	--	--	--	--	--	--	--	--	
10...	--	--	--	--	--	--	--	--	--	
10...	--	14	200	<.10	3.00	--	1.50	490	1500	

## TRINITY RIVER BASIN

## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

303821095005001 LIVINGSTON RESERVOIR SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN								
18...	1316	1.00	346	7.9	11.0	.57	9.2	83
18...	1318	10.0	346	7.9	11.0	--	9.2	83
18...	1320	20.0	346	7.9	11.0	--	9.2	83
18...	1322	30.0	346	7.9	11.0	--	9.3	84
18...	1324	41.0	346	7.9	11.0	--	9.8	89
AUG								
10...	1252	1.00	312	9.5	31.5	.42	11.3	153
10...	1254	10.0	312	9.3	30.0	--	8.4	111
10...	1256	20.0	312	8.8	29.0	--	5.4	70
10...	1258	30.0	326	7.5	27.0	--	.0	0
10...	1300	46.0	326	7.5	26.0	--	.0	0

303935095055401 LIVINGSTON RESERVOIR SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN								
18...	1152	1.00	346	8.0	11.0	.37	9.5	86
18...	1154	10.0	346	8.0	11.0	--	9.4	85
18...	1156	20.0	346	8.0	11.0	--	9.4	85
18...	1158	30.0	346	7.9	11.0	--	9.4	85
18...	1200	40.0	346	7.9	11.0	--	9.3	84
18...	1202	50.0	346	7.9	11.0	--	9.2	83
18...	1204	65.0	346	7.9	11.0	--	9.1	82
AUG								
10...	1122	1.00	316	9.2	31.0	.43	9.3	125
10...	1124	10.0	316	8.9	29.5	--	7.0	92
10...	1126	20.0	316	8.7	29.0	--	5.6	73
10...	1128	30.0	330	7.2	27.5	--	.0	0
10...	1130	40.0	330	7.1	26.5	--	.0	0
10...	1132	50.0	330	7.0	24.5	--	.0	0
10...	1134	62.0	342	7.0	23.5	--	.0	0

304144095073001 LIVINGSTON RESERVOIR SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN								
18...	1120	1.00	346	8.0	11.0	.49	9.6	87
18...	1122	10.0	346	8.0	11.0	--	9.6	87
18...	1124	20.0	346	8.0	11.0	--	9.5	86
18...	1126	30.0	346	8.0	11.0	--	9.5	86
18...	1128	40.0	346	8.0	11.0	--	9.5	86
18...	1130	50.0	346	7.9	11.0	--	9.5	86
18...	1132	60.0	346	7.6	11.0	--	8.4	76
AUG								
10...	1052	1.00	325	9.0	30.5	.58	8.5	113
10...	1054	10.0	325	8.8	29.5	--	6.6	86
10...	1056	20.0	325	7.9	29.0	--	2.2	29
10...	1058	30.0	337	7.4	28.0	--	.0	0
10...	1100	40.0	337	7.2	26.5	--	.0	0
10...	1102	55.0	344	7.1	24.0	--	.0	0

## TRINITY RIVER BASIN

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LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

304521095075501 LIVINGSTON RESERVOIR SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

					TRANS- PAR- ENCY (SECCHI DISK) (M)		OXYGEN, DIS- SOLVED (MG/L)		OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)		HARD- NESS (MG/L AS CACO3)	
DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)							
JAN												
18...	0956	1.00	333	7.8	10.5	.23	9.6	86	110			
18...	0958	10.0	333	7.8	10.5	--	9.4	84	--			
18...	1000	20.0	333	7.8	10.5	--	9.4	84	--			
18...	1002	30.0	333	7.8	10.5	--	9.0	80	--			
18...	1004	40.0	333	7.7	10.5	--	8.8	79	--			
18...	1006	50.0	340	7.6	10.5	--	8.4	75	--			
18...	1008	65.0	340	7.6	10.5	--	7.6	68	100			
AUG												
10...	1004	1.00	337	8.8	30.0	.44	6.4	84	110			
10...	1006	10.0	337	8.6	29.5	--	5.1	67	--			
10...	1008	20.0	337	8.6	29.0	--	5.0	65	--			
10...	1010	30.0	337	8.1	29.0	--	2.3	30	--			
10...	1012	40.0	354	7.2	26.5	--	.0	0	--			
10...	1014	50.0	354	7.0	25.0	--	.0	0	--			
10...	1016	65.0	354	7.2	25.0	--	.0	0	110			
DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)			
JAN												
18...	24	38	3.8	23	1.0	4.7	87	35	25			
18...	--	--	--	--	--	--	--	--	--			
18...	--	--	--	--	--	--	--	--	--			
18...	--	--	--	--	--	--	--	--	--			
18...	--	--	--	--	--	--	--	--	--			
18...	27	35	3.8	26	1.2	4.9	76	40	28			
AUG												
10...	11	36	3.7	24	1.1	4.9	94	36	26			
10...	--	--	--	--	--	--	--	--	--			
10...	--	--	--	--	--	--	--	--	--			
10...	--	--	--	--	--	--	--	--	--			
10...	--	--	--	--	--	--	--	--	--			
10...	0	38	3.7	23	1.0	4.6	110	28	25			
DATE	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												
18...	8.6	190	.90	1.10	2.0	.230	49	4				
18...	--	--	--	--	--	--	--	--				
18...	--	--	--	--	--	--	--	--				
18...	--	--	.90	1.30	2.2	.240	50	10				
18...	--	--	--	--	--	--	--	--				
18...	--	--	--	--	--	--	--	--				
18...	8.9	192	1.3	1.20	2.5	.370	70	60				
AUG												
10...	5.4	192	<.10	1.20	--	.230	6	5				
10...	--	--	--	--	--	--	--	--				
10...	--	--	--	--	--	--	--	--				
10...	--	--	<.10	1.30	--	.250	40	10				
10...	--	--	<.10	1.30	--	.610	60	1500				
10...	--	--	--	--	--	--	--	--				
10...	11	202	<.10	2.10	--	1.30	490	2100				

## TRINITY RIVER BASIN

## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

## 304659095052001 LIVINGSTON RESERVOIR SITE EC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
18...	0912	1.00	325	7.8	11.0	.25	9.9
18...	0914	10.0	327	7.8	11.0	--	9.9
18...	0916	20.0	327	7.8	11.0	--	9.7
18...	0918	30.0	327	7.4	11.0	--	9.6
AUG							
10...	0930	1.00	332	8.7	29.5	.39	4.8
10...	0932	10.0	332	8.6	29.0	--	4.4
10...	0934	20.0	332	8.4	29.0	--	4.1
10...	0936	33.0	343	7.4	28.5	--	.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								
18...	89	.70	1.00	1.7	.190	30	<10	
18...	89	--	--	--	--	--	--	--
18...	88	--	--	--	--	--	--	--
18...	87	.70	1.20	1.9	.300	50	10	
AUG								
10...	63	<.10	1.40	--	.230	10	20	
10...	57	--	--	--	--	--	--	--
10...	53	--	--	--	--	--	--	--
10...	0	<.10	1.70	--	.470	60	520	

## 304843095104001 LIVINGSTON RESERVOIR SITE FC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN								
18...	1422	1.00	340	7.6	10.5	.22	8.8	79
18...	1424	10.0	340	7.6	10.5	--	8.8	79
18...	1426	20.0	340	7.6	10.0	--	8.6	76
18...	1428	30.0	335	7.5	10.0	--	8.2	72
18...	1430	40.0	327	7.5	10.0	--	8.0	71
18...	1432	50.0	327	7.6	10.0	--	7.8	69
AUG								
10...	1340	1.00	371	9.1	31.0	.30	8.0	108
10...	1342	10.0	371	8.5	29.5	--	3.0	39
10...	1344	20.0	371	8.1	29.0	--	1.5	19
10...	1346	30.0	388	7.7	28.5	--	.0	0
10...	1348	40.0	388	7.5	27.0	--	.0	0
10...	1350	50.0	367	7.5	26.0	--	.0	0
10...	1352	65.0	367	7.6	25.5	--	.0	0

## 305135095193601 LIVINGSTON RESERVOIR SITE IC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN								
19...	1120	1.00	393	7.6	9.0	.19	9.5	82
19...	1122	10.0	393	7.6	9.0	--	9.5	82
19...	1124	20.0	393	7.5	9.0	--	9.5	82
19...	1126	30.0	393	7.5	9.0	--	9.6	83
19...	1128	46.0	393	7.3	9.0	--	10.2	88
AUG								
11...	1045	1.00	495	8.0	30.0	.44	4.8	63
11...	1047	10.0	478	7.8	29.5	--	3.1	41
11...	1049	20.0	465	7.4	29.0	--	.0	0
11...	1051	30.0	465	7.4	29.0	--	.0	0
11...	1053	43.0	465	7.4	29.0	--	.0	0



