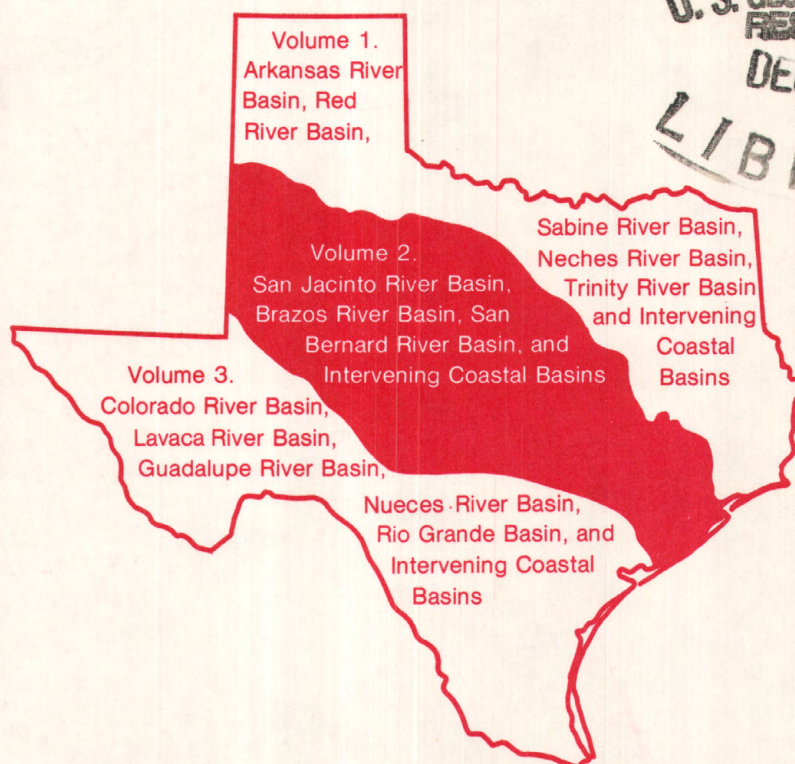




# Water Resources Data Texas

## Water Year 1982

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-82-2  
Prepared in cooperation with the State of Texas  
and with other agencies



# CALENDAR FOR WATER YEAR 1982

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1981

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## OCTOBER

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1982

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## JANUARY

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## SEPTEMBER

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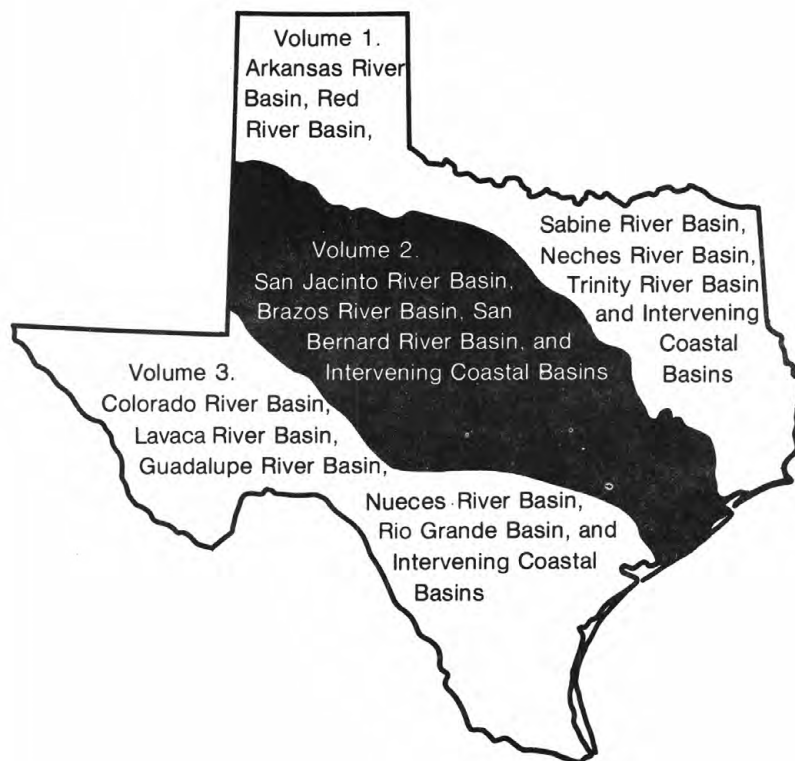




# Water Resources Data Texas Water Year 1982

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

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



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TX-82-2  
Prepared in cooperation with the State of Texas  
and with other agencies



UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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



## 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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		14.			
15. Supplementary Notes Prepared in cooperation with the State of Texas and with other agencies.					
16. Abstract (Limit: 200 words)  Surface-water data for the 1982 water year for Texas are presented in three volumes, appropriately identified as to content by river basins. Data in each volume consist of records of stage, discharge, and water quality of streams and canals; and stage, contents, and water quality of lakes and reservoirs. Also included are crest-stage and flood-hydrograph partial-record stations, reconnaissance partial-record stations, and low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements. Records for a few pertinent stations in bordering States also are included. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Texas.					
17. Document Analysis a. Descriptors  *Texas, *Hydrologic data, *Surface water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water analyses  b. Identifiers/Open-Ended Terms          c. COSATI Field/Group					
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# WATER RESOURCES DATA, TEXAS, WATER YEAR 1982

## VOLUME 2

### SAN JACINTO RIVER BASIN, BRAZOS RIVER BASIN, SAN BERNARD RIVER BASIN, AND INTERVENING COASTAL BASINS

#### INTRODUCTION

Surface-water data for Texas for the 1982 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-82-2." 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; 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; Velasco Drainage District; 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 generally is perennial. Normal annual rainfall exceeds 50 inches, and the annual runoff may average as much as 15 inches. In the western part of the State, streams generally flow through arroyos, and streamflow principally is highly ephemeral. Normal annual rainfall is less than 8 inches, and annual runoff averages less than 0.1 inch in many areas.

During the 1982 water year, runoff for all four index stations in the State was in the normal range. Monthly mean discharges for the 1982 water year at the index stations are plotted against the long-term monthly mean in figure 1. Conservation storage in a selected group of 70 reservoirs throughout the State, with a combined conservation capacity of 31,609,420 acre-feet, increased from 82 percent at the end of September 1981 to 84 percent at the end of September 1982. Records from the 70 reservoirs show that contents increased in 35, decreased in 32, and remained the same in 3.

At the beginning of the 1982 water year, streamflow was in the deficient range in the upper Brazos and Red River basins, excessive (within the highest 25 percent of record) in the Guadalupe and lower parts of the Nueces River basins in South Central Texas and about normal in the remainder of the State. In early October 1981, the remnants of a Pacific Ocean Hurricane crossed Mexico and brought heavy rains and widespread flooding to much of North Central Texas. Peak discharges for October 1981 are contrasted in table 1 with those for the period of record for selected streamflow stations in the Red, Trinity, and Brazos River basins.

A detailed study of the October 1981 flood is presented in a special flood report, "Floods in South-Central Oklahoma and North-Central Texas, October 1981", U.S. Geological Survey Open-File Report 83, now in preparation.

Following the October floods, runoff remained excessive through November in North Central Texas, while normal conditions existed in the remainder of the State. Rainfall was deficient in most parts of the State, from November 1981 through April 1982. Runoff, however, remained in the normal range for most of the State during this period.

Widespread rainfall during the last half of May produced excessive runoff in North-Central and Northeastern Texas, resulting in increased index reservoir storage in those areas. The excessive runoff conditions in North-Central Texas continued through July while the remainder of the State experienced near-normal conditions. Rainfall was very light in August and September over all of the State. The 1982 water year ended with near-normal runoff occurring over all the State except the southeast quadrant, where runoff was deficient.



Table 1.--Comparison of peak discharges for the 1982 water year with those for period of record for selected stations in the Red, Trinity, and Brazos River basins

Station identification		Peak discharge, period of record		Peak discharge, October 1981	
		Ft <sup>3</sup> /s	Date	Ft <sup>3</sup> /s	Date
<u>Red River basin</u>					
07315200	East Fork Little Wichita River near Henrietta	15,500	5-12-72	32,500	10-13-81
07316000	Red River near Gainesville	168,000	6- 9-41	103,000	10-14-81
<u>Trinity River basin</u>					
08042800	West Fork Trinity River near Jacksboro	35,100	4-27-57	27,000	10-13-81
08044000	Big Sandy Creek near Bridgeport	53,000	6-10-41	45,000	10-13-81
08044500	West Fork Trinity River near Boyd	27,300	10- 5-59	60,400	10-14-81
08048000	West Fork Trinity River at Fort Worth	85,000	4-25-22	24,800	10-13-81
08048543	West Fork Trinity River at Beach Street, Fort Worth	18,800	3-27-77	26,400	10-13-81
08049500	West Fork Trinity River at Grand Prairie	62,000	5-17-49	20,300	10-17-81
08050500	Elm Fork Trinity River near Sanger	50,000	10-31-74	150,000	10-13-81
08051000	Isle du Bois Creek near Pilot Point	40,000	10-31-74	25,100	10-16-81
08051500	Clear Creek near Sanger	18,200	9-13-50	104,000	10-13-81
08052700	Little Elm Creek near Aubrey	7,920	10-31-74	9,100	10-13-81
08053500	Denton Creek near Justin	29,800	5-24-57	35,000	10-13-81
<u>Brazos River basin</u>					
08083430	Elm Creek near Abilene	1,920	7- 5-81	5,020	10-13-81
08083470	Cedar Creek near Abilene	4,670	9-18-74	18,500	10-13-81
08086290	Big Sandy Creek above Breckenridge	8,170	5-13-65	80,000	10-13-81
08088450	Big Cedar Creek near Ivan	9,590	7- 8-68	34,700	10-13-81
08089000	Brazos River near Palo Pinto	95,600	6-16-30	68,600	10-13-81
08090800	Brazos River near Dennis	59,300	8-10-78	96,600	10-14-81
08091000	Brazos River near Glen Rose	97,600	5-18-35	86,400	10-15-81

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

Picocurie (PC, pCi) is one 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°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 indentation in a list of stations in the front of the report. Each indentation represents one rank. This downstream order and system of indentation 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 9.



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

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

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. Greenson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 p.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 p.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 p.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 p.

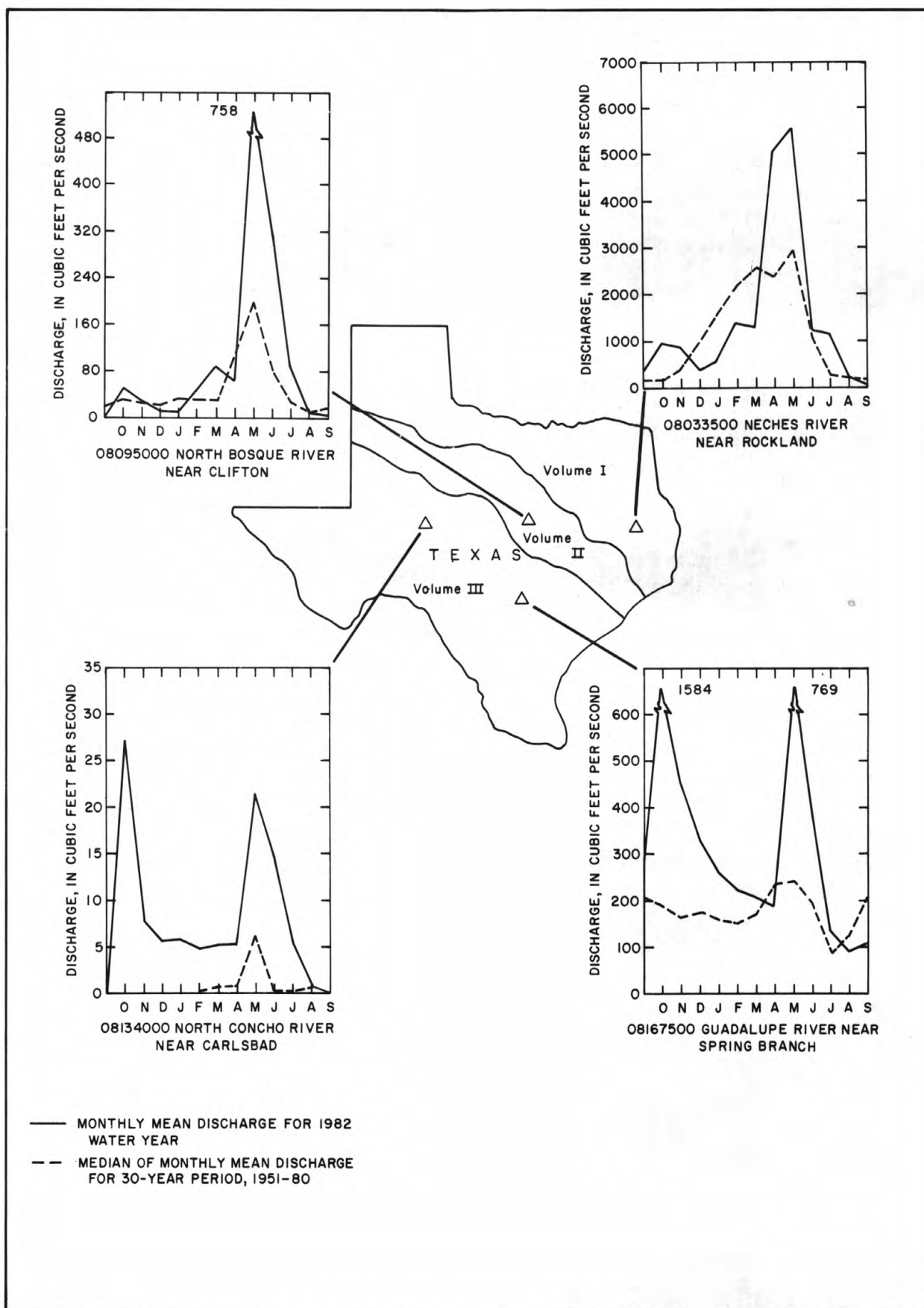


FIGURE 1.--COMPARISON OF MONTHLY MEAN DISCHARGE AT FOUR LONG-TERM REPRESENTATIVE GAGING STATIONS DURING THE 1982 WATER YEAR WITH MEDIAN OF THE MONTHLY MEAN DISCHARGE FOR THE PERIOD 1951-80



## WESTERN GULF OF MEXICO BASINS

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## SAN JACINTO RIVER BASIN

08067600 LAKE CONROE NEAR CONROE, TX

LOCATION.--Lat 30°21'30", long 95°33'39", Montgomery County, Hydrologic Unit 12040101, at service outlet tower at Conroe Dam on West Fork San Jacinto River, 140 ft (43 m) upstream from centerline of dam, and 7.4 mi (11.9 km) west of Conroe.

DRAINAGE AREA.--445 mi<sup>2</sup> (1,153 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to current year.

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

REMARKS.--The lake is formed by an earthfill dam 11,300 ft (3,440 m) long, including a controlled spillway. The dam was completed Sept. 1, 1972, and deliberate impoundment began Jan. 9, 1973. Water is used for municipal and industrial purposes in the Houston metropolitan area. In addition, a small diversion is used for cooling purposes at the Gulf State Utilities generating plant on Lewis Creek Reservoir near Conroe. During the current year, 4,062 acre-ft (5.01 hm<sup>3</sup>) was diverted to Lewis Creek Reservoir for that purpose. A spillway with five 40- by 30-foot (12 by 9 m) tainter gates is located near the center of dam. Low-flow releases are made through a separate multi-gated inlet tower. The tower has three gated openings and one uncontrolled opening. It is connected to a stilling basin and a concrete weir by a 14-foot-diameter (4 m) conduit through the dam. 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.....	212.0	-
Design flood.....	205.5	532,000
Top of tainter gates.....	202.5	462,600
Top of conservation pool (uncontrolled tower outlet).....	201.0	430,300
Normal operating level.....	200.4	417,900
Crest of spillway (sill of tainter gates).....	173.0	64,960
Lowest gated outlet (invert).....	144.5	300

COOPERATION.--The capacity table, furnished by the San Jacinto River Authority, is based on Geological Survey maps dated 1958-59.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 476,600 acre-ft (588 hm<sup>3</sup>) Apr. 21, 1979, elevation, 203.13 ft (61.914 m); minimum since normal operating level was reached, 360,400 acre-ft (444 hm<sup>3</sup>) Nov. 22, 1980, elevation, 197.46 ft (60.186 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 462,000 acre-ft (570 hm<sup>3</sup>) May 15 at 1400 hours, elevation, 202.47 ft (61.713 m); minimum, 397,300 acre-ft (490 hm<sup>3</sup>) Sept. 30, elevation, 199.38 ft (60.771 m).