## TRINITY RIVER BASIN

431

## LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305411095144901 LIVINGSTON RESERVOIR SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

		SPECIFIC CONDUCTANCE (UMHOS)		PH (STANDARD UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	HARDNESS (MG/L AS CaCO3)	
DATE	TIME	SAMPLING DEPTH (FEET)								
JAN										
19...	0958	1.00	324	7.4	9.0	.15	9.6	83	110	
19...	1000	10.0	324	7.4	9.0	--	9.6	83	--	
19...	1002	20.0	324	7.4	9.5	--	9.7	85	--	
19...	1004	30.0	324	7.5	9.5	--	9.7	85	--	
19...	1006	40.0	324	7.4	9.5	--	9.6	84	--	
19...	1008	50.0	324	7.0	9.0	--	9.5	82	110	
AUG										
11...	0920	1.00	421	8.7	29.5	.27	5.1	67	120	
11...	0922	10.0	421	8.4	29.5	--	4.1	54	--	
11...	0924	20.0	421	8.3	29.5	--	3.6	47	--	
11...	0926	30.0	432	7.9	29.0	--	2.2	29	--	
11...	0928	40.0	454	7.6	28.5	--	.0	0	--	
11...	0930	48.0	454	7.5	28.5	--	.0	0	130	
		HARDNESS, NONCARBONATE (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)
DATE										
JAN										
19...	30	36	3.9	21	.9	4.7	76	41		24
19...	--	--	--	--	--	--	--	--		--
19...	--	--	--	--	--	--	--	--		--
19...	--	--	--	--	--	--	--	--		--
19...	32	36	4.1	21	.9	4.7	75	41		24
AUG										
11...	13	42	4.4	36	1.5	6.0	110	48		35
11...	--	--	--	--	--	--	--	--		--
11...	--	--	--	--	--	--	--	--		--
11...	--	--	--	--	--	--	--	--		--
11...	11	45	4.4	37	1.5	6.1	120	47		37
		SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS Fe)	MANGANESE, DIS-SOLVED (UG/L AS Mn)	
DATE										
JAN										
19...		8.5	185	.90	1.20	2.1	.280	45		12
19...	--	--	--	--	--	--	--	--		--
19...	--	--	--	--	--	--	--	--		--
19...	--	--	--	.90	1.30	2.2	.280	90		10
19...	--	--	--	--	--	--	--	--		--
19...	8.6	184	.90	1.20	2.1	.330	62	11		
AUG										
11...		7.8	245	<.10	1.30	--	.230	<3		1
11...	--	--	--	--	--	--	--	--		--
11...	--	--	--	<.10	1.40	--	.260	190		20
11...	--	--	--	.10	1.20	1.3	.300	10		20
11...	--	--	--	--	--	--	--	--		--
11...	8.9	258	<.10	1.40	--	--	.440	13		230

TRINITY RIVER BASIN  
LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305447095161401 LIVINGSTON RESERVOIR SITE HC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
19...	1036	1.00	290	7.1	9.5	.27	9.0
19...	1038	10.0	290	7.2	9.5	--	8.9
19...	1040	20.0	290	7.3	9.5	--	8.9
19...	1042	30.0	310	7.3	9.5	--	9.0
19...	1044	42.0	324	7.3	9.0	--	9.4
AUG							
11...	0956	1.00	388	7.8	29.5	.34	3.0
11...	0958	10.0	388	7.6	29.0	--	1.9
11...	1000	20.0	388	7.4	29.0	--	1.6
11...	1002	30.0	355	7.3	29.0	--	.0
11...	1004	42.0	342	7.5	28.5	--	.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							
19...	79	.30	1.40	1.7	.120	110	40
19...	78	--	--	--	--	--	--
19...	78	--	--	--	--	--	--
19...	79	--	--	--	--	--	--
19...	81	.90	1.40	2.3	.280	60	10
AUG							
11...	39	<.10	1.40	--	.240	10	40
11...	25	--	--	--	--	--	--
11...	21	--	--	--	--	--	--
11...	0	--	--	--	--	--	--
11...	0	<.10	1.90	--	.300	310	810

## TRINITY RIVER BASIN

433

LIVINGSTON RESERVOIR NEAR GOODRICH, TX--Continued

305135095235401 LIVINGSTON RESERVOIR SITE JC

WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	HARD- NESS (MG/L AS CACO3)
JAN									
19...	1146	1.00	532	7.5	9.5	.18	8.1	71	160
19...	1148	10.0	532	7.5	9.5	--	8.3	73	--
19...	1150	20.0	532	7.5	9.5	--	8.3	73	--
19...	1152	30.0	532	7.5	9.5	--	8.3	73	--
19...	1154	42.0	507	7.4	9.0	--	9.1	79	160
AUG									
11...	1116	1.00	563	8.1	31.0	50	5.8	78	150
11...	1118	10.0	563	7.7	30.0	--	3.9	52	--
11...	1120	20.0	537	7.7	30.0	--	3.2	42	--
11...	1122	30.0	443	7.4	29.0	--	1.6	21	--
11...	1124	43.0	340	7.4	28.5	--	1.0	13	93

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN									
19...	39	54	5.9	41	1.5	6.3	120	70	44
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	46	53	5.8	41	1.5	6.3	110	70	43
AUG									
11...	28	51	4.9	55	2.1	7.5	120	65	55
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	1	33	2.6	28	1.3	5.0	92	26	33

DATE	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								
19...	11	304	2.9	1.90	4.8	.810	26	20
19...	--	--	--	--	--	--	--	--
19...	--	--	2.9	1.90	4.8	.810	30	20
19...	--	--	--	--	--	--	--	--
19...	11	296	2.6	1.80	4.4	.800	44	29
AUG								
11...	10	320	2.5	1.40	3.9	.750	5	2
11...	--	--	--	--	--	--	--	--
11...	--	--	2.1	1.00	3.1	.670	20	10
11...	--	--	--	--	--	--	--	--
11...	12	195	.50	1.70	2.2	.380	29	40

## TRINITY RIVER BASIN

08066191 LIVINGSTON RESERVOIR AT OUTFLOW WEIR NEAR GOODRICH, TX

LOCATION.--Lat 30°37'55", long 95°01'11", San Jacinto County, Hydrologic Unit 12030202, at end of conduit into stilling basin, 1,700 ft to right of right spillway abutment, 4.8 mi northwest of Goodrich, 11.7 mi upstream from Long King Creek, and at mile 129.2.

DRAINAGE AREA.--16,583 mi<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. These releases do not constitute the total flow from Livingston Reservoir since flow through tainter gates is not included in these totals.

AVERAGE DISCHARGE.--14 years, 214 ft<sup>3</sup>/s (155,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 3,990 ft<sup>3</sup>/s Jan 7, 1982; maximum elevation, about 93.0 ft June 14, 1973 (backwater from Trinity River); no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 793 ft<sup>3</sup>/s Aug. 17; maximum elevation, 79.78 ft May 22 at 1300 hours (backwater from Trinity River); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	90	.00	.00	217	.00	.00	600	175	600	156	617
2	96	90	.00	.00	.00	.00	.00	606	560	600	.00	472
3	96	90	.00	.00	.00	.00	.00	606	566	606	.00	350
4	38	90	.00	.00	.00	.00	.00	600	572	594	.00	350
5	.00	90	.00	.00	.00	.00	.00	600	572	589	.00	350
6	.00	90	.00	.00	.00	.00	.00	600	577	600	.00	350
7	.00	90	.00	.00	.00	.00	.00	606	589	594	.00	350
8	46	90	.00	.00	.00	.00	.00	606	589	600	.00	350
9	78	90	.00	.00	.00	.00	.00	606	594	594	328	350
10	80	90	.00	245	.00	.00	.00	606	594	589	470	350
11	80	90	.00	420	.00	.00	.00	606	589	589	644	350
12	80	90	.00	420	.00	.00	.00	606	589	594	785	350
13	80	90	.00	420	.00	.00	.00	606	583	589	341	350
14	83	90	.00	573	.00	.00	.00	611	577	589	341	350
15	83	90	.00	650	.00	.00	.00	611	577	589	512	350
16	85	90	.00	650	.00	.00	.00	611	577	589	714	350
17	85	90	.00	650	.00	108	.00	611	577	589	793	350
18	85	90	.00	650	245	319	.00	600	572	583	467	350
19	85	90	.00	650	420	315	.00	606	572	589	.00	350
20	85	90	.00	650	420	324	236	202	577	583	.00	350
21	85	93	166	650	228	319	646	.00	577	577	.00	350
22	88	93	420	650	.00	760	623	.00	589	583	.00	355
23	88	93	420	650	.00	645	611	.00	589	577	.00	350
24	90	90	420	650	.00	.00	600	.00	589	589	.00	355
25	90	90	420	650	.00	.00	600	.00	583	538	.00	355
26	90	90	420	650	.00	.00	600	.00	589	467	.00	355
27	90	30	140	650	.00	.00	600	.00	589	483	.00	355
28	90	.00	.00	650	.00	.00	600	.00	589	467	.00	350
29	90	.00	.00	650	---	.00	600	.00	594	477	233	350
30	90	.00	.00	650	---	.00	600	.00	589	477	350	350
31	90	---	.00	650	---	.00	---	.00	---	483	472	---
TOTAL	2341.00	2379.00	2406.00	13128.00	1530.00	2790.00	6316.00	11706.00	17055	17567	6606.00	10914
MEAN	75.5	79.3	77.6	423	54.6	90.0	211	378	569	567	213	364
MAX	96	93	420	650	420	760	646	611	594	606	793	617
MIN	.00	.00	.00	.00	.00	.00	.00	.00	175	467	.00	350
AC-FT	4640	4720	4770	26040	3030	5530	12530	23220	33830	34840	13100	21650
CAL YR 1982	TOTAL	57976.00	MEAN 159	MAX 3990	MIN .00	AC-FT 115000						
WTR YR 1983	TOTAL	94738.00	MEAN 260	MAX 793	MIN .00	AC-FT 187900						