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

199.0	389,710	202.0	451,600
200.0	409,600	203.0	473,700
201.0	430,300		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	426500	438400	431500	429400	431300	430700	435400	436900	430100	427000	417300	410100
2	426100	441800	430700	430300	431800	430300	434500	435000	429200	427000	416900	409800
3	425300	442200	431500	431300	431500	430300	433300	433300	429000	426500	416200	410700
4	425100	441400	430700	430300	430500	431300	431500	431800	429200	426300	416000	410100
5	426500	439700	429600	430100	431300	431800	431100	430300	428800	426100	415800	409400
6	428200	438200	430300	430300	431300	431500	430900	432200	427800	425700	415200	409000
7	429600	436200	430700	430900	430100	431100	430100	431100	427600	425500	414800	408600
8	429000	440700	430900	429600	429400	430500	430900	430700	427200	425300	417300	408000
9	429000	442200	430900	429400	430300	430900	431300	430100	427200	424500	417100	407200
10	429000	440900	430700	430700	429600	430900	431300	429800	427000	424100	416900	406900
11	428800	440100	430900	427600	429600	430900	430300	429400	426800	423900	416700	405700
12	428400	438400	431100	430500	430700	431100	430100	429600	426800	424300	416200	406100
13	428600	436200	430900	430900	429600	431100	430500	449500	426300	424100	415800	406100
14	435400	434500	430900	429800	429400	431300	430700	461100	425300	423500	415600	405900
15	436700	433500	430300	430100	429600	431300	430300	461500	424900	423000	415200	406100
16	438200	432600	429800	430700	430100	431500	430900	459100	425700	422600	414800	405700
17	437700	431800	431300	429400	430300	431300	431300	456500	425500	422200	414400	405100
18	436700	430900	430100	429600	430300	430300	430900	453400	424900	422000	415800	404300
19	434300	431300	429200	429800	430100	430500	430900	449300	424700	421200	415400	406300
20	432400	430300	429200	430100	430500	430700	437100	445200	424100	421400	415000	406100
21	431300	429400	429000	430100	430500	431500	448000	441400	423700	421600	414800	405100
22	430500	429200	431800	430900	430300	431300	456900	439000	424100	421400	414400	403900
23	429200	429600	430100	431100	430300	433500	457600	436200	423900	421200	413800	403100
24	428200	429400	429600	430500	430300	433700	458400	434500	424100	421000	412900	402500
25	428200	429000	429000	431300	431800	434300	458000	432600	423500	420200	412300	401900
26	428000	430300	429200	430700	432400	433000	455400	431500	424500	420000	412100	400700
27	427600	429600	429000	430300	431300	436200	451200	430700	424100	419300	411500	399500
28	427400	429400	429600	430300	430900	435600	446900	430300	426100	419100	411700	398700
29	427200	431300	429200	430900	---	433700	443100	430300	426100	418500	411300	398100
30	427200	432000	429400	432600	---	433900	439400	429800	427000	418300	410700	397300
31	432200	---	429800	432400	---	435200	---	431100	---	417700	410500	---
MAX	438200	442200	431800	432600	432400	436200	458400	461500	430100	427000	417300	410700
MIN	425100	429000	429000	427600	429400	430300	430100	429400	423500	417700	410500	397300
(†)	201.09	201.08	200.98	201.10	201.03	201.23	201.43	201.04	200.84	200.39	200.04	199.38
(‡)	+5400	-200	-2200	+2600	-1500	+4300	+4200	-8300	-4100	-9300	-7200	-13200

CAL YR 1981 MAX 442200 MIN 362100 ‡ +67000  
WTR YR 1982 MAX 461500 MIN 397300 ‡ -29500

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## SAN JACINTO RIVER BASIN

08067600 LAKE CONROE NEAR CONROE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1973 to current year.

302127095335501 LAKE CONROE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

							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 (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)			
MAR										
03...	0920	1.00	182	7.8	12.5	1.19	10.7	101		
03...	0922	10.0	182	7.7	12.0	--	10.4	97		
03...	0924	20.0	182	7.5	11.5	--	10.4	96		
03...	0926	30.0	182	7.5	11.5	--	10.5	97		
03...	0928	40.0	182	7.4	11.0	--	10.5	96		
03...	0930	53.0	184	7.4	11.0	--	10.5	96		
JUN										
03...	0840	1.00	183	7.6	26.5	1.22	6.0	75		
03...	0842	10.0	183	7.2	26.0	--	4.9	61		
03...	0844	20.0	186	6.7	24.0	--	1.1	13		
03...	0846	30.0	191	6.7	21.0	--	.3	3		
03...	0848	40.0	191	6.8	20.0	--	.5	6		
03...	0850	53.0	244	7.3	17.0	--	.0	0		
SEP										
02...	0848	1.00	190	7.1	29.0	1.36	4.2	55		
02...	0850	10.0	190	7.0	29.0	--	3.5	46		
02...	0852	20.0	190	6.8	29.0	--	2.3	30		
02...	0854	30.0	210	6.6	25.0	--	.0	0		
02...	0856	40.0	210	6.6	20.5	--	.0	0		
02...	0858	54.0	318	6.5	18.5	--	.0	0		
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)
MAR										
03...	7	23	2.3	12	.7	2.5	60	<5.0	23	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	9	24	2.5	14	.7	2.7	61	<5.0	29	--
JUN										
03...	4	21	2.1	13	.7	2.6	57	6.0	19	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	3	30	2.5	13	.6	2.9	82	<5.0	19	--
SEP										
02...	7	22	2.1	13	.7	3.1	57	6.0	21	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	0	34	3.0	13	.6	3.3	140	7.0	21	--

SAN JACINTO RIVER BASIN  
LAKE CONROE NEAR CONROE, TX--Continued

302127095335501 LAKE CONROE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAR									
03...	.2	.8	99	<.09	.67	--	.010	7	<1
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.09	.71	--	.010	50	10
03...	--	--	--	--	--	--	--	--	--
03...	--	1.1	109	.09	1.00	1.1	.040	20	10
JUN									
03...	.2	2.2	100	<.10	.60	--	<.010	<3	4
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	.60	--	<.010	10	30
03...	--	--	--	<.10	.70	--	<.010	10	40
03...	--	--	--	--	--	--	--	--	--
03...	--	7.5	129	<.10	2.00	--	.140	1300	6400
SEP									
02...	.1	2.4	104	<.10	1.10	--	.040	6	13
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	<.10	1.40	--	.040	40	30
02...	--	--	--	<.10	1.30	--	.040	970	3200
02...	--	--	--	--	--	--	--	--	--
02...	--	15	196	<.10	9.00	--	.930	8300	6900

302132095333701 LAKE CONROE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR								
03...	0946	1.00	182	7.8	12.5	1.18	10.6	100
03...	0948	10.0	182	7.7	12.5	--	10.5	99
03...	0950	20.0	182	7.5	12.0	--	10.3	96
03...	0952	30.0	182	7.4	11.5	--	10.3	95
03...	0954	40.0	182	7.4	11.0	--	10.5	96
03...	0956	55.0	184	7.4	10.5	--	10.7	97
JUN								
03...	0910	1.00	185	7.6	27.0	1.22	6.2	79
03...	0913	10.0	185	7.1	26.0	--	4.6	57
03...	0916	20.0	187	6.7	24.0	--	1.0	12
03...	0919	30.0	191	6.7	21.0	--	.3	3
03...	0922	40.0	191	6.9	20.0	--	.3	3
03...	0925	56.0	229	7.3	17.0	--	.0	0
SEP								
02...	0924	1.00	190	7.1	29.5	1.35	4.1	54
02...	0926	10.0	200	6.9	29.0	--	3.2	42
02...	0928	20.0	200	6.8	28.5	--	1.6	21
02...	0930	30.0	219	6.6	26.0	--	.0	0
02...	0932	40.0	219	6.7	20.5	--	.0	0
02...	0934	55.0	300	6.7	19.0	--	.0	0

SAN JACINTO RIVER BASIN  
LAKE CONROE NEAR CONROE, TX--Continued

302245095365301 LAKE CONROE SITE BC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR								
03...	0900	1.00	184	7.9	12.5	1.50	10.9	103
03...	0902	10.0	184	7.8	12.5	--	10.6	100
03...	0904	20.0	184	7.4	11.5	--	10.2	94
03...	0906	29.0	187	7.4	11.5	--	9.9	91
JUN								
03...	0819	1.00	174	8.4	27.5	1.36	7.9	101
03...	0821	10.0	166	8.4	27.0	--	6.9	87
03...	0823	20.0	190	6.5	24.5	--	.0	0
03...	0825	27.0	190	6.5	22.0	--	.0	0
SEP								
02...	0828	1.00	185	7.4	29.5	1.39	5.0	66
02...	0830	10.0	185	7.1	29.5	--	4.3	57
02...	0832	20.0	196	6.5	29.0	--	.1	1
02...	0834	27.0	270	6.4	28.0	--	.0	0

302323095341201 LAKE CONROE SITE CC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR								
03...	1016	1.00	182	7.8	12.5	1.17	10.9	103
03...	1018	10.0	182	7.8	12.0	--	10.9	102
03...	1020	20.0	182	7.7	12.0	--	10.7	100
03...	1022	30.0	182	7.7	12.0	--	10.3	96
03...	1024	40.0	182	7.3	11.0	--	10.3	94
03...	1026	50.0	184	7.4	11.0	--	10.5	96
JUN								
03...	0955	1.00	185	8.1	27.5	1.13	7.1	91
03...	0957	10.0	185	7.6	26.5	--	6.2	78
03...	0959	20.0	185	7.0	26.0	--	4.5	56
03...	1001	30.0	190	6.7	21.5	--	.2	2
03...	1003	40.0	200	6.9	20.0	--	.0	0
03...	1005	49.0	208	7.1	19.5	--	.2	2
SEP								
02...	1020	1.00	190	7.7	30.0	1.24	6.6	88
02...	1022	10.0	190	7.3	29.5	--	5.1	67
02...	1024	20.0	190	7.2	29.5	--	4.3	57
02...	1026	30.0	221	6.7	25.5	--	.0	0
02...	1028	40.0	221	6.7	21.5	--	.0	0
02...	1030	55.0	234	6.8	20.5	--	.0	0



## SAN JACINTO RIVER BASIN

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## LAKE CONROE NEAR CONROE, TX--Continued

302320095334001 LAKE CONROE SITE CL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR								
03...	1000	1.00	182	7.8	12.5	1.04	10.8	102
03...	1002	10.0	182	7.8	12.5	--	10.7	101
03...	1004	20.0	182	7.7	12.0	--	10.3	96
03...	1006	30.0	182	7.4	11.5	--	9.9	91
03...	1008	40.0	182	7.3	11.0	--	9.8	90
03...	1010	50.0	184	7.3	11.0	--	9.9	90
JUN								
03...	0941	1.00	185	8.0	27.5	1.22	6.5	83
03...	0943	10.0	185	7.6	26.5	--	5.5	69
03...	0945	20.0	185	6.9	25.5	--	2.8	35
03...	0947	30.0	190	6.7	21.5	--	.2	2
03...	0949	40.0	200	6.9	20.0	--	.0	0
03...	0951	49.0	204	7.0	19.5	--	.3	3
SEP								
02...	1000	1.00	190	7.7	30.0	1.32	5.8	77
02...	1002	10.0	190	7.3	29.5	--	4.9	64
02...	1004	20.0	190	6.8	29.0	--	2.8	37
02...	1006	30.0	220	6.7	26.0	--	.0	0
02...	1008	40.0	220	6.7	21.5	--	.0	0
02...	1010	50.0	239	6.7	20.5	--	.0	0

302448095374101 LAKE CONROE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR								
03...	1040	1.00	186	8.1	13.0	1.78	10.2	98
03...	1042	10.0	186	7.5	12.0	--	9.8	92
03...	1044	20.0	182	7.3	11.5	--	9.9	92
03...	1046	27.0	182	7.4	11.5	--	10.1	93
JUN								
03...	1026	1.00	173	8.6	28.5	1.47	7.1	92
03...	1028	15.0	186	7.2	26.5	--	4.1	51
03...	1030	24.0	198	6.6	25.0	--	.0	0
SEP								
02...	1047	1.00	189	7.8	30.5	1.23	6.1	82
02...	1049	10.0	189	7.2	30.0	--	4.8	64
02...	1051	20.0	189	7.0	30.0	--	4.6	61
02...	1053	24.0	213	6.5	29.5	--	.0	0

302607095360901 LAKE CONROE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR								
03...	1100	1.00	182	7.8	12.5	1.00	10.7	101
03...	1102	10.0	182	7.7	12.0	--	10.5	98
03...	1104	20.0	182	7.5	12.0	--	10.2	95
03...	1106	35.0	182	7.3	11.5	--	10.4	96
JUN								
03...	1044	1.00	186	8.2	28.0	.92	6.9	89
03...	1046	10.0	185	8.0	27.5	--	6.3	81
03...	1048	20.0	185	7.5	27.0	--	4.7	60
03...	1050	35.0	194	6.9	22.0	--	.1	1
SEP								
02...	1104	1.00	188	7.8	31.0	1.22	6.5	88
02...	1106	10.0	188	7.7	30.5	--	6.4	86
02...	1108	20.0	188	7.3	30.0	--	5.8	77
02...	1110	34.0	249	6.8	23.5	--	.0	0

## SAN JACINTO RIVER BASIN

LAKE CONROE NEAR CONROE, TX--Continued

302607095360901 LAKE CONROE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	AIKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
MAR									
03...	67	8	23	2.3	13	.7	2.6	59	<5.0
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	67	8	23	2.2	12	.7	2.5	59	<5.0
JUN									
03...	63	7	22	2.0	12	.7	2.7	56	6.0
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	67	6	23	2.2	13	.7	2.6	61	5.0
SEP									
02...	64	7	22	2.3	13	.7	2.9	57	6.0
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	83	0	29	2.6	13	.6	2.7	97	10

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR								
03...	27	.6	103	<.09	.80	.010	7	<1
03...	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--
03...	22	1.1	98	<.09	.87	.010	12	7
JUN								
03...	18	2.3	99	<.10	1.10	<.010	6	3
03...	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	.90	.040	30	30
03...	18	3.2	104	<.10	1.60	.030	93	700
SEP								
02...	20	2.5	103	<.10	1.10	.040	4	5
02...	--	--	--	--	--	--	--	--
02...	--	--	--	<.10	1.30	.050	20	40
02...	22	7.6	154	<.10	2.90	.330	5400	3800

302714095372201 LAKE CONROE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED CENT SATUR- ATION)
MAR								
03...	1120	1.00	182	7.9	13.0	1.34	10.5	100
03...	1122	10.0	182	7.6	12.5	--	9.9	94
03...	1124	23.0	182	7.1	11.5	--	10.1	93
JUN								
03...	1106	1.00	178	8.7	29.0	1.32	7.5	98
03...	1108	10.0	178	8.3	28.0	--	5.4	70
03...	1110	24.0	172	6.4	22.0	--	.1	1
SEP								
02...	1126	1.00	190	7.9	31.5	1.27	6.3	86
02...	1128	10.0	190	7.9	31.0	--	6.3	85
02...	1130	22.0	198	6.4	28.5	--	.0	0

## SAN JACINTO RIVER BASIN

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LAKE CONROE NEAR CONROE, TX--Continued

303129095360501 LAKE CONROE SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
MAR									
03...	1200	1.00	235	7.7	14.0	.82	10.3		101
03...	1202	10.0	285	7.9	13.5	--	10.2		99
03...	1204	20.0	325	7.4	13.0	--	9.8		94
03...	1206	31.0	333	7.3	12.5	--	10.0		95
JUN									
03...	1142	1.00	167	8.2	26.5	.45	5.7		75
03...	1144	10.0	158	6.4	27.0	--	1.2		15
03...	1146	20.0	160	6.1	25.0	--	.0		0
03...	1148	33.0	163	6.2	24.5	--	.0		0
SEP									
02...	1154	1.00	191	7.7	31.5	.87	6.6		90
02...	1156	10.0	191	6.7	30.5	--	4.0		54
02...	1158	20.0	191	6.4	30.0	--	.0		0
02...	1200	33.0	196	6.4	30.0	--	.0		0

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	AIKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
MAR									
03...	80	14	28	2.4	18	.9	3.7	66	<5.0
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	100	28	35	3.3	25	1.1	5.9	73	5.0
JUN									
03...	55	7	19	1.9	11	.7	2.8	48	6.0
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	52	0	18	1.8	8.4	.5	4.0	54	5.0
SEP									
02...	64	8	22	2.2	14	.8	2.5	56	6.0
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	63	4	22	2.0	14	.8	1.2	59	7.0

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)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR								
03...	34	.6	124	<.09	.84	.020	17	<1
03...	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--
03...	58	4.0	180	<.09	.76	.040	26	16
JUN								
03...	16	3.6	89	<.10	.90	.050	26	15
03...	--	--	--	<.10	1.10	.110	180	350
03...	--	--	--	--	--	--	--	--
03...	12	11	95	<.10	.30	.770	1900	840
SEP								
02...	21	3.8	105	<.10	1.30	.070	4	2
02...	--	--	--	<.10	1.10	.050	10	10
02...	--	--	--	--	--	--	--	--
02...	21	5.9	110	<.10	1.70	.180	820	310

## SAN JACINTO RIVER BASIN

## 08067610 LAKE CONROE AT OUTFLOW WEIR NEAR CONROE, TX

LOCATION.--Lat 30°21'23", long 95°33'37", Montgomery County, Hydrologic Unit 12040101, on left side of stilling basin of outflow weir, 620 ft (190 m) downstream from centerline of dam on West Fork San Jacinto River, 770 ft (235 m) downstream from service outlet tower, 3.0 mi (4.8 km) upstream from State Highway 105, and 7.4 mi (11.9 km) west of Conroe.

DRAINAGE AREA.--445 mi<sup>2</sup> (1,153 km<sup>2</sup>).

PERIOD OF RECORD.--April 1973 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 138.48 ft (42.209 m) National Geodetic Vertical Datum of 1929 (levels by San Jacinto River Authority).

REMARKS.--Records good. Discharge represents controlled outflow from service tower and does not constitute the total outflow from Lake Conroe. Uncontrolled low flows through weir published at West Fork San Jacinto River below Lake Conroe (station 08067650).

AVERAGE DISCHARGE.--9 years, 13.1 ft<sup>3</sup>/s (0.371 m<sup>3</sup>/s), 9,490 acre-ft/yr (11.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 339 ft<sup>3</sup>/s (9.60 m<sup>3</sup>/s) Feb. 19-25, 1974; no controlled releases for many days.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 266 ft<sup>3</sup>/s (7.53 m<sup>3</sup>/s) Sept. 30; maximum gage height, 9.65 ft (2.941 m) May 15 at 0900 hours (result of backwater from taintor gate releases); no controlled releases for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	48
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	84
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	91
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	116
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	115
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	116
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	116
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	116
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	115
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	115
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	136
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	150
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	150
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	150
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	152
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	200
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	226
30	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	266
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2462.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	82.1
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	266
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4880
CAL YR 1981	TOTAL	0.00	MEAN	.000	MAX	.00	MIN	.00	AC-FT	.00		
WTR YR 1982	TOTAL	2462.00	MEAN	6.75	MAX	266	MIN	.00	AC-FT	4880		



## SAN JACINTO RIVER BASIN

35

08067650 WEST FORK SAN JACINTO RIVER BELOW LAKE CONROE NEAR CONROE, TX

LOCATION.--Lat 30°20'31", long 95°32'34", Montgomery County, Hydrologic Unit 12040101, on right bank at downstream side of bridge on State Highway 105, 3.0 mi (4.8 km) downstream from Lake Conroe Dam, and 5.9 mi (9.5 km) west of Conroe.

DRAINAGE AREA.--451 mi<sup>2</sup> (1,168 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1972 to current year (discharge for periods of outflow from Lake Conroe only).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 116.06 ft (35.375 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records poor. Discharge is outflow from Lake Conroe. Floodflows may include local runoff. Discharge estimated during periods of backwater.

AVERAGE DISCHARGE.--10 years (water years 1973-82), 235 ft<sup>3</sup>/s (6.655 m<sup>3</sup>/s), 170,300 acre-ft/yr (210 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge estimated, 6,000 ft<sup>3</sup>/s (170 m<sup>3</sup>/s) Apr. 21, 1979, gage height, 33.22 ft (10.126 m); maximum gage height, 33.49 ft (10.208 m) Apr. 18, 1979 (backwater from local runoff); no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1940 reached a stage of 41.94 ft (12.783 m), from information by the State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,760 ft<sup>3</sup>/s (78.2 m<sup>3</sup>/s) May 15 at 0900 hours, gage height, 29.08 ft (8.864 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.92	604	196	.92	203	101	578	1470	3.3	2.0	.00	.00
2	.92	579	184	.92	202	6.8	907	1000	2.5	1.6	.00	.00
3	.92	828	89	1.6	211	1.6	839	800	2.5	1.3	.00	.00
4	.92	837	2.5	1.6	199	2.0	590	501	2.5	1.3	.00	.00
5	1.3	864	1.3	1.3	209	2.9	378	222	2.0	1.3	.00	.00
6	1.6	867	1.3	1.3	123	2.9	28	17	1.6	1.3	.00	.00
7	1.6	865	1.3	2.5	11	2.5	1.6	3.3	1.3	1.3	.00	.00
8	1.6	902	1.6	1.6	2.0	1.3	2.0	2.9	1.3	1.3	.00	.00
9	1.6	1160	1.6	.92	2.9	1.6	24	2.9	1.3	.92	.00	.00
10	1.6	1140	2.0	2.0	1.6	1.6	180	2.9	1.3	.92	.00	.00
11	2.0	1100	2.0	1.3	1.6	2.0	94	2.9	1.3	.92	.00	.00
12	2.0	1100	2.0	2.0	2.5	2.0	2.0	2.0	.92	.60	.00	.00
13	2.0	1100	2.0	3.3	2.0	2.0	2.0	735	.92	.32	.00	22
14	103	848	2.5	2.5	1.6	2.5	2.0	1900	.92	.32	.00	84
15	733	608	1.6	2.5	1.6	2.0	1.6	2600	.92	.32	.00	87
16	1000	608	1.3	3.3	1.6	21	2.0	2310	.92	.60	.00	116
17	1150	455	2.5	2.5	1.6	194	2.9	2250	.60	.60	.00	118
18	1170	254	1.6	2.5	1.6	193	2.5	2220	.60	.60	.00	118
19	1020	168	.92	2.5	2.0	23	2.5	2200	.60	.32	.00	120
20	879	35	.60	2.5	2.0	4.3	268	2180	.60	.00	.00	120
21	648	11	.92	2.5	2.0	2.5	1480	2100	.32	.00	.00	116
22	442	1.3	1.3	2.5	2.0	2.5	2390	1750	.92	.00	.00	115
23	292	1.3	1.6	3.3	2.0	3.3	2260	1400	.92	.00	.00	127
24	22	1.3	1.3	2.9	2.0	91	2260	1400	1.3	.00	.00	149
25	.92	1.3	.92	2.9	2.5	182	2250	800	1.3	.00	.00	150
26	1.3	1.3	.92	2.9	131	183	2210	500	1.6	.00	.00	148
27	.60	1.3	.60	2.5	210	331	2170	300	.92	.00	.00	149
28	.60	1.3	1.3	2.5	195	733	2140	150	1.3	.00	.00	188
29	.60	100	1.3	2.9	---	828	2130	30	1.6	.00	.00	227
30	.60	216	.60	52	---	820	1980	3.3	2.0	.00	.00	253
31	79	---	.92	233	---	817	---	3.3	---	.00	.00	---
TOTAL	7561.60	15258.1	509.30	349.46	1729.1	4563.3	25177.1	28858.5	40.08	17.84	.00	2407.00
MEAN	244	509	16.4	11.3	61.8	147	839	931	1.34	.58	.000	80.2
MAX	1170	1160	196	233	211	828	2390	2600	3.3	2.0	.00	253
MIN	.60	1.3	.60	.92	1.6	1.3	1.6	2.0	.32	.00	.00	.00
AC-FT	15000	30260	1010	693	3430	9050	49940	57240	79	35	.00	4770
CAL YR 1981	TOTAL	36275.03	MEAN	99.4	MAX	1170	MIN	.00	AC-FT	71950		
WTR YR 1982	TOTAL	86471.38	MEAN	237	MAX	2600	MIN	.00	AC-FT	171500		

## SAN JACINTO RIVER BASIN

08067650 WEST FORK SAN JACINTO RIVER BELOW LAKE CONROE NEAR CONROE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1972 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 10...	1000	1150	195	8.1	18.5	10	2.0	9.2	97	1.0	63
JAN 04...	1015	--	330	7.0	14.0	10	6.0	10.6	101	.7	110
MAR 25...	1010	180	195	7.5	16.5	10	5.4	10.2	103	1.3	72
MAY 10...	1405	--	340	6.8	21.5	10	3.2	7.8	89	1.7	120

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	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)
NOV 10...	0	22	2.0	12	.7	2.3	66	5.0	19	.2	3.9
JAN 04...	15	40	3.3	21	.9	2.3	98	6.0	42	.1	14
MAR 25...	12	25	2.2	13	.7	2.8	60	5.0	23	.2	1.0
MAY 10...	12	43	3.6	20	.8	2.2	110	6.0	31	.1	11

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDEED (MG/L)	SOLIDS, VOLATILE, TILE, SUS- PENDEED (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 10...	106	6	2	.09	.010	.10	.310	.42	.73	.020	6.4
JAN 04...	188	13	6	.09	.030	.12	.410	.89	1.30	.300	5.8
MAR 25...	108	12	8	--	<.020	<.10	.100	.40	.50	<.010	6.3
MAY 10...	183	<2	<2	--	<.020	<.10	.200	.60	.80	.050	4.5

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)
NOV 10...	1000	1	91	<1	<10	6	190
MAR 25...	1010	1	83	<1	<10	1	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)
NOV 10...	1	6	<.1	<1	<1	6
MAR 25...	7	4	1.4	<1	<1	5

SAN JACINTO RIVER BASIN

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08067650 WEST FORK SAN JACINTO RIVER BELOW LAKE CONROE NEAR CONROE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
JAN 04...	1015	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
JAN 04...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JAN 04...	.00	.00	.00	0	.00	.00	.00	.00	.01

## SAN JACINTO RIVER BASIN

08067900 LAKE CREEK NEAR CONROE, TX  
(Low-flow partial-record station)

LOCATION.--Lat 30°15'12", long 95°34'43", Montgomery County, Hydrologic Unit 12040101, at bridge on county road and 8.3 mi (13.4 km) southwest of Conroe.

DRAINAGE AREA.--291 mi<sup>2</sup> (754 km<sup>2</sup>).

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: October 1968 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 21...	1530	331	208	20.0	69	12	24	2.3	12
DEC 03...	1155	73	252	14.0	78	16	27	2.5	17
JAN 11...	1530	19	500	7.0	150	46	51	4.5	40
FEB 09...	1525	40	505	9.5	150	54	51	4.6	43
MAR 29...	1000	638	266	15.5	88	17	31	2.6	18
MAY 07...	1200	39	345	21.0	110	28	39	3.6	25
JUN 17...	1610	14	327	29.0	94	28	32	3.3	24
SEP 08...	1330	4.2	180	26.0	41	15	13	2.0	17

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 CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 21...	.6	4.5	57	9.0	24	.1	19	129
DEC 03...	.9	3.5	62	6.0	37	.1	15	145
JAN 11...	1.5	2.4	100	5.0	91	.1	20	264
FEB 09...	1.6	2.5	92	6.0	99	.1	17	279
MAR 29...	.8	4.0	71	6.0	33	<.1	11	148
MAY 07...	1.1	3.0	84	6.0	51	<.1	19	197
JUN 17...	1.1	2.5	66	9.0	52	.1	19	201
SEP 08...	1.2	2.1	26	6.0	37	<.1	18	111



## SAN JACINTO RIVER BASIN

39

08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX  
(National stream-quality accounting network)

LOCATION.--Lat 30°14'40", long 95°27'25", Montgomery County, Hydrologic Unit 12040101, near right bank at downstream side of pier of bridge on Interstate Highway 45 and U.S. Highway 75, 300 ft (91 m) upstream from Missouri Pacific Railroad Co. bridge, 3.5 mi (5.6 km) downstream from Lake Creek, 4.2 mi (6.8 km) south of Conroe, and at mile 79 (127 km).

DRAINAGE AREA.--828 mi<sup>2</sup> (2,145 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to September 1927, July 1939 to current year.

REVISED RECORDS.--WSP 1058: 1926. WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 95.03 ft (28.965 m) National Geodetic Vertical Datum of 1929. May 7, 1924, to Sept. 30, 1927, nonrecording gage at railroad bridge 285 ft (87 m) downstream at datum 30.10 ft (9.174 m) higher. July 13, 1939, to Sept. 30, 1963, water-stage recorder at datum 5.0 ft (1.52 m) higher.

REMARKS.--Water-discharge records fair except those for period on no gage-height record, which are poor. Regulated since Jan. 9, 1973, by Lake Conroe (station 08067600), capacity 532,000 acre-ft (656 hm<sup>3</sup>), 14.5 mi (23.3 km) upstream. No large diversions above station.

AVERAGE DISCHARGE.--36 years (water years 1925-27, 1940-72) prior to regulation by Lake Conroe, 477 ft<sup>3</sup>/s (13.51 m<sup>3</sup>/s), 345,600 acre-ft/yr (426 hm<sup>3</sup>/yr); 10 years (water years 1973-82) regulated, 569 ft<sup>3</sup>/s (16.11 m<sup>3</sup>/s), 412,200 acre-ft/yr (508 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 110,000 ft<sup>3</sup>/s (3,120 m<sup>3</sup>/s) Nov. 25, 1940, gage height, 30.85 ft (9.403 m), present datum, from rating curve extended above 43,000 ft<sup>3</sup>/s (1,220 m<sup>3</sup>/s) on basis of velocity-area studies; no flow June 14, 1956, and Sept. 19 to Oct. 1, 1965, result of temporary dams. Maximum stage since at least December 1913, that of Nov. 25, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached a stage of 30.2 ft (9.20 m), present site and datum, from information by Missouri Pacific Railroad Co., discharge 101,000 ft<sup>3</sup>/s (2,860 m<sup>3</sup>/s), from rating curve as explained above.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,690 ft<sup>3</sup>/s (274 m<sup>3</sup>/s) Apr. 24 at 1330 hours, gage height, 20.49 ft (6.245 m); minimum daily, 19 ft<sup>3</sup>/s (0.54 m<sup>3</sup>/s) for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	820	804	72	356	359	1140	1550	120	66	25	20
2	20	1800	502	71	312	186	1360	1100	110	49	24	19
3	19	4600	363	82	336	114	1420	797	95	44	21	20
4	20	3600	174	79	317	89	855	647	86	40	19	41
5	25	1900	133	74	291	76	640	332	82	39	19	29
6	93	1200	113	65	308	81	220	178	76	37	19	24
7	364	1000	139	67	131	97	117	115	71	36	19	21
8	213	980	134	96	99	71	95	98	66	34	26	21
9	207	1400	118	68	104	66	88	80	63	33	30	20
10	170	2100	105	58	110	64	317	70	60	32	26	20
11	180	2400	97	77	86	63	336	64	57	31	24	19
12	211	2300	92	92	79	61	162	65	56	30	23	20
13	205	1600	86	157	82	57	111	1850	54	29	23	20
14	205	1200	84	173	74	54	88	5690	51	35	22	60
15	1370	820	98	134	71	53	77	6180	49	29	21	101
16	1260	750	83	116	71	53	68	8550	49	41	20	114
17	1650	660	82	114	68	160	61	5620	50	39	19	139
18	2000	470	109	91	64	235	58	3640	49	35	19	139
19	1900	370	83	83	61	141	55	2470	49	32	52	140
20	1300	220	75	80	61	55	334	2280	43	30	35	157
21	1100	140	78	77	74	47	3200	2130	41	30	27	147
22	730	120	81	74	71	46	5710	1680	52	57	25	143
23	550	100	91	73	66	89	7780	1580	48	36	23	143
24	200	80	80	70	64	555	9600	1590	38	30	23	178
25	120	70	69	64	62	515	9100	1770	38	31	22	184
26	90	60	66	62	148	410	5400	1140	90	27	21	184
27	130	50	64	60	389	543	3660	564	78	26	21	184
28	100	50	63	58	352	1380	2920	370	58	24	21	191
29	80	250	61	64	---	1430	2320	244	86	22	20	264
30	80	600	60	97	---	1370	1990	167	73	23	20	273
31	90	---	69	472	---	1250	---	138	---	26	20	---
TOTAL	14703	31710	4256	3020	4307	9770	59282	52749	1938	1073	729	3035
MEAN	474	1057	137	97.4	154	315	1976	1702	64.6	34.6	23.5	101
MAX	2000	4600	804	472	389	1430	9600	8550	120	66	52	273
MIN	19	50	60	58	61	46	55	64	38	22	19	19
AC-FT	29160	62900	8440	5990	8540	19380	117600	104600	3840	2130	1450	6020

CAL YR 1981 TOTAL 127481 MEAN 349 MAX 12000 MIN 11 AC-FT 252900  
WTR YR 1982 TOTAL 186572 MEAN 511 MAX 9600 MIN 19 AC-FT 370100

NOTE.--No gage-height record Oct. 1 to Nov. 15.