NOTE.--No gage-height record Dec. 14 to Feb. 6.

## TRINITY RIVER BASIN

435

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 downstream from centerline of bridge on U.S. Highway 190, 2 mi west of Livingston, 2 mi upstream from Choates Creek, and 14.8 mi upstream from mouth.

DRAINAGE AREA.--141 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 100.12 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for June and July, which are poor. No diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 94.0 ft<sup>3</sup>/s (9.05 in/yr), 68,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,500 ft<sup>3</sup>/s Nov. 5, 1973 (gage height, 27.06 ft); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, about 41 ft in May 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 27	1930	4,090	14.07	Mar. 24	0300	5,350	15.95
Dec. 27	0830	3,450	13.04	May 21	0200	*9,300	20.25
Feb. 9	2100	2,780	11.63	Aug. 18	1900	4,470	14.58

Minimum discharge, 0.54 ft<sup>3</sup>/s Oct. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.62	6.9	143	839	64	52	79	12	140	20	3.6	59
2	.62	8.3	200	790	65	50	57	11	110	17	3.6	40
3	.62	130	1010	236	46	49	47	11	90	15	3.6	17
4	.62	66	567	140	38	59	45	11	80	13	4.0	11
5	.54	23	137	107	763	240	55	9.7	162	12	4.0	9.3
6	.54	14	84	89	1060	148	53	8.4	429	11	3.6	14
7	3.4	9.6	64	78	229	81	43	7.2	530	10	3.6	11
8	2.4	8.1	55	72	134	62	40	6.6	160	9.0	3.6	9.8
9	2.4	6.8	49	68	883	54	36	6.0	86	8.5	65	40
10	12	6.3	45	61	1310	47	31	18	70	8.0	236	56
11	19	6.0	95	52	289	42	28	136	60	7.5	371	45
12	32	6.0	188	47	155	39	26	117	50	7.0	406	28
13	68	6.0	84	43	112	39	25	38	40	6.5	88	16
14	22	5.4	63	42	90	39	27	23	35	6.0	42	12
15	10	5.3	898	41	76	39	25	311	60	6.0	27	9.6
16	6.9	5.5	369	39	67	38	21	416	90	70	21	8.9
17	5.0	122	112	37	59	37	20	89	45	110	16	8.5
18	4.2	145	74	37	54	34	19	42	25	100	1800	9.0
19	3.6	130	57	41	52	33	18	35	18	95	2130	24
20	3.0	159	49	57	50	56	17	1990	16	40	315	66
21	2.7	50	43	63	617	85	16	7400	16	25	107	82
22	2.9	38	41	56	355	53	16	2730	22	15	60	33
23	2.6	49	103	49	153	1940	17	565	24	11	41	18
24	2.4	64	190	45	109	2800	16	291	121	8.5	32	13
25	2.4	46	144	42	82	321	14	227	74	7.0	31	11
26	2.4	91	1240	41	69	409	13	202	150	6.0	25	9.4
27	2.4	3370	3160	41	61	385	12	184	200	5.2	22	8.2
28	2.5	1040	920	39	56	153	12	170	80	4.7	20	7.3
29	8.8	171	212	38	---	104	12	148	40	4.3	18	6.5
30	14	99	127	38	---	88	12	129	25	4.0	16	6.6
31	11	---	155	37	---	93	---	114	---	3.8	14	---
TOTAL	251.56	5887.2	10678	3405	7098	7669	852	15457.9	3048	666.0	5932.6	689.1
MEAN	8.11	196	344	110	254	247	28.4	499	102	21.5	191	23.0
MAX	68	3370	3160	839	1310	2800	79	7400	530	110	2130	82
MIN	.54	5.3	41	37	38	33	12	6.0	16	3.8	3.6	6.5
CFSM	.06	1.39	2.44	.78	1.80	1.75	.20	3.54	.72	.15	1.36	.16
IN.	.07	1.55	2.82	.90	1.87	2.02	.22	4.08	.80	.18	1.57	.18
AC-FT	499	11680	21180	6750	14080	15210	1690	30660	6050	1320	11770	1370

CAL YR 1982	TOTAL	35354.04	MEAN	96.9	MAX	3370	MIN	.54	CFSM	.69	IN	9.33	AC-FT	70120
WTR YR 1983	TOTAL	61634.36	MEAN	169	MAX	7400	MIN	.54	CFSM	1.20	IN	16.26	AC-FT	122300



## 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 downstream from downstream bridge on U.S. Highway 59, 0.2 mi downstream from Long King Creek, 3.0 mi southeast of Goodrich, and at mile 117.3.

DRAINAGE AREA.--16,844 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Datum of gage is 40.00 ft 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, 11.9 mi upstream. No diversions between Livingston Reservoir and gaging station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--17 years (water years 1967-83), 7,091 ft<sup>3</sup>/s (5,137,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96,200 ft<sup>3</sup>/s June 14, 1973 (gage height, 46.36 ft); minimum daily, 191 ft<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 in May 1942, from information by State Department of Highways and Public Transportation and by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 44,700 ft<sup>3</sup>/s May 22 at 0300 hours (gage height, 35.15 ft); minimum daily, 566 ft<sup>3</sup>/s Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	709	645	7260	11900	5880	17900	11200	1570	4740	2240	1190	1350
2	693	688	7240	16800	7860	18600	9190	1570	2210	2140	1210	1300
3	679	2900	7580	16200	7840	19400	8140	1570	1590	2140	1450	1350
4	654	4370	7540	15800	7750	19700	8080	1550	1540	2140	1600	1330
5	576	3330	6730	13500	7810	19900	8090	1550	1540	2140	1610	1310
6	569	2170	7820	11200	14800	20100	8060	1550	1930	2140	1620	1310
7	566	1640	9310	6990	19400	22100	8040	1550	2960	2140	1630	1330
8	592	1610	12800	5460	20200	22800	7630	1540	5190	2120	1630	1310
9	670	1600	14500	3990	22200	22800	5380	1530	7260	2110	1400	1390
10	672	1600	15100	3800	29300	22700	2820	1590	7320	2110	925	1510
11	668	1600	15200	4180	28400	22700	1640	1830	6580	2110	1180	1440
12	709	1600	14900	2000	27600	22600	1570	1800	6400	2110	1900	1400
13	734	1590	9990	1670	27100	21800	1560	1660	6320	2120	1080	1340
14	712	1410	7100	1320	23900	15900	2330	1590	5340	2130	879	1310
15	671	849	7450	1290	22000	10200	3230	2320	3840	2140	807	1290
16	654	806	8330	1280	18200	7130	3310	4110	3820	2280	739	1160
17	647	1230	7720	1280	10300	4010	3250	3550	4530	2840	932	884
18	643	1850	7550	1270	5050	2070	2580	3260	4580	2980	3320	856
19	639	2160	7490	1290	2960	1880	2170	3200	4580	3020	13000	983
20	649	4990	7450	1530	2850	1880	1260	13300	4570	2980	13800	1640
21	651	4770	6620	1960	5280	1910	1260	35900	4580	2970	11300	2310
22	651	3330	4400	1970	10400	2120	1320	43300	4590	2980	8260	1760
23	646	1630	3220	1950	12600	6860	1450	39100	4610	2670	7530	1110
24	648	977	2470	1950	15200	21800	1450	38000	4670	1980	6920	1030
25	652	645	2160	1940	16600	21900	1470	37100	4740	1450	6870	1010
26	648	627	4190	1920	16600	21500	1580	35500	4660	1320	6830	997
27	647	10000	10700	1920	16600	21500	1590	30000	4630	1310	5370	991
28	649	14800	9640	1920	17000	20700	1590	25300	4180	1300	3590	989
29	680	9450	7220	1910	---	18000	1590	19100	3090	1290	1940	980
30	666	7400	6690	1900	---	14000	1580	13400	2900	1280	1400	975
31	652	---	7320	1920	---	13500	---	8290	---	1270	1080	---
TOTAL	20296	92267	253690	144010	421680	479960	114410	377180	129490	65950	112992	37945
MEAN	655	3076	8184	4645	15060	15480	3814	12170	4316	2127	3645	1265
MAX	734	14800	15200	16800	29300	22800	11200	43300	7320	3020	13800	2310
MIN	566	627	2160	1270	2850	1880	1260	1530	1540	1270	739	856
AC-FT	40260	183000	503200	285600	836400	952000	226900	748100	256800	130800	224100	75260
CAL YR 1982	TOTAL	3233428	MEAN	8859	MAX	45700	MIN	566	AC-FT	6414000		
WTR YR 1983	TOTAL	2249870	MEAN	6164	MAX	43300	MIN	566	AC-FT	4463000		