## SAN JACINTO RIVER BASIN

08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1961 to current year. Pesticide analyses: October 1975 to September 1983 (discontinued). Sediment records: October 1966 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1961 to current year.

WATER TEMPERATURES: October 1961 to current year.

INSTRUMENTATION.--Beginning October 1980 specific conductance and 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, 763 micromhos Apr. 20, 1971; minimum daily, 52 micromhos May 12, 1972.

WATER TEMPERATURES: Maximum daily, 36.0°C Aug. 6, 1964, July 9, 1967; minimum daily, 0.0°C Dec. 22, 1963, Jan. 31, 1968.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 733 micromhos July 8; minimum daily, 63 micromhos May 13.

WATER TEMPERATURES: Maximum daily, 32.5°C Aug. 17; minimum daily, 1.5°C Mar. 8.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

								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)		
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)				
NOV 10...	1245	2090	180	7.8	16.5	80	64	8.6	87	2.9	500	
JAN 04...	1325	79	338	7.4	14.5	--	25	8.8	85	4.9	4100	
MAR 31...	1105	1240	230	7.4	16.0	40	35	10.2	103	2.2	280	
MAY 10...	1700	67	310	7.0	24.5	--	7.7	8.2	98	3.2	150	
JUN 24...	1100	42	--	--	27.0	--	--	--	--	--	--	
AUG 04...	1145	19	330	7.2	27.5	20	6.4	5.5	69	3.5	700	
SEP 02...	1625	19	310	7.8	30.0	5	2.4	9.7	129	3.3	48	
DATE	TIME	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)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV 10...	6100	60	11	21	1.9	9.5	.5	3.5	49	5.0	18	
JAN 04...	620	89	15	30	3.3	30	1.4	2.6	74	5.0	55	
MAR 31...	130	78	16	27	2.5	16	.8	3.4	62	6.0	33	
MAY 10...	650	89	15	30	3.3	22	1.1	2.7	74	7.0	41	
JUN 24...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 04...	250	74	0	24	3.3	34	1.8	3.7	74	12	48	
SEP 02...	100	63	0	20	3.2	36	2.1	3.9	74	10	48	

## SAN JACINTO RIVER BASIN

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08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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, 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 10...	.2	7.1	111	95	79	10	.040	--	.12	.210
JAN 04...	.1	19	205	189	--	--	--	--	.12	--
MAR 31...	<.1	5.6	148	131	75	16	--	<.10	<.10	--
MAY 10...	.2	19	183	170	--	--	--	--	.14	--
JUN 24...	--	--	--	--	--	--	--	--	--	--
AUG 04...	.2	23	234	193	--	--	--	.33	.33	1.60
SEP 02...	.1	21	248	186	10	6	--	.50	.48	.470

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 10...	.100	.65	.86	.110	.070	.030	9.5	124	700	81
JAN 04...	.380	--	.60	.040	.230	.230	--	36	7.7	98
MAR 31...	.120	--	1.00	.080	.040	.040	10	63	211	99
MAY 10...	.460	--	.90	.180	.070	.080	--	77	14	82
JUN 24...	--	--	--	--	--	--	--	--	--	--
AUG 04...	1.60	1.3	2.90	.860	.740	.700	5.3	14	.72	80
SEP 02...	.480	1.2	1.70	.670	.620	.610	4.1	6	.31	100

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDED TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
NOV 10...	1245	2	1	1	100	20	80	<1	<1	<10
MAR 31...	1105	2	1	1	<100	--	96	2	<3	<10
AUG 04...	1145	2	0	2	<100	--	78	<1	<1	10
SEP 02...	1625	2	0	2	200	100	72	3	<1	<10

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDED RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 10...	<10	1	--	<3	16	14	2	2800	2700	52
MAR 31...	<10	2	--	<1	16	--	<1	1600	1500	81
AUG 04...	<10	2	1	1	4	0	4	740	720	20
SEP 02...	<10	<1	--	<1	6	4	2	460	450	6

## SAN JACINTO RIVER BASIN

08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE D RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE D RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
NOV 10...	4	--	<1	100	90	6	.1	<.1	3
MAR 31...	7	6	1	90	80	12	.1	<.1	2
AUG 04...	1	--	<1	230	40	190	.2	<.1	17
SEP 02...	15	4	11	80	10	68	.1	<.1	8

DATE	NICKEL, SUS- PENDE D RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE D RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 10...	--	<1	<1	<1	<1	<1	20	--	<3
MAR 31...	1	1	<1	<1	1	<1	40	20	17
AUG 04...	16	1	<1	<1	<1	<1	20	0	23
SEP 02...	7	1	<1	<1	<1	<1	20	9	11

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 10...	1245	--	0	--	.0	--	.0	--	.0	--	.0
MAR 31...	1105	<.10	--	<.10	--	<.01	--	<.10	--	<.01	--
MAY 10...	1700	--	<1	--	<1.0	--	<.1	--	<1.0	--	<.1
JUN 24...	1100	<.10	--	<.10	--	<.01	--	<.10	--	<.01	--

DATE	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL (UG/L)
NOV 10...	--	.0	--	.0	--	--	.0	--	--	.0	--
MAR 31...	<.01	--	<.01	--	.00	<.01	--	<.01	<.01	--	.00
MAY 10...	--	<.1	--	<.1	--	--	<.1	--	--	<.1	--
JUN 24...	.01	--	<.01	--	.08	<.01	--	<.01	<.01	--	<.01



## SAN JACINTO RIVER BASIN

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08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MAT- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
NOV 10...	--	.0	--	.0	--	.0	--	--	.0	--	--
MAR 31...	<.01	--	<.01	--	<.01	--	.00	<.01	--	.00	.00
MAY 10...	--	<.1	--	<.1	--	<.1	--	--	<.1	--	--
JUN 24...	<.01	--	<.01	--	.01	--	.03	<.01	--	<.01	<.01

DATE	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 10...	--	.0	--	--	--	.0	--	--	--	--	--
MAR 31...	<.01	--	.00	<.10	<1	--	.00	.03	<.01	<.01	<.01
MAY 10...	--	<.1	--	--	--	<10	--	--	--	--	--
JUN 24...	<.01	--	<.01	<.10	<1	--	<.01	<.01	<.01	<.01	<.01

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	14703	166	91	3630	18	699	5.3	212	52
NOV.	1981	31710	175	96	8230	19	1620	5.6	477	55
DEC.	1981	4256	258	140	1610	34	385	7.4	85	75
JAN.	1982	3020	333	179	1460	49	402	8.8	72	91
FEB.	1982	4307	273	148	1720	36	422	7.8	90	79
MAR.	1982	9770	287	155	4100	40	1060	7.9	208	81
APR.	1982	59282	132	73	11600	13	2110	4.4	697	43
MAY	1982	52749	158	87	12400	16	2350	5.1	731	50
JUNE	1982	1938	291	158	824	40	209	8.1	42	82
JULY	1982	1073	328	176	511	50	145	8.4	24	88
AUG.	1982	729	356	190	375	56	111	8.8	17	93
SEPT	1982	3035	243	132	1090	30	246	7.2	59	72
TOTAL		186572	**	**	47600	**	9760	**	2720	**
WTD. AVG.		511	172	95	**	19	**	5.4	**	53

## SAN JACINTO RIVER BASIN

08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	279	268	275	239	181	216	255	152	205	339	324	331
2	276	266	272	241	160	199	235	199	211	349	338	344
3	287	271	283	154	140	143	207	200	202	355	342	349
4	292	259	281	156	143	148	222	209	218	345	336	341
5	279	234	255	190	157	172	237	222	230	380	329	355
6	254	135	198	211	191	203	244	231	241	386	358	374
7	134	74	91	222	211	216	247	222	235	360	337	352
8	123	84	103	227	206	221	245	223	232	340	303	323
9	231	117	146	210	193	204	248	236	243	340	317	332
10	261	184	220	209	193	203	266	242	252	346	340	342
11	201	172	182	196	170	187	285	255	267	351	290	325
12	203	158	176	169	136	149	329	284	303	355	261	306
13	180	157	164	152	137	145	333	286	315	292	254	273
14	191	145	174	163	153	158	358	332	342	312	271	293
15	155	87	125	165	163	164	347	321	337	362	305	329
16	182	145	167	166	164	165	355	342	349	404	366	384
17	186	153	167	172	164	166	343	320	334	409	358	385
18	174	145	155	176	170	173	332	296	304	407	394	400
19	169	145	156	182	177	181	324	302	316	395	375	382
20	191	155	172	210	181	194	334	323	330	383	374	379
21	195	162	180	230	212	221	333	318	327	375	368	372
22	203	171	183	251	231	241	321	315	318	376	368	372
23	202	183	191	285	251	266	330	278	313	381	371	376
24	218	194	208	330	286	308	341	310	325	391	376	383
25	223	205	215	376	332	354	328	319	323	404	380	392
26	226	212	220	422	379	400	324	315	320	417	390	401
27	237	218	229	431	353	398	331	321	327	421	397	412
28	261	234	244	426	352	385	343	327	335	422	411	417
29	292	256	273	423	137	272	350	343	347	411	374	397
30	297	281	290	155	98	120	347	336	343	395	271	363
31	301	218	274	---	---	---	339	328	335	268	206	227
MONTH	301	74	202	431	98	219	358	152	293	422	206	355

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	225	215	221	513	293	396	244	222	229	148	145	146
2	233	224	229	663	528	653	247	213	224	153	146	149
3	259	235	249	631	538	582	213	201	206	158	152	155
4	264	256	260	536	454	495	203	194	198	178	157	162
5	260	245	254	452	401	423	201	189	194	187	179	182
6	270	242	249	401	333	373	287	203	237	230	187	209
7	341	272	312	348	306	321	309	288	297	253	234	247
8	355	341	349	325	309	318	328	310	319	271	249	259
9	349	323	343	330	312	322	329	301	320	296	270	284
10	347	306	329	316	299	310	314	230	260	299	289	294
11	359	323	338	319	307	312	231	218	227	307	293	298
12	335	319	325	323	297	312	313	230	259	315	292	301
13	337	299	321	319	298	315	378	321	348	310	63	181
14	348	323	341	319	315	317	389	367	382	142	69	108
15	349	337	343	378	303	333	391	359	381	147	136	142
16	380	333	348	418	382	406	383	349	366	143	136	138
17	345	329	336	405	271	336	369	348	357	152	143	149
18	341	319	332	271	246	256	349	330	340	176	152	164
19	339	325	332	360	215	269	346	339	344	186	177	183
20	339	320	328	460	377	419	358	130	293	195	186	190
21	334	311	323	492	388	448	136	99	111	196	194	195
22	329	308	318	488	439	460	140	92	112	196	192	194
23	343	316	331	452	275	370	121	110	117	195	182	188
24	344	331	337	279	200	227	111	100	107	187	172	181
25	338	328	334	314	228	265	104	96	99	203	161	185
26	332	222	296	318	299	306	200	106	120	182	160	174
27	247	203	217	322	257	305	143	128	136	210	182	201
28	280	221	239	311	259	283	148	144	146	221	211	215
29	---	---	---	294	216	249	150	145	147	246	218	231
30	---	---	---	260	212	231	148	146	147	261	248	256
31	---	---	---	240	233	237	---	---	---	271	262	267
MONTH	380	203	305	663	200	350	391	92	234	315	63	201

## SAN JACINTO RIVER BASIN

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08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	285	272	277	333	149	205	338	288	315	382	346	371
2	288	278	281	257	165	206	315	301	311	324	285	305
3	293	283	286	259	160	196	329	272	303	313	280	293
4	291	287	289	330	169	234	330	261	303	298	204	243
5	299	289	294	566	250	456	336	271	301	240	215	232
6	297	286	292	642	421	551	317	286	301	258	232	250
7	309	290	295	639	397	478	337	285	307	310	255	278
8	322	296	298	733	454	638	299	246	282	305	260	282
9	299	291	295	587	231	349	264	241	253	303	264	279
10	316	277	302	352	210	268	288	247	268	312	268	289
11	303	280	295	---	---	260	281	245	265	317	272	294
12	308	362	298	---	---	270	302	250	273	320	264	285
13	329	297	314	---	---	280	308	254	285	307	264	282
14	507	362	411	346	249	317	303	254	280	389	233	300
15	500	429	453	---	---	360	287	267	278	264	215	228
16	468	293	356	517	444	499	307	254	289	236	218	224
17	318	287	299	469	391	451	307	258	296	231	220	226
18	381	282	337	481	262	328	300	257	283	233	225	227
19	382	268	297	358	304	328	331	252	290	230	227	229
20	286	274	277	411	317	357	352	261	315	238	210	225
21	447	276	346	347	312	340	406	353	390	237	227	230
22	292	159	229	319	235	292	438	402	424	237	225	232
23	326	147	243	238	223	231	509	415	456	239	229	234
24	287	204	275	281	240	265	580	492	536	236	232	234
25	372	280	315	321	255	285	656	551	604	242	232	237
26	280	156	196	324	277	300	629	571	594	245	235	240
27	221	186	197	318	301	310	603	564	581	248	242	246
28	390	220	319	320	305	313	579	481	545	252	247	249
29	355	174	243	320	287	308	488	454	476	252	248	251
30	357	239	309	316	285	297	476	382	398	261	252	255
31	---	---	---	306	284	295	394	375	387	---	---	---
MONTH	507	147	297	733	149	331	656	241	361	389	204	258

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

## SAN JACINTO RIVER BASIN

08068000 WEST FORK SAN JACINTO RIVER NEAR CONROE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

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



## 08068520 SPRING CREEK AT SPRING, TX

LOCATION.--Lat 30°05'31", long 95°24'21", Harris-Montgomery County line, Hydrologic Unit 12040102, near right bank at downstream side of bridge on Riley-Fussell Road, 1.1 mi (1.8 km) northeast of Spring, 2.7 mi (4.3 km) downstream from Missouri Pacific Railroad bridge, 3.6 mi (5.8 km) downstream from former station 08068500 at Interstate Highway 45, 6.9 mi (11.1 km) upstream from Cypress Creek, and 9.9 mi (15.9 km) upstream from mouth.