## TRINITY RIVER BASIN

437

08066300 MENARD CREEK NEAR RYE, TX

LOCATION.--Lat 30°28'52", long 94°46'46", Liberty County, Hydrologic Unit 12030202, on left bank 20 ft downstream from bridge on State Highway 146, 2.3 mi northwest of Rye, and about 6 mi upstream from mouth.

DRAINAGE AREA.--152 mi<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 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 upstream.

AVERAGE DISCHARGE.--17 years (water years 1967-83), 117 ft<sup>3</sup>/s (84,770 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,660 ft<sup>3</sup>/s May 8, 1969 (gage height, 30.33 ft), from rating curve extended above 5,600 ft<sup>3</sup>/s; minimum daily, 2.6 ft<sup>3</sup>/s Nov. 1, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1929 reached a stage of about 39.4 ft, from information by the State State Department of Highways and Public Transportation. Flood in September 1961 reached a stage of about 34.0 ft, from information by local resident. Flood of May 1929 may have been equaled or exceeded by other floods during the period 1929-65.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,210 ft<sup>3</sup>/s May 22 at 0300 hours (gage height, 29.11 ft); minimum daily, 12 ft<sup>3</sup>/s Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	18	514	620	80	89	140	35	109	42	31	130
2	13	32	336	551	74	92	124	38	99	40	30	139
3	13	48	288	711	68	96	107	48	90	39	30	169
4	13	40	353	704	67	94	103	36	82	43	30	153
5	12	42	314	404	144	120	93	34	101	40	33	93
6	13	40	370	242	192	197	101	30	121	42	45	88
7	13	33	243	188	252	239	119	33	103	43	51	83
8	13	29	142	194	359	173	99	31	120	37	53	85
9	13	25	116	170	324	118	87	32	106	39	44	78
10	14	22	120	149	586	94	77	62	81	34	140	132
11	14	21	114	127	482	83	72	145	71	32	319	178
12	17	21	120	109	576	76	67	202	64	30	570	142
13	22	21	123	99	463	72	74	237	59	37	721	110
14	31	21	129	99	235	70	66	173	55	53	447	102
15	32	21	182	96	183	69	60	318	66	45	190	85
16	35	39	181	83	137	68	61	605	61	154	126	71
17	28	44	180	88	113	66	58	571	56	179	157	80
18	20	40	153	88	111	64	53	1020	46	207	522	64
19	20	147	121	90	92	61	51	550	72	230	1680	215
20	19	167	109	105	106	74	49	1630	79	133	1610	298
21	18	117	91	122	183	66	48	5120	61	122	1780	538
22	18	131	83	122	250	78	61	6270	56	127	967	541
23	18	103	103	103	331	148	58	2540	48	180	450	964
24	18	105	90	87	376	297	52	1540	44	140	206	510
25	17	117	457	80	204	346	49	862	134	78	150	197
26	17	115	1090	76	146	865	46	433	136	59	129	136
27	17	485	1400	74	121	775	43	250	87	50	129	112
28	17	434	1440	72	100	401	51	188	93	41	112	98
29	45	362	1540	71	---	354	47	153	72	37	90	88
30	24	619	1070	69	---	216	37	134	48	35	77	80
31	17	---	568	81	---	166	---	134	---	33	69	---
TOTAL	594	3459	12140	5874	6355	5727	2153	23454	2420	2401	10988	5759
MEAN	19.2	115	392	189	227	185	71.8	757	80.7	77.5	354	192
MAX	45	619	1540	711	586	865	140	6270	136	230	1780	964
MIN	12	18	83	69	67	61	37	30	44	30	30	64
AC-FT	1180	6860	24080	11650	12610	11360	4270	46520	4800	4760	21790	11420
CAL YR 1982	TOTAL	39589	MEAN 108	MAX 1540	MIN 10	AC-FT 78520						
WTR YR 1983	TOTAL	81324	MEAN 223	MAX 6270	MIN 12	AC-FT 161300						

## 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 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 08...	1235	13	75	24.0	17	5	4.8	1.2	7.7
27...	1230	17	132	15.5	22	11	6.1	1.6	16
DEC 15...	1605	178	81	17.0	19	12	5.2	1.4	8.1
JAN 18...	1410	88	88	11.0	18	0	5.0	1.3	9.7
FEB 23...	1215	336	62	15.0	15	9	4.2	1.0	6.2
APR 06...	1220	92	81	15.0	17	8	4.9	1.2	8.9
MAY 17...	1150	497	50	19.5	13	0	3.5	1.0	5.1
JUN 22...	1200	51	102	24.5	20	0	5.5	1.4	12
JUL 06...	1135	44	108	26.0	20	7	5.8	1.4	13
AUG 09...	1110	36	75	25.5	17	6	4.5	1.3	8.5
SEP 21...	1555	516	49	22.5	12	10	3.4	.9	4.9

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 08...	.8	1.2	12	5.0	14	<.10	16	57
27...	1.5	1.1	11	6.0	31	<.10	14	82
DEC 15...	.8	1.2	7.0	4.0	19	<.10	12	55
JAN 18...	1.0	.9	8.0	6.5	18	<.10	13	59
FEB 23...	.7	.9	6.0	10	12	<.10	8.2	46
APR 06...	1.0	.9	9.0	10	17	<.10	12	60
MAY 17...	.6	1.2	3.0	10	9.0	<.10	6.5	38
JUN 22...	1.2	.9	10	10	18	<.10	13	67
JUL 06...	1.3	1.1	13	3.0	24	<.10	13	69
AUG 09...	.9	1.1	11	5.5	14	.10	11	53
SEP 21...	.6	1.2	2.0	10	9.8	<.10	7.7	39

## TRINITY RIVER BASIN

439

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 northeast of Shepherd, and 11.6 mi upstream from mouth.

DRAINAGE AREA.--38.8 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair except those for period of no gage-height record, which are poor. No known regulation above station.

AVERAGE DISCHARGE.--16 years, 27.1 ft<sup>3</sup>/s (9.48 in/yr), 19,630 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft<sup>3</sup>/s June 13, 1973 (gage height, 25.69 ft); minimum daily, 1.0 ft<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 (discharge about 5,500 ft<sup>3</sup>/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 350 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 27	1500	502	12.12	May 20	0900	*3,200	18.17
Feb. 10	unknown	492	12.05	Aug. 19	0300	869	13.82
May 15	unknown	404	11.43				

Minimum discharge, 5.0 ft<sup>3</sup>/s Oct. 4-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	7.0	50	218	25	19	31	7.8	32	24	12	20
2	5.2	20	60	115	22	18	24	7.6	30	22	11	30
3	5.2	44	100	67	20	18	22	7.6	27	20	11	25
4	5.1	19	60	52	19	26	22	7.4	25	19	11	20
5	5.0	11	40	45	150	59	24	7.4	31	18	11	18
6	5.0	9.5	30	41	220	31	22	7.2	44	20	11	17
7	5.0	8.6	25	39	100	22	20	7.2	46	18	13	20
8	6.0	8.2	23	37	60	19	20	7.0	28	16	21	25
9	6.6	8.0	21	34	250	18	18	7.0	24	15	15	20
10	16	7.7	20	32	400	16	17	20	21	14	33	18
11	7.8	7.7	25	28	150	15	16	50	20	13	57	30
12	14	8.3	40	25	70	15	15	45	19	12	48	25
13	17	8.0	25	24	50	15	14	20	18	15	23	20
14	9.0	7.7	22	23	35	15	14	10	18	30	17	17
15	6.9	7.3	51	22	30	15	13	300	30	33	14	15
16	6.5	7.0	31	22	28	15	13	110	100	95	13	14
17	6.5	35	23	22	26	14	12	41	50	58	12	14
18	6.1	30	21	27	24	14	12	28	30	34	233	17
19	5.9	20	19	35	23	13	11	23	24	43	592	100
20	5.8	50	17	41	22	18	11	1640	20	27	130	120
21	5.6	40	17	30	100	19	10	1310	18	21	66	70
22	5.6	18	17	26	50	15	10	611	25	25	47	34
23	5.6	20	51	23	30	92	9.5	170	31	19	35	25
24	5.6	22	108	22	27	165	9.5	101	45	17	30	21
25	5.4	20	44	21	24	53	9.0	76	44	15	26	19
26	5.4	22	182	21	22	109	9.0	63	63	14	23	18
27	5.4	250	400	20	21	71	8.5	53	84	13	21	17
28	5.4	150	156	19	20	39	8.5	46	37	12	20	16
29	9.9	80	71	18	---	32	8.0	41	29	12	19	15
30	16	40	52	18	---	39	7.8	37	24	12	18	15
31	8.3	---	66	17	---	44	---	33	---	11	17	---
TOTAL	228.0	986.0	1867	1184	2018	1073	440.8	4894.2	1037	717	1610	835
MEAN	7.35	32.9	60.2	38.2	72.1	34.6	14.7	158	34.6	23.1	51.9	27.8
MAX	17	250	400	218	400	165	31	1640	100	95	592	120
MIN	5.0	7.0	17	17	19	13	7.8	7.0	18	11	11	14
CFSM	.19	.85	1.55	.99	1.86	.89	.38	4.07	.89	.60	1.34	.72
IN.	.22	.95	1.79	1.14	1.93	1.03	.42	4.69	.99	.69	1.54	.80
AC-FT	452	1960	3700	2350	4000	2130	874	9710	2060	1420	3190	1660
CAL YR 1982	TOTAL	8737.4	MEAN 23.9	MAX 481	MIN 2.3	CFSM .62	IN 8.38	AC-FT 17330				
WTR YR 1983	TOTAL	16890.0	MEAN 46.3	MAX 1640	MIN 5.0	CFSM 1.19	IN 16.19	AC-FT 33500				

NOTE.--No gage-height record Apr. 13 to May 15.

## 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 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	TEMPER- ATURE (DEG C)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)
OCT 01...	1220	5.2	71	22.5	16	4	4.0	1.5	7.7
DEC 14...	1415	20	78	10.0	17	0	4.2	1.7	7.8
JAN 19...	1025	29	74	9.5	16	6	4.0	1.5	7.7
FEB 24...	1145	27	67	13.5	16	8	3.9	1.4	6.8
APR 05...	1155	24	71	16.0	16	7	3.9	1.4	7.5
MAY 16...	1335	101	46	18.0	13	0	3.2	1.1	4.3
JUN 21...	1200	18	69	23.0	16	9	4.1	1.5	6.9
AUG 08...	1155	24	65	24.0	14	3	3.6	1.3	7.0
SEP 20...	1645	93	57	24.0	13	6	3.5	1.1	5.5

DATE	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
OCT 01...	.9	1.2	12	6.0	12	<.10	17	57
DEC 14...	.8	1.0	8.0	12	14	<.10	16	61
JAN 19...	.9	.9	10	5.0	13	<.10	16	54
FEB 24...	.8	.8	8.0	10	11	<.10	14	53
APR 05...	.9	1.0	9.0	9.1	12	<.10	16	56
MAY 16...	.5	1.2	3.0	10	6.7	<.10	8.0	36
JUN 21...	.8	.9	7.0	9.5	12	<.10	16	55
AUG 08...	.8	1.2	11	4.1	12	.10	15	51
SEP 20...	.7	1.4	7.0	6.0	9.9	<.10	11	43



## TRINITY RIVER BASIN

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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 bridge on State Highway 105, 1.9 mi south of Romayor, 1.9 mi downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.7 mi downstream from Big Creek, and at mile 94.3.

DRAINAGE AREA.--17,186 mi<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. WRD TX-81-1: 1980(M, m).

GAGE.--Water-stage recorder. Datum of gage is 35.92 ft National Geodetic Vertical Datum of 1929. Prior to September 1943, nonrecording gage at datum 53.57 ft higher at railroad bridge 1.9 mi upstream. Sept. 15, 1975, to June 16, 1977, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair. Since Sept. 28, 1968, flow is regulated by Livingston Reservoir (station 08066190), capacity 1,788,000 acre-ft, 35 mi 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 (5,184,000 acre-ft/yr); 15 years (water years 1969-83) flow regulated by Livingston Reservoir, 7,417 ft<sup>3</sup>/s (5,374,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 111,000 ft<sup>3</sup>/s May 9, 1942 (gage height, 35.8 ft, from floodmarks), present site and datum; minimum, 102 ft<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, 52,700 ft<sup>3</sup>/s May 22 at 1500 hours (gage height, 25.90 ft); minimum daily, 587 ft<sup>3</sup>/s Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	711	730	8690	12700	3820	17900	12500	1820	6480	3010	1560	1560
2	717	711	8320	18500	7990	18800	9850	1810	3650	2690	1430	1650
3	711	1480	8630	18800	8360	19600	8230	1820	2590	2650	1660	1650
4	705	4770	9040	17300	8180	20100	8020	1780	2340	2600	1800	1650
5	636	3790	7920	15900	7820	20400	8080	1770	2300	2590	1860	1550
6	612	3100	8690	12600	12300	20600	8020	1760	2430	2540	1880	1500
7	600	2030	9900	8510	19100	22200	8040	1770	3310	2520	1890	1540
8	587	1890	13500	6460	21100	23500	7840	1760	4570	2490	1890	1520
9	648	1820	16100	4810	22100	23400	6030	1740	7440	2470	1820	1590
10	698	1800	17300	4260	29400	23300	3740	1810	7760	2450	1390	1800
11	673	1790	17600	3980	30100	23100	2410	2060	7300	2440	1660	1970
12	756	1780	17600	2680	28800	23000	2130	2190	6820	2410	2600	1900
13	796	1770	14200	2010	28300	22800	2080	2070	6750	2430	2430	1790
14	803	1750	9430	1710	25700	18500	2550	1960	6190	2480	1830	1720
15	809	1240	8540	1560	23300	12200	3250	2330	4760	2480	1440	1660
16	717	1020	9880	1500	19900	7990	3340	4360	4320	2860	1210	1610
17	692	1190	9230	1470	13100	5280	3310	4240	4800	3360	1270	1310
18	679	1910	8870	1460	6810	2980	2890	3990	5030	3780	2590	1210
19	667	2180	8650	1470	3530	2490	2530	3760	5010	3780	14200	1410
20	673	4400	8520	1590	2960	2440	1890	10500	5010	3650	17900	1990
21	673	5600	8110	2100	3750	2400	1600	35700	4960	3520	16000	3310
22	673	4280	5690	2170	9200	2370	1700	51300	4970	3640	11000	2960
23	667	2770	4030	2020	12200	4180	1760	47700	4970	3420	8780	2330
24	686	1610	3310	2110	14900	18700	1840	43900	5070	2870	7440	1720
25	692	1190	3020	2100	16700	23700	1760	41700	5130	2130	7040	1310
26	698	1000	4760	2100	17000	22700	1820	39900	5140	1830	6890	1160
27	698	6310	10900	2030	16800	22800	1830	35200	5060	1730	6100	1140
28	705	16800	13600	1910	17000	22300	1840	29300	4860	1680	4280	1120
29	763	12600	10100	1950	---	20000	1850	23000	3860	1640	2740	1100
30	789	9120	9040	2000	---	15600	1840	16500	3450	1610	1850	1080
31	750	---	9410	1950	---	14100	---	11100	---	1590	1480	---
TOTAL	21684	102431	302580	161710	430220	499430	124570	430600	146330	81340	137910	49810
MEAN	699	3414	9761	5216	15370	16110	4152	13890	4878	2624	4449	1660
MAX	809	16800	17600	18800	30100	23700	12500	51300	7760	3780	17900	3310
MIN	587	711	3020	1460	2960	2370	1600	1740	2300	1590	1210	1080
AC-FT	43010	203200	600200	320800	853300	990600	247100	854100	290200	161300	273500	98800

CAL YR 1982 TOTAL 3392197 MEAN 9294 MAX 47600 MIN 587 AC-FT 6728000  
WTR YR 1983 TOTAL 2488615 MEAN 6818 MAX 51300 MIN 587 AC-FT 4936000

## TRINITY RIVER BASIN

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to November 1949, February 1950 to September 1951, April 1953 to current year. Chemical and biochemical analyses: February 1968 to current year. Pesticide analyses: February 1968 to September 1981, August to September 1983. 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, 1953-83): Maximum daily, 3,800 micromhos Oct. 30, 1956; minimum daily, 103 micromhos Nov. 9, 1946.