DRAINAGE AREA.--419 mi<sup>2</sup> (1,085 km<sup>2</sup>).

PERIOD OF RECORD.--April 1939 to current year. Prior to 1975, published as "near Spring".

Water-quality records: Chemical analyses: September 1961 to April 1964. Sediment records: December 1965 to September 1975.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 62.17 ft (18.949 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 5, 1946, nonrecording gage, and Jan. 6, 1946, to Oct. 1, 1965, water-stage recorder at site 3.6 mi (5.8 km) upstream at different datum. Oct. 2, 1965, to Feb. 19, 1976, water-stage recorder at former site at datum 10.93 ft (3.331 m) higher; unadjusted for land-surface subsidence.

REMARKS.--Records good except those for January and April, which are poor. No diversion above station. Several observation of water temperature were made during the current year.

AVERAGE DISCHARGE.--43 years, 218 ft<sup>3</sup>/s (6.174 m<sup>3</sup>/s), 7.06 in/yr (179 mm/yr), 157,900 acre-ft/yr (195 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,700 ft<sup>3</sup>/s (1,210 m<sup>3</sup>/s) Nov. 25, 1940, gage height, 33.60 ft (10.241 m), former site and datum, from graph based on gage readings; minimum, 1.1 ft<sup>3</sup>/s (0.031 m<sup>3</sup>/s) Oct. 23, 24, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1879, 34.3 ft (10.45 m), former site and datum, May 30, 1929, discharge 48,300 ft<sup>3</sup>/s (1,370 m<sup>3</sup>/s), from floodmarks identified by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
May 15	1900	*7,700 218	20.09 6.123
May 17	2000	3,390 96.0	14.16 4.316

Minimum daily discharge, 14 ft<sup>3</sup>/s (0.40 m<sup>3</sup>/s) Sept. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	260	1870	49	120	116	182	80	93	27	26	18
2	26	353	1080	49	80	81	240	85	83	26	26	19
3	26	251	322	52	65	64	172	80	79	25	23	18
4	26	138	190	62	60	56	127	76	77	27	20	24
5	31	84	130	62	55	51	109	73	73	27	19	22
6	56	66	140	54	65	55	71	69	67	24	18	33
7	334	57	110	49	62	52	61	68	60	24	17	33
8	726	161	90	46	62	47	55	66	55	26	22	27
9	429	844	80	45	69	45	53	63	49	24	41	23
10	168	961	75	43	70	44	100	59	48	22	58	22
11	100	600	70	42	68	42	80	56	45	22	64	22
12	69	350	67	250	60	42	70	102	43	21	54	21
13	66	200	65	150	55	41	65	1710	44	25	42	23
14	101	140	63	90	52	40	60	6580	43	28	31	25
15	647	100	61	70	50	40	57	7350	40	21	26	47
16	377	80	60	55	49	40	55	5960	39	25	24	80
17	350	72	66	50	48	40	65	2910	42	29	22	66
18	419	65	62	47	48	40	60	2330	35	24	79	32
19	254	60	59	45	47	38	55	1370	41	24	254	25
20	138	56	58	43	50	40	200	589	41	23	49	22
21	86	52	56	42	54	39	300	339	33	34	30	17
22	66	49	56	42	58	36	400	265	36	77	29	16
23	56	46	56	41	60	76	350	535	37	27	22	15
24	50	44	56	41	56	330	500	644	36	21	19	15
25	50	42	52	40	52	642	400	505	34	20	18	15
26	62	41	49	40	106	367	260	423	67	21	17	15
27	49	40	48	39	151	286	180	324	45	19	17	14
28	43	40	47	39	166	323	130	207	43	18	18	14
29	41	316	46	60	---	325	100	150	34	23	18	14
30	40	1360	45	220	---	305	90	123	30	75	17	14
31	81	---	47	200	---	195	---	104	---	36	18	---
TOTAL	4993	6928	5276	2157	1938	3938	4647	33295	1492	865	1138	751
MEAN	161	231	170	69.6	69.2	127	155	1074	49.7	27.9	36.7	25.0
MAX	726	1360	1870	250	166	642	500	7350	93	77	254	80
MIN	26	40	45	39	47	36	53	56	30	18	17	14
CFSM	.38	.55	.41	.17	.17	.30	.37	2.56	.12	.07	.09	.06
IN.	.44	.62	.47	.19	.17	.35	.41	2.96	.13	.08	.10	.07
AC-FT	9900	13740	10460	4280	3840	7810	9220	66040	2960	1720	2260	1490
CAL YR 1981	TOTAL	83745	MEAN 229	MAX 7980	MIN 19	CFSM .55	IN 7.44	AC-FT 166100				
WTR YR 1982	TOTAL	67418	MEAN 185	MAX 7350	MIN 14	CFSM .44	IN 5.99	AC-FT 133700				

## SAN JACINTO RIVER BASIN

## 08068720 CYPRESS CREEK AT KATY-HOCKLEY ROAD NEAR HOCKLEY, TX

LOCATION.--Lat 29°57'00", long 95°48'29", Harris County, Hydrologic Unit 12040102, on left bank at bridge on Katy-Hockley Road, 3.3 mi (5.3 km) downstream from gage (station 08068700), 5.6 mi (9.0 km) southeast of Hockley, and 6.3 mi (10.1 km) upstream from gage (station 08068740).

DRAINAGE AREA.--110 mi<sup>2</sup> (285 km<sup>2</sup>).

PERIOD OF RECORD.--June 1975 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Concrete weir located 0.9 mi (1.4 km) downstream from gage. Datum of gage is 100.00 ft (30.480 m) National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. Diversions and return flow for irrigation occur upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 66.1 ft<sup>3</sup>/s (1.872 m<sup>3</sup>/s), 47,890 acre-ft/yr (59.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,370 ft<sup>3</sup>/s (67.1 m<sup>3</sup>/s) Jan. 20, 1979, gage height, 61.05 ft (18.608 m); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood in June 1960 reached a stage of 62.0 ft (18.90 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,980 ft<sup>3</sup>/s (56.1 m<sup>3</sup>/s) May 15, gage height, 60.31 ft (18.382 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	180	400	2.6	.88	.62	.30	.30	3.8	1.2	2.0	11
2	5.7	150	170	3.4	.61	.25	.20	.20	2.7	.00	1.0	19
3	6.6	80	65	4.1	.58	.23	.30	.10	2.3	.00	2.8	13
4	13	40	40	4.1	.58	.71	1.0	.05	1.9	.00	1.7	.00
5	15	20	23	3.4	.58	.95	1.5	.05	1.9	1.1	.71	.00
6	33	12	16	.72	.58	.60	.70	1.5	1.4	1.5	.39	.00
7	22	9.0	15	.84	.58	.57	.40	100	1.9	.00	.30	7.0
8	28	8.0	15	.69	.56	.39	.30	30	3.0	.00	8.7	28
9	25	35	12	.33	.70	.47	.30	8.0	3.1	.00	8.0	33
10	24	40	9.2	.24	.70	.53	.40	3.0	4.4	.00	6.4	18
11	17	15	7.9	.24	.70	.45	.80	.50	3.1	.51	5.5	.00
12	15	8.0	7.4	1.5	.71	.38	3.0	80	.00	.00	5.1	.00
13	18	5.0	6.4	3.2	.70	.38	1.5	800	.00	.00	5.1	.00
14	23	3.5	6.0	4.1	.70	.38	.70	1550	.90	.00	3.7	.00
15	14	2.5	6.0	3.2	.70	.34	.50	1950	.17	.50	2.5	.00
16	8.7	2.0	8.4	2.0	.98	.30	.40	1700	.00	.00	1.2	.08
17	9.7	1.7	16	1.4	1.1	.30	.30	1380	.00	.00	.00	.28
18	7.2	1.4	7.9	1.3	1.4	.27	.25	1070	.00	.00	.00	.40
19	4.8	1.2	2.1	2.3	.62	.18	.20	554	2.0	.00	.00	.28
20	3.1	1.0	1.9	1.9	.40	.13	.15	206	2.6	7.0	.00	.52
21	2.2	.90	1.6	1.5	.82	.10	25	133	2.6	15	.00	.58
22	1.9	.80	2.1	1.2	1.4	.09	35	71	2.9	18	1.5	.27
23	1.6	.70	2.9	1.6	1.4	.08	55	96	1.2	30	.00	.00
24	1.2	.70	2.9	1.3	.93	.08	45	195	.00	27	.00	.00
25	.93	.70	2.9	.85	.85	.08	120	179	.00	22	.00	.00
26	.85	.70	2.9	.77	4.8	.07	90	90	.40	1.0	.00	.00
27	2.0	.70	2.6	.47	9.0	.03	25	34	3.0	2.0	.00	.00
28	4.0	.70	2.3	.38	3.1	2.0	4.0	18	2.6	1.0	.00	.00
29	6.0	200	2.1	.64	---	4.0	1.0	14	3.9	.60	.00	.35
30	5.0	500	1.6	1.7	---	1.5	.50	8.8	2.7	1.0	.00	1.0
31	30	---	1.9	2.5	---	.50	---	6.0	---	3.0	.00	---
TOTAL	352.08	1321.20	861.0	54.47	36.66	16.96	413.70	10278.50	54.47	132.41	56.60	132.76
MEAN	11.4	44.0	27.8	1.76	1.31	.55	13.8	332	1.82	4.27	1.83	4.43
MAX	33	500	400	4.1	9.0	4.0	120	1950	4.4	30	8.7	33
MIN	.85	.70	1.6	.24	.40	.03	.15	.05	.00	.00	.00	.00
AC-FT	698	2620	1710	108	73	34	821	20390	108	263	112	263
CAL YR 1981	TOTAL	15846.35	MEAN	43.4	MAX	950	MIN	.00	AC-FT	31430		
WTR YR 1982	TOTAL	13710.81	MEAN	37.6	MAX	1950	MIN	.00	AC-FT	27200		

NOTE.--No gage-height record Oct. 31 to Dec. 2 and Mar. 28 to May 16.

## SAN JACINTO RIVER BASIN

49

08068740 CYPRESS CREEK AT HOUSE AND HAHL ROAD NEAR CYPRESS, TX

LOCATION.--Lat 29°57'32", Long 95°43'03", Harris County, Hydrologic Unit 12040102, on right bank at bridge on House and Hahl Road, 1.4 mi (2.3 km) southwest of Cypress, and 6.3 mi (10.1 km) downstream from gage (station 08068720).

DRAINAGE AREA.--131 mi<sup>2</sup> (339 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1975 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 100.00 ft (30.480 m) National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Water-discharge records fair except those for period of no gage-height record, and those for period June through September, which are poor. Diversions and return flow for irrigation occur upstream from station.

AVERAGE DISCHARGE.--17 years, 90.1 ft<sup>3</sup>/s (2.552 m<sup>3</sup>/s), 65,280 acre-ft/yr (80.5 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,590 ft<sup>3</sup>/s (73.3 m<sup>3</sup>/s) Sept. 22, 1979, gage height, 46.33 ft (14.121 m); no flow for many days (result of pumping for irrigation).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1908, about 49 ft (14.9 m) in 1937, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,400 ft<sup>3</sup>/s (68.0 m<sup>3</sup>/s) May 14 at about 1800 hours, gage height, 46.00 ft (14.021 m), from peak mark, no other peak above base of 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	220	495	.95	4.3	3.6	.71	.49	6.7	4.0	2.2	13
2	6.7	180	207	2.0	2.5	1.9	.58	.40	5.8	1.9	1.2	23
3	7.4	100	97	2.6	2.3	1.2	.95	.35	8.1	1.4	.35	16
4	20	50	55	1.5	2.0	1.4	2.1	.28	6.6	1.5	1.6	.00
5	21	30	33	.95	1.9	2.1	2.6	.24	5.6	.82	.46	.00
6	50	15	24	1.4	1.9	2.1	1.5	2.3	4.6	3.7	.22	.02
7	36	10	24	.63	1.8	2.1	1.1	130	4.3	.59	.13	8.4
8	48	9.0	21	.99	1.8	1.5	.93	51	3.8	.35	19	34
9	41	40	17	.61	1.8	1.2	.83	14	6.0	.29	17	40
10	33	50	12	.58	1.8	1.2	1.1	5.4	9.0	2.6	12	22
11	23	20	9.6	.55	1.7	1.2	2.4	.95	6.0	8.0	12	.00
12	20	10	8.9	3.6	1.7	1.2	6.1	110	4.0	5.5	6.8	.00
13	17	6.0	7.7	7.4	1.4	1.2	3.3	962	2.5	2.6	5.1	.00
14	18	4.5	7.8	8.0	1.3	1.2	2.1	2350	3.0	2.0	2.7	.00
15	18	3.5	7.0	5.8	1.2	1.2	1.3	2320	1.5	4.6	.96	.01
16	21	3.0	9.0	4.4	1.2	1.2	.92	2020	.70	2.2	.41	2.0
17	27	2.5	25	3.2	1.2	1.2	.73	1720	.40	1.1	.00	1.3
18	17	2.0	21	2.7	2.7	1.2	.62	2060	.30	2.1	.00	4.1
19	11	1.6	13	4.1	1.7	1.1	.55	1290	2.5	.82	.00	2.1
20	7.5	1.3	10	4.0	1.3	.97	.51	360	3.5	8.6	.00	.58
21	5.7	1.1	3.7	3.1	2.5	.84	30	210	4.5	18	.00	4.2
22	4.9	1.0	2.9	2.7	2.6	.72	47	114	5.5	22	1.5	3.7
23	4.1	.95	2.2	2.0	3.2	1.5	69	121	3.0	36	.00	2.2
24	3.3	.86	2.2	2.0	2.2	2.9	55	208	1.5	33	.00	.74
25	2.7	.74	1.9	1.6	1.4	4.0	157	226	.50	27	.10	.18
26	1.6	.75	1.6	1.4	11	1.8	117	106	2.3	1.5	.58	.03
27	3.7	.75	1.5	1.1	15	1.1	38	38	3.2	2.2	.63	.00
28	6.3	.75	1.0	1.1	8.3	4.1	10	24	3.9	1.0	.00	.00
29	8.9	218	.95	1.1	---	7.2	1.9	19	6.7	.75	.00	.00
30	7.2	621	.95	3.0	---	3.1	.67	17	8.0	1.5	.00	.91
31	37	---	.89	5.3	---	1.1	---	11	---	3.8	.99	---
TOTAL	531.4	1604.30	1123.79	80.36	83.7	58.33	556.50	14491.41	124.00	201.42	85.93	178.47
MEAN	17.1	53.5	36.3	2.59	2.99	1.88	18.6	467	4.13	6.50	2.77	5.95
MAX	50	621	495	8.0	15	7.2	157	2350	9.0	36	19	40
MIN	1.6	.74	.89	.55	1.2	.72	.51	.24	.30	.29	.00	.00
AC-FT	1050	3180	2230	159	166	116	1100	28740	246	400	170	354
CAL YR 1981	TOTAL	20772.61	MEAN	56.9	MAX	1100	MIN	.00	AC-FT	41200		
WTR YR 1982	TOTAL	19119.61	MEAN	52.4	MAX	2350	MIN	.00	AC-FT	37920		

NOTE.--No gage-height record May 14-18.