WATER TEMPERATURES (1953-58, 1961-74, 1976-83): 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, 393 micromhos Aug. 11; minimum daily, 157 micromhos Aug. 19.

WATER TEMPERATURES: Maximum daily, 30.0°C July 23, Aug. 6; minimum daily, 9.0°C Jan. 20.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (STAND- ARD UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
NOV											
15...	1425	1170	344	8.4	14.5	20	2.4	10.8	105	1.9	K33
FEB											
08...	1425	21300	326	8.1	10.0	15	17	11.8	105	1.6	150
MAR											
15...	1518	11200	307	7.8	15.0	35	42	10.2	103	1.6	K12
APR											
25...	1539	1750	308	8.2	19.0	10	17	11.5	124	3.1	K32
JUN											
06...	1553	2460	298	7.8	25.0	15	26	8.3	101	--	320
AUG											
18-27	0600	10300	226	--	--	60	120	--	--	3.8	--
18...	1225	2010	230	8.1	26.0	--	--	8.0	--	--	--
19...	1130	14900	142	7.5	24.5	--	--	5.9	--	--	--
20...	1320	18000	268	7.6	26.5	--	--	7.1	--	--	--
21...	1600	15400	280	7.6	27.5	--	--	--	--	--	--
22...	1646	10000	270	7.4	28.0	30	11	8.4	107	2.4	160
31...	1230	1440	320	8.2	31.0	15	7.6	5.8	78	3.6	44

DATE	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV											
15...	150	140	17	48	4.1	20	.8	4.5	120	27	26
FEB											
08...	150	120	30	41	3.7	22	.9	4.3	88	33	23
MAR											
15...	110	100	25	35	3.5	21	.9	4.4	77	36	23
APR											
25...	K4	110	26	38	3.5	21	.9	4.0	84	32	26
JUN											
06...	950	100	23	36	3.6	20	.9	3.5	82	31	23
AUG											
18-27	--	74	12	26	2.2	15	.8	3.4	62	19	18
18...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
22...	3700	90	16	31	3.1	19	.9	3.9	75	28	23
31...	140	110	22	37	3.6	22	1.0	4.7	85	31	24

## 08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

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, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
NOV 15...	.30	7.2	201	210	7	1	--	<.020	.10	<.10	<.060
FEB 08...	.30	8.3	196	189	30	16	--	<.020	.60	.57	.090
MAR 15...	.20	8.2	184	178	27	10	.72	.080	.80	.78	.150
APR 25...	.20	9.0	185	185	4	<1	.68	.020	.70	.62	.090
JUN 06...	.20	8.4	184	175	54	6	.38	.020	.40	.38	.160
AUG 18-27	.20	6.6	--	128	244	61	.00	.120	.10	--	.140
18...	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--
22...	.30	6.5	140	161	36	31	.11	.090	.20	.17	.080
31...	.20	8.2	--	182	21	<1	--	<.020	<.10	--	.050

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	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 15...	<.060	--	.90	.150	.100	.080	8.8	15	47	51
FEB 08...	.080	.91	1.00	.150	.140	.120	6.3	41	2360	84
MAR 15...	.070	.95	1.10	.220	.150	.090	8.8	51	1540	68
APR 25...	.110	.81	.90	.180	.130	.090	7.6	23	109	99
JUN 06...	.060	.74	.90	.180	.100	.080	6.6	28	186	97
AUG 18-27	--	.96	1.10	.180	--	--	6.3	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
22...	.060	.92	1.00	.190	.160	.140	8.4	179	4830	92
31...	--	.55	.60	.190	--	--	7.1	--	--	--

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 15...	1425	3	65	<1	<1	<3	1	9
FEB 08...	1425	2	51	<1	<1	<3	1	62
APR 25...	1539	2	58	<1	<1	<3	2	36
AUG 18-27	0600	3	48	<1	<10	--	1	85
22...	1646	3	49	<1	<1	<3	2	67
31...	1230	4	52	<1	<10	--	2	21

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 15...	<1	1	<.1	2	<1	<1	5
FEB 08...	1	8	<.1	3	<1	<1	67
APR 25...	1	5	<.1	6	<1	<1	5
AUG 18-27	<1	7	<.1	--	<1	<1	7
22...	2	2	<.1	17	<1	<1	10
31...	1	<1	<.1	--	<1	1	4

## TRINITY RIVER BASIN

08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983

DATE	TIME	AME- TRYNE TOTAL	ATRA- TONE TOTAL (UG/L)	ATRA- ZINE, TOTAL (UG/L)	CYAN- AZINE TOTAL (UG/L)	CYPRA- ZINE TOTAL (UG/L)	METHO- MYL TOTAL (UG/L)	PROME- TONE TOTAL (UG/L)
AUG								
18...	1225	<.10	<.10	.10	<.10	<.10	<2.0	<.1
31...	1230	<.10	<.10	.10	<.10	<.10	<2.0	<.1

DATE	PROME- TRYNE TOTAL (UG/L)	PRO- PAZINE TOTAL (UG/L)	PROPHAM TOTAL (UG/L)	SEVIN, TOTAL (UG/L)	SIMA- ZINE TOTAL (UG/L)	SIME- TONE TOTAL (UG/L)	SIME- TRYNE TOTAL (UG/L)
AUG							
18...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
31...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1982 TO SEPTEMBER 1983

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.	1982	21684	356	197	11500	28	1650	33	1940	110
NOV.	1982	102431	323	179	49500	24	6740	30	8240	100
DEC.	1982	302580	320	178	145000	24	19800	30	24200	100
JAN.	1983	161710	327	181	79100	25	10800	30	13200	110
FEB.	1983	430220	329	182	212000	25	29100	30	35400	110
MAR.	1983	499430	315	175	236000	23	31600	29	39100	100
APR.	1983	124570	309	172	57700	23	7640	28	9550	100
MAY	1983	430600	268	150	174000	19	21700	24	28400	91
JUNE	1983	146330	321	178	70400	24	9520	30	11700	100
JULY	1983	81340	314	175	38400	23	5140	29	6360	100
AUG.	1983	137910	271	151	56200	19	7090	25	9200	92
SEPT	1983	49810	288	161	21600	21	2780	26	3550	97
TOTAL		2488615	**	**	1151000	**	153000	**	191000	**
WTD. AVG.		6818	308	171	**	23	**	28	**	100

## TRINITY RIVER BASIN

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08066500 TRINITY RIVER AT ROMAYOR, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	370	358	318	312	333	339	306	316	310	322	327	313
2	365	358	329	311	343	340	308	318	316	325	330	309
3	360	345	324	321	344	335	310	316	315	325	328	283
4	350	349	288	326	344	338	307	320	318	324	324	295
5	355	345	319	331	342	337	308	319	321	325	326	308
6	360	350	328	336	303	336	309	320	313	324	324	315
7	362	351	334	338	327	335	307	320	309	326	319	312
8	364	354	345	336	332	334	303	317	274	324	321	319
9	360	355	347	334	335	332	302	312	322	326	319	304
10	355	356	346	335	309	331	306	318	325	327	323	309
11	350	356	346	334	321	311	305	297	326	325	393	271
12	345	355	342	332	330	305	312	284	328	326	193	281
13	340	356	347	333	331	314	311	283	329	322	200	289
14	342	357	349	330	332	313	309	285	330	320	217	309
15	344	358	346	329	334	314	311	275	329	322	245	315
16	346	359	309	330	335	315	312	212	335	292	298	321
17	350	347	333	332	333	314	310	247	329	293	281	325
18	358	327	341	329	332	316	311	256	328	293	217	316
19	360	321	346	328	328	312	312	260	327	294	157	318
20	361	330	348	325	329	315	312	227	325	299	253	278
21	362	335	349	323	311	318	313	180	326	309	258	232
22	358	340	348	325	306	318	318	206	326	285	269	233
23	362	335	348	326	324	315	315	250	323	316	287	234
24	363	329	318	333	327	220	312	278	317	311	302	226
25	374	331	284	334	333	289	314	292	318	315	309	270
26	365	323	259	335	336	300	315	299	312	323	311	296
27	364	278	223	336	337	297	314	301	317	325	314	309
28	367	270	207	338	338	301	316	303	320	327	313	316
29	355	319	261	339	---	303	314	307	319	327	312	321
30	342	323	282	337	---	301	317	308	322	326	310	323
31	355	---	314	340	---	302	---	305	---	326	312	---
MEAN	357	339	319	331	330	315	311	285	320	317	290	295

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	23.5	17.5	11.5	12.0	13.0	15.0	21.0	22.5	26.5	29.0	29.0
2	---	23.5	17.0	11.5	10.5	15.0	16.0	21.5	---	28.0	29.5	29.0
3	---	21.0	17.0	11.0	11.0	15.5	16.0	21.0	---	28.5	28.0	28.0
4	---	18.0	17.0	10.5	10.5	15.0	16.5	20.5	---	29.0	28.0	29.0
5	---	17.5	16.5	11.0	11.0	15.0	17.0	21.0	---	29.0	25.0	28.0
6	---	18.0	16.0	11.0	11.0	16.0	15.0	21.0	---	29.0	30.0	28.0
7	---	19.0	16.0	12.0	10.0	16.0	14.5	22.5	---	29.0	29.0	27.0
8	---	18.0	15.5	15.5	10.0	15.5	14.5	22.0	---	26.5	27.5	27.5
9	---	19.0	15.0	13.5	12.0	15.0	15.0	22.5	---	27.0	28.0	26.0
10	---	19.5	16.0	13.0	12.0	15.0	19.0	22.0	24.5	29.5	28.5	26.0
11	---	20.0	15.0	12.0	12.0	14.0	17.0	21.5	24.5	28.0	27.0	28.0
12	---	20.0	15.0	12.5	12.0	15.5	18.5	22.0	26.0	27.5	27.0	27.0
13	---	17.0	12.0	12.0	12.5	15.0	20.0	22.5	24.5	27.0	27.5	26.5
14	---	17.0	14.0	12.0	11.5	14.5	14.5	23.0	25.0	26.0	29.5	27.0
15	21.5	15.0	14.0	12.0	11.0	15.0	15.5	21.0	25.0	26.0	25.0	27.5
16	21.5	15.0	13.5	11.0	11.5	15.5	18.5	19.0	24.0	27.0	29.0	27.5
17	23.0	15.5	13.0	11.5	11.5	14.5	18.5	20.5	25.0	27.5	29.0	27.0
18	24.0	19.0	15.5	12.0	12.0	14.0	20.0	22.0	25.0	26.5	26.0	27.5
19	23.5	18.0	14.5	10.5	15.0	17.0	16.5	22.0	28.0	27.0	26.0	26.0
20	23.0	17.0	13.0	9.0	15.0	15.5	17.0	23.0	26.0	27.5	28.0	26.0
21	21.0	17.0	16.0	10.5	14.0	14.0	17.0	21.0	27.0	28.0	25.5	27.0
22	20.0	19.5	15.5	9.5	13.5	13.5	18.5	21.5	25.0	27.0	27.5	22.0
23	19.5	19.0	16.5	11.0	15.0	14.0	19.5	21.5	25.0	30.0	28.0	20.5
24	19.0	16.0	18.0	9.5	14.5	12.0	18.0	22.5	25.5	28.5	28.0	23.0
25	18.0	14.5	16.0	11.0	13.0	13.5	18.0	22.5	26.0	28.0	28.0	23.0
26	18.0	15.0	15.0	11.5	12.5	15.0	19.0	23.0	27.0	29.0	28.0	23.0
27	19.0	15.0	12.5	10.0	13.0	15.5	20.0	23.5	26.0	29.0	28.0	24.0
28	20.5	14.5	13.0	11.0	13.0	15.0	20.0	24.0	28.5	29.5	29.5	24.5
29	20.5	15.0	12.0	13.5	---	15.0	22.0	24.0	27.5	29.5	28.0	24.0
30	21.0	17.0	11.0	13.0	---	15.0	21.5	25.0	27.0	28.0	28.5	23.5
31	23.0	---	11.5	13.0	---	16.0	---	23.5	---	---	29.0	---
MEAN	21.0	18.0	15.0	11.5	12.0	15.0	17.5	22.0	25.5	28.0	28.0	26.0



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 downstream from Texas and New Orleans Railroad Co. bridge, and at mile 40.3.

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.

GAGE.--Water-stage recorder. Datum of gage is 2.22 ft below National Geodetic Vertical Datum of 1929; unadjusted for land-surface subsidence. Prior to Mar. 13, 1973, nonrecording gage at site 105 ft downstream at same datum.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 114,000 ft<sup>3</sup>/s May 12, 1942 (gage height, 29.38 ft); minimum not determined (affected by tides); minimum gage height observed, 2.32 ft Nov. 24, 1970.  
Maximum stage since at least 1903, that of May 12, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 44,800 ft<sup>3</sup>/s May 26; maximum gage height, 27.75 ft May 26; minimum discharge not determined (affected by tides); minimum gage height not determined.

[illegible]

## TRINITY RIVER BASIN

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08067070 CIWA CANAL NEAR DAYTON, TX

LOCATION.--Lat 29°57'40", long 94°48'36", Liberty County, Hydrologic Unit 12030203, at flume on left bank of Coastal Industrial Water Authority canal, 1,000 ft west of the Trinity River, 2 mi east of Farm Road 1409, and 7.4 mi south-east of Dayton.

PERIOD OF RECORD.--April 1981 to current year.

GAGE.--Water-stage recorder. National Geodetic Vertical Datum of gage not determined.

REMARKS.--Records good. No diversion between pump plant and gage. Water is pumped from Trinity River for industrial use in the Baytown area.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 424 ft<sup>3</sup>/s June 21, 1981; minimum daily, 52 ft<sup>3</sup>/s Aug. 18, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 369 ft<sup>3</sup>/s May 7; minimum daily, 52 ft<sup>3</sup>/s Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	303	259	194	215	234	256	276	269	336	279	283	310
2	303	246	182	227	221	269	276	266	328	286	273	307
3	303	246	197	243	230	272	279	283	328	290	276	307
4	300	262	182	266	218	272	283	314	328	307	279	303
5	286	262	221	272	212	253	300	343	336	332	286	300
6	272	253	240	276	230	253	290	328	296	319	283	296
7	279	253	243	266	218	256	276	369	256	336	276	276
8	272	253	259	259	221	259	276	365	250	347	262	246
9	266	234	253	243	221	266	272	354	279	343	250	250
10	279	250	253	246	209	296	272	238	314	343	250	237
11	279	237	234	227	224	290	279	212	318	350	227	243
12	269	250	237	218	215	300	290	209	314	350	234	237
13	250	246	209	215	215	293	300	240	318	321	240	224
14	283	250	194	221	221	262	296	262	339	272	237	215
15	266	246	224	224	224	272	300	259	340	215	237	227
16	246	266	240	240	212	262	314	262	332	206	253	215
17	257	250	234	237	212	266	307	250	318	215	259	243
18	272	250	234	246	230	253	303	250	328	199	52	237
19	269	240	243	230	240	262	303	237	310	212	91	221
20	286	240	243	221	221	243	305	211	321	262	171	224
21	272	215	243	221	203	262	314	237	303	266	206	227
22	266	228	227	221	218	283	307	234	269	286	218	227
23	262	212	240	221	221	321	318	227	286	303	215	230
24	276	215	237	243	246	310	310	221	276	321	215	230
25	258	212	192	201	250	283	314	230	286	307	212	230
26	256	230	171	194	256	283	314	262	293	318	224	243
27	243	193	158	230	259	272	314	296	272	321	227	243
28	269	215	166	221	253	276	293	314	259	318	243	253
29	224	194	194	230	---	279	266	310	272	293	272	262
30	253	194	221	221	---	279	262	328	279	283	293	269
31	246	---	212	215	---	276	---	336	---	279	307	---
TOTAL	8365	7101	6777	7210	6334	8479	8809	8516	9084	9079	7351	7532
MEAN	270	237	219	233	226	274	294	275	303	293	237	251
MAX	303	266	259	276	259	321	318	369	340	350	307	310
MIN	224	193	158	194	203	243	262	209	250	199	52	215
AC-FT	16590	14080	13440	14300	12560	16820	17470	16890	18020	18010	14580	14940
CAL YR 1982	TOTAL	104250	MEAN 286	MAX 400	MIN 120	AC-FT 206800						
WTR YR 1983	TOTAL	94637	MEAN 259	MAX 369	MIN 52	AC-FT 187700						