## SAN JACINTO RIVER BASIN

08068740 CYPRESS CREEK AT HOUSE AND HAHN ROAD NEAR CYPRESS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD---Chemical, biochemical, and pesticide analyses: October 1976 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 23...	1420	.95	240	7.7	20.0	120	32	9.6	105	1.6	50
JUL 20...	1145	15	480	7.7	29.0	60	8.0	7.1	92	4.8	120
AUG 31...	1110	.54	445	7.5	31.0	60	12	6.4	86	2.9	100

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- LINITY 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)
NOV 23...	0	15	3.1	24	1.6	8.0	52	12	38	.2	9.6
JUL 20...	0	38	5.3	51	2.1	3.7	140	15	56	.3	19
AUG 31...	0	32	5.5	42	1.9	12	120	17	59	.3	28

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)
NOV 23...	142	14	5	<.030	<.09	.150	1.2	1.30	.200	13
JUL 20...	273	82	10	.030	<.10	.090	1.4	1.50	.140	11
AUG 31...	268	10	4	.030	<.10	.160	1.3	1.50	.200	11

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 23...	1420	1	100	<1	<10	3	580
JUL 20...	1145	5	190	<1	<10	1	120
AUG 31...	1110	4	200	<1	<10	1	93

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 23...	1	12	<.1	<1	<1	5
JUL 20...	<1	2	.1	<1	<1	6
AUG 31...	<1	44	<.1	<1	<1	11



## SAN JACINTO RIVER BASIN

51

08068740 CYPRESS CREEK AT HOUSE AND HAHN ROAD NEAR CYPRESS, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
JUL 20...	1145	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<.01	<.01
AUG 31...	1110	<.10	<.10	<.01	<.10	<.01	<.01	<.01	<.01	<.01
DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
JUL 20...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
AUG 31...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01
DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JUL 20...	<.01	<.01	<.10	<1	<.01	<.01	<.01	<.01	<.01	
AUG 31...	<.01	<.01	<.10	<1	<.01	--	--	--	--	

## SAN JACINTO RIVER BASIN

08069000 CYPRESS CREEK NEAR WESTFIELD, TX

LOCATION.--Lat 30°02'08", long 95°25'43", Harris County, Hydrologic Unit 12040102, near left bank at downstream side of bridge on Interstate Highway 45 and U.S. Highway 75, 0.9 mi (1.4 km) upstream from Senger Gully, 1.8 mi (2.9 km) northwest of Westfield, 2.0 mi (3.2 km) upstream from Missouri Pacific Railroad Co. bridge, and 11.0 mi (17.7 km) upstream from mouth.

DRAINAGE AREA.--285 mi<sup>2</sup> (738 km<sup>2</sup>).

PERIOD OF RECORD.--July 1944 to current year.

Water-quality records: Sediment records: October 1976 to September 1979.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 63.89 ft (19.474 m) National Geodetic Vertical Datum of 1929; unadjusted for land-surface subsidence. Prior to Mar. 17, 1951, water-stage recorder at upstream side of bridge at datum 12.00 ft (3.658 m) higher.

REMARKS.--Records good. No large diversion above station. Low flow is maintained by sewage effluent. Channel below gage was rectified in 1950-51 and 1975. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--38 years, 159 ft<sup>3</sup>/s (4.503 m<sup>3</sup>/s), 115,200 acre-ft/yr (142 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,100 ft<sup>3</sup>/s (626 m<sup>3</sup>/s) Oct. 8, 1949, gage height, 33.44 ft (10.193 m), present datum, from rating curve extended above 11,000 ft<sup>3</sup>/s (312 m<sup>3</sup>/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 34 ft (10.4 m), present datum, in May 1929, discharge 26,000 ft<sup>3</sup>/s (736 m<sup>3</sup>/s), from information by local resident. Flood in November 1940 reached a stage of about 32 ft (9.8 m), present datum, discharge 15,000 ft<sup>3</sup>/s (425 m<sup>3</sup>/s), from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft<sup>3</sup>/s (62.3 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
May 13	2200	*4,540	129	24.65	7.513
May 18	0400	3,590	102	22.50	6.858

Minimum daily discharge, 14 ft<sup>3</sup>/s (0.40 m<sup>3</sup>/s) Jan. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	279	931	19	48	37	25	23	36	20	41	17
2	26	264	547	18	35	27	24	21	28	17	27	16
3	27	186	251	21	32	22	20	20	24	15	20	42
4	30	110	125	19	23	20	18	18	22	25	20	58
5	74	71	76	17	20	18	18	18	20	19	18	20
6	287	54	65	17	22	29	17	61	20	22	16	18
7	373	49	60	17	20	27	16	50	20	58	18	19
8	145	456	51	16	22	20	16	113	18	18	333	17
9	87	819	46	14	21	17	20	60	19	15	135	16
10	68	260	40	15	18	17	49	33	19	15	143	17
11	57	138	35	17	18	16	30	25	21	15	137	16
12	48	74	31	143	18	17	21	503	22	17	117	32
13	62	54	29	64	17	16	22	2000	22	25	35	24
14	86	43	127	46	17	17	21	3830	27	36	27	24
15	145	35	46	35	17	18	19	3470	23	17	23	27
16	97	31	32	28	17	16	18	2760	39	26	22	25
17	72	26	35	26	20	17	28	2120	27	26	18	31
18	55	26	45	22	17	16	21	3110	22	18	21	28
19	49	22	40	19	15	17	18	1960	26	19	34	25
20	38	20	34	19	40	16	249	1250	22	23	19	26
21	31	20	42	19	36	17	151	552	21	39	16	21
22	27	19	26	19	21	18	224	480	42	87	18	20
23	25	19	22	17	19	52	131	384	25	36	18	28
24	23	18	20	17	17	42	295	266	24	39	18	29
25	22	17	19	17	45	24	298	299	28	39	17	22
26	24	17	18	15	211	22	290	267	129	48	17	24
27	22	16	18	15	79	112	166	141	51	28	17	25
28	21	15	18	15	54	72	73	72	23	16	16	23
29	27	914	17	42	---	48	43	51	19	48	20	22
30	28	1370	23	147	---	36	30	44	18	416	18	21
31	163	---	38	132	---	31	---	38	---	67	20	---
TOTAL	2665	5442	2907	1047	939	874	2371	24039	857	1309	1419	733
MEAN	73.1	181	93.8	33.8	33.5	28.2	79.0	775	28.6	42.2	45.8	24.4
MAX	373	1370	931	147	211	112	298	3830	129	416	333	58
MIN	21	15	17	14	15	16	16	18	18	15	16	16
AC-FT	4490	10790	5770	2080	1860	1730	4700	47680	1700	2600	2810	1450
CAL YR 1981	TOTAL	66301	MEAN 182	MAX 5730	MIN 10	AC-FT 131500						
WTR YR 1982	TOTAL	44202	MEAN 121	MAX 3830	MIN 14	AC-FT 87670						

## SAN JACINTO RIVER BASIN

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08069200 CYPRESS CREEK NEAR HUMBLE, TX  
(Low-flow partial-record station)

LOCATION.--Lat 30°01'49", long 95°19'47", Harris County, Hydrologic Unit 12040102, 500 ft (150 m) north of end of dirt extension of Tettar Road, about 2 mi (3 km) upstream from mouth, and 4.7 mi (7.6 km) northwest of Humble.

DRAINAGE AREA.--319 mi<sup>2</sup> (826 km<sup>2</sup>).

PERIOD OF RECORD.--Occasional discharge measurements and water-quality data: October 1970 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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)
NOV 23...	1135	22	680	7.7	17.5	15	15	6.7	70	3.8	110
JUL 20...	0940	23	688	7.5	30.0	45	26	4.2	55	7.3	100
AUG 31...	1400	25	735	7.4	30.5	30	12	4.6	61	4.0	99

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 23...	0	34	5.0	91	4.0	8.4	170	16	100	.3	24
JUL 20...	0	33	4.7	100	4.5	7.9	180	23	79	.5	22
AUG 31...	0	32	4.6	110	5.0	8.7	200	28	86	.4	22

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 23...	381	24	5	5.0	.450	5.4	1.00	1.8	2.80	5.90	6.8
JUL 20...	378	90	12	3.0	.820	3.8	.860	1.7	2.60	3.10	8.7
AUG 31...	412	21	6	3.3	.360	3.7	.470	2.2	2.70	.490	7.6

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 23...	1135	4	91	<1	<10	6	50
JUL 20...	0940	6	94	<1	<10	4	16
AUG 31...	1400	5	86	<1	20	4	23

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 23...	<1	13	<.1	<1	<1	17
JUL 20...	<1	<1	.2	<1	<1	13
AUG 31...	<1	7	<.1	<1	<1	22

## SAN JACINTO RIVER BASIN

08069200 CYPRESS CREEK NEAR HUMBLE, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)
NOV 23...	1135	.00	.00	.00	.00	.00	.00	.00	.29	.00
JUL 20...	0940	<.10	<.10	<.01	<.10	<.01	<.01	<.01	.60	<.01
AUG 31...	1400	<.10	<.10	<.01	.10	<.01	<.01	<.01	.46	.01
DATE	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	METHYL TRI- THION, TOTAL (UG/L)
NOV 23...	.00	.00	.00	.00	.00	.04	.03	.00	.00	.00
JUL 20...	<.01	<.01	<.01	<.01	.01	.02	.01	<.01	<.01	<.01
AUG 31...	<.01	<.01	<.01	<.01	.01	.21	<.01	<.01	<.01	<.01
DATE	MIREX, TOTAL (UG/L)	PARA- THION, TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
NOV 23...	.00	.00	.00	0	.00	.05	.00	.00	.00	
JUL 20...	<.01	<.01	<.10	<1	<.01	.33	<.01	.01	<.01	
AUG 31...	<.01	<.01	<.10	<1	<.01	.03	<.01	<.01	<.01	



## SAN JACINTO RIVER BASIN

55

08069500 WEST FORK SAN JACINTO RIVER NEAR HUMBLE, TX

LOCATION.--Lat 30°01'37", long 95°15'28", Harris County, Hydrologic Unit 12040101, on right bank at bridge on U.S. Highway 59, 970 ft (296 m) upstream from Texas and New Orleans Railroad Co. bridge, 0.5 mi (0.8 km) downstream from Spring Creek, and 2.5 mi (4.0 km) north of Humble.

DRAINAGE AREA.--1,741 mi<sup>2</sup> (4,509 km<sup>2</sup>).

PERIOD OF RECORD.--October 1928 to September 1954, October 1954 to current year (gage heights only). Annual maximum and minimum gage heights only for October 1954 to September 1966 (published with station 08072000 Lake Houston near Sheldon). Published as San Jacinto River near Humble prior to 1938.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 30.53 ft (9.306 m) National Geodetic Vertical Datum of 1929. Prior to July 17, 1933, nonrecording gage at site 1,800 ft (549 m) downstream at same datum. July 17, 1933, to Mar. 5, 1939, nonrecording gage at present site and datum.

REMARKS.--Station discontinued as a streamflow station Sept. 30, 1954, due to backwater from Lake Houston. No large diversion above station. Only maximum daily gage heights above 15.5 ft (4.72 m) are published.

AVERAGE DISCHARGE.--26 years (water years 1929-54), 1,097 ft<sup>3</sup>/s (31.1 m<sup>3</sup>/s), 794,800 acre-ft/yr (980 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--1928-54: Maximum discharge, 187,000 ft<sup>3</sup>/s (5,300 m<sup>3</sup>/s) May 31, 1929, Nov. 25, 26, 1940; maximum gage height, 32.7 ft (9.97 m) May 31, 1929, Nov. 26, 1940, present site and datum, both affected by backwater from East Fork San Jacinto River; minimum discharge, 11 ft<sup>3</sup>/s (0.31 m<sup>3</sup>/s) Aug. 31, Sept. 1, 2, 1951. 1954-82: Maximum gage height since first appreciable storage at Lake Houston, 25.15 ft (7.666 m) Apr. 19, 1979; minimum since first appreciable storage at Lake Houston, 5.5 ft (1.68 m) Dec. 12, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1865, occurred in September 1900, May 31, 1929, and Nov. 25, 26, 1940, and all reached about the same stage, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 20.10 ft (6.126 m) May 14 at 2000 hours; minimum not determined.

## GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

Apr. 22.....16.26	May 14.....20.10
23.....16.22	15.....20.02
24.....17.65	16.....20.05
25.....17.90	17.....19.65
26.....17.65	18.....19.93
27.....16.35	19.....18.15
May 13.....18.70	20.....16.02

## SAN JACINTO RIVER BASIN

08070000 EAST FORK SAN JACINTO RIVER NEAR CLEVELAND, TX

LOCATION.--Lat 30°20'11", long 95°06'14", Liberty County, Hydrologic Unit 12040103, near left bank at downstream side of bridge on State Highway 105, 1,880 ft (570 m) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.2 mi (1.9 km) west of Cleveland, and 4.3 mi (6.9 km) downstream from Winter Creek.

DRAINAGE AREA.--325 mi<sup>2</sup> (842 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 107.98 ft (32.912 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 13, 1955, at site 1,800 ft (549 m) upstream at datum 5.00 ft (1.524 m) higher.

REMARKS.--Water-discharge records good. No large diversion above station. Rain gage and gage-height telemeter located at station.

AVERAGE DISCHARGE.--43 years, 221 ft<sup>3</sup>/s (6.259 m<sup>3</sup>/s), 9.24 in/yr (235 mm/yr), 160,100 acre-ft/yr (197 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,000 ft<sup>3</sup>/s (1,670 m<sup>3</sup>/s) Nov. 24, 1940, gage height, 24.1 ft (7.35 m), present site and datum, from rating curve extended above 27,000 ft<sup>3</sup>/s (765 m<sup>3</sup>/s); minimum daily, 3.0 ft<sup>3</sup>/s (0.085 m<sup>3</sup>/s) Aug. 23, 24, Sept. 27, 28, 1956.  
Maximum stage since at least 1900, that of Nov. 24, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 5, 1935, reached a stage of 23.6 ft (7.19 m), present site and datum, discharge 53,500 ft<sup>3</sup>/s (1,520 m<sup>3</sup>/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Apr. 23	1500	5,510	156	16.88	5.145
May 15	0600	*9,540	270	18.68	5.694

Minimum discharge, 13 ft<sup>3</sup>/s (0.37 m<sup>3</sup>/s) for several days in August and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	347	445	49	527	120	348	155	84	368	41	13
2	15	489	150	49	333	90	641	130	75	181	28	13
3	15	525	95	64	163	73	444	113	69	115	19	13
4	15	292	72	55	180	67	177	98	64	69	17	13
5	15	123	56	76	165	62	115	87	60	51	16	14
6	17	77	48	61	126	61	88	84	55	42	16	15
7	43	60	51	49	104	72	71	91	51	36	16	14
8	212	78	54	44	94	74	64	70	48	39	16	14
9	170	378	50	40	97	73	62	59	45	46	17	14
10	88	700	46	38	92	64	89	53	43	32	16	14
11	63	570	44	36	87	60	82	48	40	26	16	14
12	43	255	43	43	78	57	79	47	38	23	17	14
13	39	130	41	98	70	55	79	463	34	21	22	14
14	37	91	40	108	62	54	65	2510	32	24	17	13
15	36	74	40	99	60	52	57	7910	32	145	16	14
16	41	64	38	94	60	52	52	4330	32	223	15	15
17	77	58	40	82	59	51	50	2530	31	71	14	14
18	176	53	55	72	55	48	48	792	29	46	14	14
19	281	50	43	66	52	46	45	553	30	44	14	14
20	320	45	37	61	50	44	100	751	35	33	14	14
21	330	41	39	58	50	41	909	693	31	27	14	25
22	180	39	43	56	48	39	1980	396	51	30	14	17
23	95	39	40	56	45	93	4760	334	66	25	14	14
24	65	39	35	59	44	350	4030	270	127	25	14	14
25	50	38	33	53	44	171	2630	259	91	22	14	14
26	45	38	33	49	62	116	1690	236	84	33	14	14
27	40	37	33	45	129	200	1190	257	178	22	14	13
28	38	37	33	43	171	662	650	169	180	20	14	13
29	35	71	32	45	---	581	283	123	152	21	13	13
30	38	523	32	93	---	381	199	103	246	22	13	13
31	61	---	36	339	---	214	---	92	---	31	13	---
TOTAL	2695	5361	1877	2180	3107	4123	21077	23806	2133	1913	512	427
MEAN	86.9	179	60.5	70.3	111	133	703	768	71.1	61.7	16.5	14.2
MAX	330	700	445	339	527	662	4760	7910	246	368	41	25
MIN	15	37	32	36	44	39	45	47	29	20	13	13
CFSM	.27	.55	.19	.22	.34	.41	2.16	2.36	.22	.19	.05	.04
IN.	.31	.61	.21	.25	.36	.47	2.41	2.72	.24	.22	.06	.05
AC-FT	5350	10630	3720	4320	6160	8180	41810	47220	4230	3790	1020	847
CAL YR 1981	TOTAL	34291	MEAN	93.9	MAX	922	MIN 13	CFSM .29	IN 3.92	AC-FT	68020	
WTR YR 1982	TOTAL	69211	MEAN	190	MAX	7910	MIN 13	CFSM .59	IN 7.92	AC-FT	137300	

## SAN JACINTO RIVER BASIN

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08070000 EAST FORK SAN JACINTO RIVER NEAR CLEVELAND, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 14...	0915	38	291	25.0	66	20	22	2.8	30
JAN 05...	1215	86	317	12.0	80	15	27	3.0	31
FEB 08...	1100	88	298	9.0	77	31	26	3.0	28
MAR 24...	1420	350	165	14.5	37	14	12	1.8	18
MAY 04...	1415	98	280	22.0	72	24	24	3.0	26
JUN 18...	0910	30	275	28.0	61	22	20	2.7	27
JUL 26...	1130	28	207	29.0	44	14	14	2.1	21
SEP 09...	1105	15	297	26.0	42	22	13	2.4	39

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 14...	1.7	2.6	46	6.0	58	.1	16	165
JAN 05...	1.6	1.8	65	5.0	65	.1	15	171
FEB 08...	1.4	2.0	46	5.0	61	.0	15	168
MAR 24...	1.3	2.2	23	7.0	34	<.1	8.1	97
MAY 04...	1.4	1.9	48	6.0	51	<.1	17	158
JUN 18...	1.6	1.5	39	7.0	58	<.1	13	153
JUL 26...	1.4	1.7	30	9.0	42	<.1	12	120
SEP 09...	2.7	1.6	20	2.0	79	<.1	12	161

## SAN JACINTO RIVER BASIN

08070500 CANEY CREEK NEAR SPLENDORA, TX

LOCATION.--Lat 30°15'34", long 95°18'08", Montgomery County, Hydrologic Unit 12040103, on left bank at downstream side of bridge on Farm Road 2090, 4 mi (6 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, and 8 mi (13 km) west of Splendora.