## 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 northeast of Crosby.

DRAINAGE AREA.--64.9 mi<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 National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Low flow is sustained by drainage from irrigated lands. Diversion for irrigation upstream from station. A recording rain gage is operated at this station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years (water years 1972-83), 85.1 ft<sup>3</sup>/s (61,650 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,760 ft<sup>3</sup>/s June 5, 1981 (gage height, 23.92 ft); maximum gage height, 24.91 ft June 13, 1973; no flow Mar. 8, 15-18, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 27	1100	2,790	21.53	July 16	unknown	2,440	21.33
Dec. 27	1000	2,060	19.42	Aug. 19	0300	*3,020	22.43
May 21	2000	2,390	20.72	Sept. 19	2200	2,420	21.29

Minimum daily discharge, 0.24 ft<sup>3</sup>/s Apr. 21 (result of pumping).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	22	473	75	11	11	10	9.4	119	20	25	17
2	9.3	17	354	50	9.8	9.4	8.0	14	43	15	29	17
3	8.8	145	371	20	7.2	8.3	7.4	5.9	22	12	31	15
4	8.2	99	335	15	17	8.5	6.8	10	18	10	31	13
5	8.8	59	154	12	319	19	7.3	3.4	18	20	20	12
6	13	35	78	10	403	18	7.0	7.0	19	20	14	12
7	13	16	62	10	123	12	6.0	4.6	14	15	12	14
8	13	24	53	25	51	7.8	12	4.7	10	10	35	17
9	13	26	47	20	288	6.0	5.6	10	9.4	7.0	50	22
10	14	18	70	14	758	4.8	3.2	101	5.7	6.0	49	25
11	16	13	90	13	268	3.9	3.5	204	8.4	5.0	50	32
12	27	7.2	70	12	128	2.9	3.7	51	13	50	116	36
13	70	7.2	46	12	58	3.5	5.1	15	13	150	283	51
14	42	6.5	41	11	36	3.1	21	7.9	12	400	73	31
15	27	6.5	68	11	26	2.5	6.9	8.2	12	1100	44	19
16	16	7.9	40	10	26	2.2	5.2	11	25	2200	41	11
17	11	719	27	10	20	2.3	2.8	6.9	173	1050	35	216
18	11	512	21	9.2	14	2.2	8.5	4.8	148	520	1420	215
19	12	335	16	59	11	2.2	6.1	4.4	48	321	2870	1370
20	7.6	717	13	220	8.6	2.9	5.8	622	40	150	1910	1740
21	7.2	256	11	82	622	2.8	.24	2130	419	69	1020	797
22	6.8	181	10	43	241	2.5	9.0	1540	120	176	523	305
23	5.5	950	9.2	28	93	306	23	662	45	69	255	114
24	6.1	820	8.6	19	42	598	12	283	45	37	113	45
25	6.5	338	94	15	30	176	2.9	89	60	21	48	26
26	11	269	780	13	23	209	4.1	34	120	27	41	17
27	12	2330	1740	11	17	162	4.8	23	80	20	35	13
28	16	1400	862	9.2	14	39	2.6	18	45	21	27	9.9
29	78	664	327	8.8	---	17	2.2	14	35	23	33	7.6
30	111	366	120	7.6	---	13	2.7	12	25	41	26	6.5
31	30	---	62	6.8	---	12	---	282	---	26	18	---
TOTAL	639.2	10366.3	6452.8	861.6	3664.6	1669.8	205.44	6192.2	1764.5	6611.0	9277	5226.0
MEAN	20.6	346	208	27.8	131	53.9	6.85	200	58.8	213	299	174
MAX	111	2330	1740	220	758	598	23	2130	419	2200	2870	1740
MIN	5.5	6.5	8.6	6.8	7.2	2.2	.24	3.4	5.7	5.0	12	6.5
AC-FT	1270	20560	12800	1710	7270	3310	407	12280	3500	13110	18400	10370
(††)	3.72	9.90	5.14	2.03	4.46	3.70	.25	7.61	4.63	7.09	7.49	6.59

CAL YR 1982 TOTAL 26767.41 MEAN 73.3 MAX 2330 MIN .09 AC-FT 53090 †† 41.44  
WTR YR 1983 TOTAL 52930.44 MEAN 145 MAX 2870 MIN .24 AC-FT 105000 †† 62.61

†† Rainfall, in inches.

Because the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage of those events. The data collected for special reasons are called measurements at miscellaneous sites.

Streamflow data collected at partial-record stations where water-quality data other than observations of water temperature are not obtained are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations; the second is a table of annual maximum stage and (or) discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low and high flows are given in a third table. Discharge measurements and water-quality data collected at partial-record stations are presented in downstream order in the section of this report entitled "Gaging-station records."

#### Low-flow partial-record stations

Measurements of streamflow at low-flow partial-record stations that are not published in the gaging-station section are given in the following table. Most of the measurements of low flow were made during periods when streamflow was sustained primarily by ground-water discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record station during water year 1983

Discharge measurements made at low-flow partial-record station during water year 1993

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)	1953-83	5- 5-83 9-20-83	1.28 .26
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, 1952-83	1-10-83 6- 7-83	2.28 3.51
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	1964-83	2-24-83 7-26-83	4.87 .77
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)	1947-83	2-24-83 7-25-83	2.04 1.23
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, 1943-83	1-10-83	1.90
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.	-	1979-83	10-19-82	119
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.	-	1979-83	10-21-82	3.3

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 1983							
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Elevation (feet)	Discharge (ft <sup>3</sup> /s)
Red River basin							
07299570	Red River near Quanah, Tex.	Lat 34°24'47", long 99°44'03", Hardeman County, on right bank at downstream side of bridge on State Highway 6, 8 mi north of Quanah, 30 mi upstream from Salt Fork Red River, and at mile 1,030.	8,321	1959-82†, 1983	5-21-83	8.71	2,090
07308200	Pease River near Vernon, Tex.	Lat 34°10'44", long 99°16'40", Wilbarger County, near left bank on downstream side of bridge on U.S. Highway 283, 1.9 mi north of Vernon, and 10 mi upstream from mouth.	3,488	1959-82†, 1983	7- 5-83	12.80	5,760
Trinity River basin							
08051130	Elm Fork Trinity River near Pilot Point, Tex.	Lat 33°20'56", long 97°01'59", Denton County, attached to trees on right bank, 0.8 mi downstream from Isle du Bois Creek, 1.2 mi upstream from abandoned county road bridge, 2.5 mi upstream from Bray Branch, and 5.3 mi southwest of Pilot Point.	-	1981-83	-	(a)	-
08051160	Elm Fork Trinity River at abandoned county bridge above Aubrey, Tex.	Lat 33°19'58", long 97°01'49", Denton County, on downstream side of right concrete pier of abandoned county bridge, 1.3 mi upstream from Bray Branch, 2.0 mi downstream from Isle du Boise Creek, and 3.2 mi northwest of Aubrey.	-	1981-83	-	(b)	-
08051190	Elm Fork Trinity River above Aubrey, Tex.	Lat 33°19'12", long 97°01'34", Denton County, attached to trees on left bank, 0.1 mi downstream from Bray Branch, 1.4 mi downstream from abandoned county road bridge, 1.6 mi upstream from bridge on Farm Road 428, and 2.6 mi northwest of Aubrey.	-	1981-83	6-28-83	532.39	-

† Operated as a continuous-record station.

a No peak above index elevation of 552.91 ft.

b No peak above index elevation of 534.02 ft was recorded when gage was not vandalized, and peaks from high-water marks could not be determined.



## 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 1983						
Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
Neches River basin						
Willow Creek	Pine Island Bayou	Lat 30°02'06", long 94°33'11", Liberty County, at wooden bridge on private road, 1.8 mi upstream from Bull Tongue Creek, and 2.8 mi east of intersection of U.S. Highway 90 and State Highway 61 in Devers.	-	-	8-11-83	91
Cedar Bayou basin						
Cedar Bayou	Gulf of Mexico	Lat 30°02'10", long 95°03'15", Harris County, at bridge on Farm Road 1960, 2.3 mi east of intersection of Farm Roads 1960 and 2100 at Huffman, and 4.2 mi downstream from East Fork Cedar Bayou.	-	1947	8-19-83	991



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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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