DRAINAGE AREA.--105 mi<sup>2</sup> (272 km<sup>2</sup>).

PERIOD OF RECORD.--October 1943 to current year. Monthly discharge only for some periods, published in WSP 1312. Water-quality records: Sediment records: December 1965 to September 1975.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 118.44 ft (36.101 m) National Geodetic Vertical Datum of 1929. Prior to June 17, 1965, at site 170 ft (52 m) upstream at datum 5.00 ft (1.524 m) higher.

REMARKS.--Records good except those for period of no gage-height record, which are poor. No diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--39 years, 75.2 ft<sup>3</sup>/s (2.130 m<sup>3</sup>/s), 9.72 in/yr (247 mm/yr), 54,480 acre-ft/yr (67.2 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft<sup>3</sup>/s (991 m<sup>3</sup>/s) June 14, 1973, gage height, 26.30 ft (8.016 m); minimum, 4.1 ft<sup>3</sup>/s (0.12 m<sup>3</sup>/s) Oct. 26, 1956, caused by construction upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1885, 27.0 ft (8.23 m) in November 1940, present site and datum, from information by local resident. Flood in May 1935 reached a stage of 24.3 ft (7.41 m), present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft<sup>3</sup>/s (42.5 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Apr. 22	1500	2,540	71.9	15.01	4.575
May 14	1500	*4,980	141	19.16	5.840

Minimum daily discharge, 13 ft<sup>3</sup>/s (0.37 m<sup>3</sup>/s) Sept. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	267	104	38	114	39	202	65	43	190	19	14
2	19	228	58	34	57	33	77	61	42	130	25	14
3	19	57	43	33	67	32	59	58	40	90	25	13
4	26	38	38	44	67	31	49	55	37	100	22	13
5	28	32	35	35	47	30	45	53	36	70	21	14
6	47	29	34	30	46	28	41	50	33	60	22	16
7	104	27	37	30	44	32	37	52	31	55	21	17
8	66	45	38	31	39	34	36	49	30	45	25	16
9	36	479	35	29	41	32	37	45	28	35	22	16
10	29	329	33	28	41	30	62	43	28	30	25	16
11	26	73	32	27	37	28	57	42	27	25	30	16
12	24	49	32	31	35	26	43	42	27	35	25	16
13	26	41	31	71	33	26	38	551	26	60	22	16
14	24	37	31	63	32	25	36	3390	27	45	25	16
15	254	34	30	48	32	25	35	1940	28	35	22	16
16	201	32	30	44	32	24	34	219	28	30	20	16
17	116	31	30	39	32	24	33	163	28	25	18	17
18	75	30	39	35	31	23	32	558	27	22	17	16
19	68	29	33	34	30	23	31	570	25	25	20	15
20	42	29	31	34	29	22	50	253	25	30	17	17
21	32	28	31	35	29	22	795	139	24	25	16	18
22	29	27	32	34	30	21	2220	96	30	22	16	16
23	27	26	32	33	29	40	1810	84	50	21	15	15
24	26	26	30	33	28	194	330	181	80	22	15	15
25	25	26	29	31	27	96	598	471	75	25	15	15
26	25	26	28	30	33	57	353	143	90	40	14	14
27	24	26	28	29	94	78	141	86	140	30	14	14
28	23	26	28	29	52	530	100	67	200	25	14	14
29	22	69	28	30	---	187	82	58	250	22	14	14
30	22	263	27	46	---	88	72	51	200	20	15	14
31	26	---	29	276	---	124	---	46	---	19	15	---
TOTAL	1530	2459	1096	1364	1208	2004	7535	9681	1755	1408	606	459
MEAN	49.4	82.0	35.4	44.0	43.1	64.6	251	312	58.5	45.4	19.5	15.3
MAX	254	479	104	276	114	530	2220	3390	250	190	30	18
MIN	19	26	27	27	27	21	31	42	24	19	14	13
CFSM	.47	.78	.34	.42	.41	.62	2.39	2.97	.56	.43	.19	.15
IN.	.54	.87	.39	.48	.43	.71	2.67	3.43	.62	.50	.21	.16
AC-FT	3030	4880	2170	2710	2400	3970	14950	19200	3480	2790	1200	910
CAL YR 1981	TOTAL	24765	MEAN 67.8	MAX 2040	MIN 14	CFSM .65	IN 8.77	AC-FT 49120				
WTR YR 1982	TOTAL	31105	MEAN 85.2	MAX 3390	MIN 13	CFSM .81	IN 11.02	AC-FT 61700				

NOTE.--No gage-height record June 22 to Sept. 13.

## 08072000 LAKE HOUSTON NEAR SHELDON, TX

LOCATION.--Lat 29°54'58", long 95°08'28", Harris County, Hydrologic Unit 12040101, at intake structure on San Jacinto River near right bank 100 ft (30 m) upstream from Lake Houston Dam, 4.0 mi (6.4 km) north of Sheldon, 4.6 mi (7.4 km) upstream from bridge on U.S. Highway 90, and 18 mi (29.0 km) northeast of Houston.

DRAINAGE AREA.--2,828 mi<sup>2</sup> (7,325 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1954 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage at dam is 0.70 ft (0.213 m) below National Geodetic Vertical Datum of 1929; unadjusted for land-surface subsidence.

REMARKS.--The lake is formed by two earthfill embankment sections and a 3,160-foot-long (963 m) concrete spillway midway between the embankment sections. The dam was completed and storage began Apr. 9, 1954. The spillway includes two tainter gates, 18.0 by 20.5 ft (5.5 by 6.2 m), that can be used for control of releases below gage heights of 44.5 ft (13.56 m) and above 28.0 ft (8.53 m). In addition, there is a 36-inch-diameter (914 mm) sluice gate that is used for low-flow releases. Water is used for irrigation, municipal, and industrial supply in the Houston metropolitan area. 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.....	63.0	-
Design flood.....	57.0	-
Crest of spillway.....	44.5	146,700
Crest of tainter gates (sill).....	28.0	22,800
Lowest gated outlet (invert).....	22.0	6,180

COOPERATION.--The capacity table, furnished by the city of Houston, is based on a sedimentation study made in 1965. Records of diversions were furnished by the San Jacinto River Authority and the city of Houston.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 217,700 acre-ft (268 hm<sup>3</sup>) Apr. 19, 1979, gage height, 49.50 ft (15.088 m); minimum since first filling of lake in August 1954, 53,380 acre-ft (65.8 hm<sup>3</sup>) Dec. 1, 1971, gage height, 34.08 ft (10.388 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 181,500 acre-ft (224 hm<sup>3</sup>) May 14 at 2400 hours, to May 15 at 0500 hours, gage height, 47.13 ft (14.365 m); minimum, 114,400 acre-ft (141 hm<sup>3</sup>) Sept. 30, gage height, 41.64 ft (12.692 m).

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

41.0	107,900	45.0	152,900
43.0	129,100	48.0	194,200

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	145700	153800	161300	151100	157500	154700	157700	159100	152900	149000	142200	128900
2	145300	156800	159300	151200	157200	154600	157800	157000	152700	149000	141700	128100
3	144800	159100	157300	151600	155900	154100	157500	156300	152400	148800	141300	127800
4	144400	160400	155200	150800	155200	154000	156900	156000	152200	148600	140600	127200
5	151100	158800	154500	150700	154500	153200	155700	155200	151800	148100	140500	126600
6	154700	157000	154200	150800	152700	151000	154200	157300	151500	147500	139300	125800
7	161800	156100	154100	150300	153100	150800	153500	154700	151100	147200	140200	125100
8	160600	158000	154000	149000	153500	151000	153500	154300	150600	146900	140400	124600
9	158600	160200	153700	148800	152100	151100	152700	154000	150200	146400	140500	123700
10	156900	160600	153500	148600	152200	151000	152700	153600	149700	145900	140500	123100
11	155600	160200	153300	147200	152400	151000	153500	153200	149600	145300	140500	121900
12	155400	159600	153100	149100	152100	151000	153800	154600	149100	144800	140500	121900
13	155000	158300	152800	149500	151500	151000	154000	170200	148700	145100	140000	121300
14	155600	157200	153100	150000	151500	151000	153600	181500	148400	145100	139400	120800
15	156600	156300	153100	151200	151800	151000	153200	180600	147700	144900	138900	120400
16	158000	155500	153300	151600	151800	151000	152900	179800	147700	144800	138400	120100
17	158300	155200	151800	151600	151800	151000	152800	178400	147400	144800	137900	119900
18	158600	154600	151100	151900	151800	151000	152200	175600	146900	144400	137700	119500
19	158400	153600	151200	152100	151700	151000	152400	168900	146600	144100	137500	119300
20	157500	151900	151600	152400	151800	150800	153700	164600	147000	143400	137100	119100
21	156800	151800	151700	152300	152100	151000	159500	162200	146500	143500	136500	118500
22	156100	151700	152200	152700	151900	150600	167000	160500	147400	143500	135800	118000
23	153700	151700	151000	152200	152100	150200	170000	161200	147400	143000	135000	117500
24	153500	151500	150800	152100	152100	153700	171400	160400	147100	142400	134300	117000
25	153700	151000	150800	152100	152700	155600	171600	160200	147100	143100	133700	116600
26	151200	151300	150800	151500	152400	155900	169300	159200	147700	142800	133000	116100
27	151100	150800	150800	151500	153300	156900	165600	157400	147700	142400	132400	115600
28	150800	151000	150800	151300	154500	158400	163400	156400	148100	142000	131800	115300
29	150600	156500	150300	151200	---	159800	162100	155500	148200	141800	131000	115000
30	150600	162300	151000	155400	---	158800	161600	154500	148500	142600	130400	114700
31	152700	---	151200	157200	---	158200	---	154200	---	142600	129700	---
MAX	161800	162300	161300	157200	157500	159800	171600	181500	152900	149000	142200	128900
MIN	144400	150800	150300	147200	151500	150200	152200	146500	146500	141800	129700	114700
(†)	44.98	45.73	44.86	45.33	45.12	45.41	45.67	45.10	44.64	44.16	43.05	41.67
(‡)	+6000	+9600	-11100	+6000	-2700	+3700	+3400	-7400	-5700	-5900	-12900	-15000
(††)	21100	19380	20360	20700	17520	20050	19180	19560	21940	22070	21840	21420

CAL YR 1981 MAX 177100 MIN 129000 ‡ +14500 †† 247640  
WTR YR 1982 MAX 181500 MIN 114700 ‡ -32000 †† 245120

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



## SAN JACINTO RIVER BASIN

08072000 LAKE HOUSTON NEAR SHELDON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
JUL 20...	1320	153	7.1	31.0	46	7	15	2.1	14

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)
JUL 20...	.9	2.3	39	11	17	.1	4.0	89

## SAN JACINTO RIVER BASIN

61

08072020 LAKE HOUSTON PLANT INTAKE AT GALENA PARK, TX

LOCATION.--Lat 29°44'01", long 95°12'58", Harris County, Hydrologic Unit 12040104, at city of Houston municipal water plant intake from Lake Houston West Canal and 1 mi (2 km) east of Galena Park.

DRAINAGE AREA.--2,828 mi<sup>2</sup> (7,325 km<sup>2</sup>).

PERIOD OF RECORD.--Periodic chemical analyses: May 1972 to current year. Pesticide analyses: May 1968 to September 1981.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 24...	1020	1	<100	<1	<10	2	210
JUL 21...	1018	2	<100	<1	<10	2	80
AUG 31...	1525	2	<100	<1	<10	17	20

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 24...	1	10	<.1	<1	<1	30
JUL 21...	1	<10	<.1	<1	<1	10
AUG 31...	<1	50	<.1	<1	<1	10

## SAN JACINTO RIVER BASIN

08072050 SAN JACINTO RIVER NEAR SHELDON, TX

LOCATION.--Lat 29°52'34", long 95°05'37", Harris County, Hydrologic Unit 12040104, on left bank at U.S. Highway 90 bridge, 0.3 mi (0.5 km) downstream from Southern Pacific Railway Co. bridge, 1.5 mi (2.4 km) east of Sheldon, 4.6 mi (7.4 km) downstream from Lake Houston, and 21 mi (34 km) northeast of Houston.

DRAINAGE AREA.--2,879 mi<sup>2</sup> (7,457 km<sup>2</sup>).

PERIOD OF RECORD.--February 1970 to current year (elevations only prior to 1973, beginning 1973 gage heights only).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 0.69 ft (6.210 m) below National Geodetic Vertical Datum of 1929, adjustment of 1973. Prior records unadjusted for land-surface subsidence.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 20.12 ft (6.133 m) June 15, 1973; minimum elevation, -2.36 ft (-0.719 m) Feb. 13, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since at least 1875, 31.5 ft (9.60 m) Nov. 26, 1940, at site 0.3 mi (0.5 km) upstream at Southern Pacific Railway Co. bridge.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 10.33 ft (3.149 m) May 15 at 0600 hours; minimum gage height estimated, -1.5 ft (-0.46 m) Jan. 8.

## GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUNE		JULY		AUG		SEPT	
	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.
1	2.74	1.19	-	-	3.11	0.93	2.11	0.97	-	-	-	-	-	-	2.85	1.07	-	-	2.09	0.52	-	-	2.75	0.77
2	2.50	.80	-	-	2.03	1.00	2.35	1.35	-	-	-	-	2.96	-	2.32	.82	-	-	2.06	.50	-	-	2.37	1.04
3	2.83	1.74	-	-	2.39	1.00	2.60	.95	-	-	-	-	2.50	0.70	2.12	.63	-	-	1.95	.38	-	-	2.57	.70
4	3.04	1.46	-	-	2.14	.07	1.37	-.31	-	-	-	-	3.00	1.53	2.29	1.10	-	-	2.00	.16	2.14	0.16	2.27	.60
5	3.09	1.39	-	-	2.08	1.12	-	-	-	-	-	-	2.70	1.27	2.92	1.29	-	-	2.35	.20	2.14	.15	2.77	.07
6	2.95	1.22	-	0.85	2.67	1.45	-	-	-	-	-	-	2.42	.48	2.82	1.75	-	-	2.47	.58	2.14	.32	2.70	1.55
7	2.68	1.39	2.64	.89	2.93	1.51	-	-	-	-	-	-	3.22	2.34	1.75	.69	-	-	2.00	.22	2.51	.68	2.50	1.15
8	3.08	1.55	3.02	1.58	2.18	.47	-	-	-	-	-	-	3.01	1.60	2.18	.20	-	-	1.95	-.10	2.31	.35	2.62	1.46
9	2.91	1.46	2.43	.94	2.25	.20	-	-	-	-	-	-	2.34	1.16	2.84	.80	-	-	-	.01	2.47	.78	3.08	1.54
10	2.44	1.15	1.99	.27	2.53	.37	-	-	-	-	-	-	2.77	1.32	3.02	1.00	-	-	-	-	2.19	.92	3.14	1.34
11	2.64	.93	2.52	.88	2.70	.76	-	-	-	-	-	-	2.42	.54	3.01	1.40	-	-	-	-	2.04	.78	2.80	.72
12	2.70	1.47	2.60	.92	2.56	.05	-	-	-	-	-	-	2.90	.87	3.82	1.49	-	-	-	-	2.23	.65	3.05	.72
13	3.65	1.67	2.59	.68	2.09	-.02	-	-	-	-	-	-	2.34	.69	5.30	2.30	-	-	-	-	2.10	.46	2.96	1.28
14	3.53	2.04	2.45	.51	2.08	-.47	-	-	-	-	-	-	2.33	.30	10.17	5.30	-	-	-	-	2.10	.35	3.08	1.16
15	3.46	1.49	2.62	.95	1.44	-.26	-	-	-	-	-	-	2.58	.63	10.33	10.13	-	-	-	-	2.04	.15	2.67	.90
16	3.30	1.70	2.81	.66	1.90	.61	-	-	-	-	-	-	2.92	1.35	10.22	10.13	-	-	-	-	2.03	-.04	2.57	.67
17	3.14	1.47	2.47	.85	2.22	-.53	-	-	-	-	-	-	2.45	.78	10.10	8.92	-	-	-	-	2.04	.03	2.65	.72
18	2.99	.12	2.47	1.19	.95	-.45	-	-	-	-	-	-	2.51	.60	9.30	-	-	-	-	-	2.43	.22	2.60	.91
19	1.87	.76	2.86	.24	2.03	.95	-	-	-	-	-	-	2.61	1.19	-	-	-	-	-	-	2.62	.45	2.50	1.22
20	2.64	1.13	.90	-.58	-	-	-	-	-	-	-	-	2.41	1.13	-	-	-	-	-	-	2.71	.80	2.44	.70
21	2.81	1.20	2.64	.80	-	-	-	-	-	-	-	-	2.07	.85	-	-	-	-	-	-	2.42	1.07	2.19	.78
22	2.86	1.04	2.66	1.22	-	-	-	-	-	-	-	-	3.00	1.12	-	-	2.45	.42	-	-	2.34	.88	2.70	1.25
23	1.49	.52	2.71	1.35	-	-	-	-	-	-	-	-	4.75	2.86	-	-	2.52	.25	-	-	2.18	.85	2.78	1.45
24	3.02	1.07	2.48	.76	-	-	-	-	-	-	-	-	5.50	4.61	-	-	2.18	.25	-	-	1.77	.61	2.69	1.36
25	3.45	1.96	2.66	1.11	-	-	-	-	-	-	-	-	5.90	5.41	-	-	2.62	.27	-	-	1.72	.33	2.58	.56
26	2.45	.11	3.10	1.44	-	-	-	-	-	-	-	-	5.42	4.00	-	-	2.49	.30	-	-	1.65	.23	2.45	.57
27	2.50	.64	2.57	.30	-	-	-	-	-	-	-	-	4.00	2.95	-	-	2.32	.54	-	-	1.82	.23	2.82	1.12
28	2.44	.89	2.42	.62	-	-	-	-	-	-	-	-	3.34	2.12	-	-	2.53	.92	-	-	1.92	.17	2.77	1.16
29	2.71	1.05	2.76	.90	2.12	.30	-	-	-----	-----	-	-	3.03	1.65	-	-	2.15	.65	-	-	1.75	.04	3.20	1.30
30	3.04	1.52	3.09	1.86	2.80	1.18	-	-	-----	-----	-	-	2.60	1.05	-	-	2.07	.62	-	-	2.06	.25	3.55	1.62
31	-	-	-----	-----	2.86	.94	-	-	-----	-----	-	-	-----	-----	-	-	-----	-----	-	-	2.20	.55	-----	-----

## SAN JACINTO RIVER BASIN

63

08072300 BUFFALO BAYOU NEAR KATY, TX

LOCATION.--Lat 29°44'35", long 95°48'24", Fort Bend County, Hydrologic Unit 12040104, on left bank at bridge on county road, 2.5 mi (4.0 km) downstream from confluence of Willow Fork and Cane Island Branch of Buffalo Bayou, and 3.1 mi (5.0 km) southeast of Katy.

DRAINAGE AREA.--63.3 mi<sup>2</sup> (163.9 km<sup>2</sup>).

PERIOD OF RECORD.--July 1977 to current year.

Water-quality records: Chemical and biochemical analyses: June 1978 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 75.02 ft (22.866 m) National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Records good. Diversions and return of irrigation water from area above station.

AVERAGE DISCHARGE.--5 years, 49.8 ft<sup>3</sup>/s (1.410 m<sup>3</sup>/s), 36,080 acre-ft/yr (44.5 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,920 ft<sup>3</sup>/s (82.7 m<sup>3</sup>/s) Sept. 20, 1979, gage height, 37.54 ft (11.442 m); minimum daily estimated, 0.80 ft<sup>3</sup>/s (0.023 m<sup>3</sup>/s) Nov. 20-22, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,230 ft<sup>3</sup>/s (63.2 m<sup>3</sup>/s) May 13 at 1900 hours, gage height, 35.73 ft (10.891 m), no other peak above base of 750 ft<sup>3</sup>/s (21.2 m<sup>3</sup>/s); minimum daily, 0.92 ft<sup>3</sup>/s (0.026 m<sup>3</sup>/s) Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	311	220	2.8	3.5	5.7	2.8	2.0	7.6	3.9	18	2.5
2	21	157	119	2.4	2.5	3.7	2.1	1.7	6.1	4.0	11	2.0
3	30	77	72	2.4	2.9	2.5	1.7	1.4	4.4	3.6	4.9	1.5
4	40	42	43	2.5	2.5	2.0	1.4	1.4	3.3	3.0	4.4	1.2
5	25	24	26	2.4	2.4	1.7	1.3	1.2	3.2	2.5	4.0	1.0
6	93	16	20	2.3	1.7	3.6	1.2	12	3.5	2.4	6.3	1.1
7	62	12	24	2.5	1.7	3.7	1.6	28	2.9	2.7	7.8	.99
8	78	12	22	3.0	1.8	2.5	1.5	14	2.8	3.3	43	1.0
9	51	51	19	2.4	1.6	2.4	1.3	7.5	2.8	3.6	62	.92
10	35	33	15	2.2	1.6	1.5	6.2	4.2	3.3	4.4	56	1.7
11	26	17	10	2.3	1.5	1.2	5.7	3.1	3.3	4.3	40	1.9
12	20	10	9.1	14	1.3	1.2	2.7	4.3	4.5	3.5	18	1.8
13	19	7.1	8.0	12	2.2	1.6	2.0	819	4.3	8.9	9.0	1.7
14	24	5.5	6.4	8.2	2.1	1.4	1.7	1560	4.3	23	5.8	1.7
15	19	4.0	6.0	5.5	1.5	1.2	1.4	889	3.4	17	3.9	2.0
16	26	3.3	5.0	4.0	1.4	1.2	1.4	377	3.5	23	2.9	2.1
17	38	3.0	4.2	3.6	1.3	1.1	1.2	213	3.0	25	2.5	2.2
18	42	2.6	3.7	3.7	1.3	1.2	1.2	288	2.5	20	2.3	2.0
19	33	2.4	3.3	19	1.4	1.1	1.3	128	3.1	13	2.2	1.8
20	18	2.4	3.2	15	2.8	1.2	1.4	64	3.5	20	2.0	1.6
21	15	2.4	4.5	8.6	3.6	1.2	12	39	3.8	27	1.9	1.8
22	9.4	2.0	3.7	4.5	2.1	1.5	20	34	4.8	38	2.0	2.1
23	5.9	2.0	3.4	3.5	1.6	23	15	53	5.6	43	2.9	2.0
24	8.4	2.9	2.9	2.9	1.2	11	39	34	5.5	43	2.1	1.8
25	6.2	2.0	2.6	2.3	5.5	5.3	64	20	3.9	40	1.5	1.8
26	4.1	1.9	2.3	1.9	74	2.8	29	14	3.2	30	2.0	1.7
27	2.8	1.8	2.2	1.6	31	11	13	9.0	3.2	29	2.2	1.6
28	2.1	1.5	2.2	1.7	11	13	6.6	6.6	4.9	32	2.4	1.6
29	2.0	225	2.1	1.8	---	6.1	3.9	6.2	5.0	38	2.3	5.6
30	2.1	426	2.1	6.2	---	4.2	2.7	6.9	3.9	71	2.4	4.2
31	68	---	3.6	8.5	---	3.6	---	6.4	---	29	2.2	---
TOTAL	854.0	1459.8	670.5	155.7	169.0	124.4	246.3	4647.9	119.1	611.1	329.9	56.91
MEAN	27.5	48.7	21.6	5.02	6.04	4.01	8.21	150	3.97	19.7	10.6	1.90
MAX	93	426	220	19	74	23	64	1560	7.6	71	62	5.6
MIN	2.0	1.5	2.1	1.6	1.2	1.1	1.2	1.2	2.5	2.4	1.5	.92
AC-FT	1690	2900	1330	309	335	247	489	9220	236	1210	654	113
CAL YR 1981	TOTAL	18007.10	MEAN	49.3	MAX	1280	MIN	.90	AC-FT	35720		
WTR YR 1982	TOTAL	9444.61	MEAN	25.9	MAX	1560	MIN	.92	AC-FT	18730		

## SAN JACINTO RIVER BASIN

08072500 BARKER RESERVOIR NEAR ADDICKS, TX

LOCATION.--Lat 29°46'11", long 95°38'49", Harris County, Hydrologic Unit 12040104, at dam on Buffalo Bayou, 45 ft (14 m) upstream from reservoir outlet works, 1,160 ft (354 m) upstream from Addicks-Howell county road, 1.1 mi (1.8 km) south of Addicks, and 1.2 mi (1.9 km) upstream from South Mayde Creek.

DRAINAGE AREA.--128 mi<sup>2</sup> (332 km<sup>2</sup>). Prior to August 1977, 134 mi<sup>2</sup> (347 km<sup>2</sup>). Basin boundary to change due to relocation of drainage ditches. During extreme floods, basin may receive and (or) lose runoff due to basin interchange.

PERIOD OF RECORD.--August 1945 to current year. On October 1973, the upper gage was converted to a flood-hydrograph partial-record station.

Water-quality records: Chemical and biochemical analyses: June 1978 to September 1981.

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

GAGE.--Water-stage recorders. Datum of gage is National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence (since 1973). Prior to Oct 1, 1980, 0.33 ft (0.101 m) below National Geodetic Vertical Datum of 1929, unadjusted for land-surface subsidence.

REMARKS.--The reservoir is formed by a rolled earthfill dam 72,900 ft (22,200 m) long. The dam was completed Feb. 3, 1946, but was used as early as the spring of 1945 for flood control. The reservoir is operated for flood protection for the city of Houston. The controlled outlet works consist of five concrete conduits, 9 by 7 ft (2.7 by 2.1 m) wide, each controlled by a vertical slide gate. Corps of Engineers gage-height telemetry 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.....	112.5	-
Ground elevation at ends of dam.....	106.0	209,000
Design flood.....	105.4	199,000
Crest of spillway (invert).....	73.2	0

COOPERATION.--The capacity table, furnished by the Corps of Engineers, is based on extensive releveing survey made in 1974 using National Geodetic Vertical Datum, 1973 adjustment as base.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 39,200 acre-ft (48.3 hm<sup>3</sup>) May 15, 1968, gage height, 94.60 ft (28.834 m) former datum and former capacity table; minimum, reservoir was dry at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 12,110 acre-ft (14.9 hm<sup>3</sup>) May 18 at 2400 hours to May 19 at 0900 hours, elevation, 89.10 ft (27.158 m); minimum, 0.12 acre-ft (148 m<sup>3</sup>) Nov. 21, 26-28; minimum elevation, 73.67 ft (22.455 m) Nov. 28, 29.

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

73.2	0	78.4	14	81.6	193	86.0	3,979
75.8	1	79.2	22	82.2	331	87.0	6,005
76.3	2	79.8	32	83.0	671	88.5	10,100
76.9	4	80.4	49	84.0	1,367	90.0	15,620
77.6	8	81.0	100	85.0	2,433		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	1470.00	2870.00	.20	.29	140.00	.23	.2	.24	.18	.38	.15
2	.25	2490.00	3100.00	.18	.31	.47	.20	.2	.24	.18	.35	.15
3	.23	1720.00	2800.00	.18	.31	.29	.18	.2	.21	.18	.29	.14
4	.39	285.00	2290.00	.17	.22	.26	.17	.2	.20	.18	.23	.14
5	.48	.41	1680.00	.16	.19	.22	.17	.2	.18	.17	.19	.14
6	8.40	.31	1070.00	.99	.18	.24	.15	.5	.18	.17	.21	.13
7	8.90	.28	467.00	3.00	.17	.26	.17	2.6	.18	.17	.25	.15
8	3.20	.29	27.00	.16	.18	.21	.15	.4	.19	.18	.58	.14
9	2.00	.67	.28	.15	.18	.19	.15	.3	.18	.18	1.40	.14
10	.47	.40	.25	.15	.17	.18	.28	.2	.18	.18	.47	.15
11	.33	.30	.20	.15	.17	.17	.27	.2	.18	.19	.70	.15
12	.28	.24	.18	.93	.16	.17	.20	.2	.17	.19	.40	.16
13	.26	.21	.17	.62	.15	.18	.17	317.0	.18	.31	.26	.19
14	.29	.18	.16	.31	.18	.17	.16	4630.0	.18	.49	.22	.23
15	.25	.19	2.00	.25	.18	.17	.16	8710.0	.19	.41	.19	.19
16	65.10	.15	7.30	.21	.18	.16	.15	10890.0	.18	.40	.18	.18
17	120.00	.14	13.00	.19	.17	.16	.15	11720.0	.19	.39	.16	.18
18	88.10	.13	.19	.19	.16	.15	.15	12110.0	.18	.37	.16	.17
19	41.10	.13	.17	.19	.16	.15	.16	11630.0	.18	.32	.17	.17
20	1.00	.13	.19	.32	.33	.15	.16	10600.0	.19	.36	.16	.17
21	.36	.12	.23	.26	.31	.15	.36	9350.0	.19	.49	.15	.16
22	.30	.13	.20	.22	.23	.17	.38	8170.0	.19	.48	.15	.15
23	.27	.13	.17	.19	.18	1.20	.37	7190.0	.19	.49	.15	.15
24	.23	.13	.16	.18	.17	.68	1.60	6370.0	.20	.67	.16	.15
25	.24	.13	.16	.18	1.90	.32	12.50	5280.0	.19	.73	.15	.15
26	.19	.12	.15	.17	148.00	.22	1.50	3820.0	.18	.49	.15	.16
27	.18	.12	.15	.16	506.00	.45	.41	2430.0	.19	.42	.15	.16
28	.17	.12	.16	.16	506.00	.48	.30	1450.0	.19	.46	.14	.17
29	.21	15.00	.15	.19	---	.32	.24	836.0	.20	.46	.15	.19
30	.22	1540.00	.17	.35	---	.26	.21	232.0	.19	.81	.15	.23
31	139.00	---	.25	.81	---	.32	---	1.3	---	.67	.16	---
MAX	139	2490	3100	3.0	506	140	12	12110	.24	.81	1.4	.23
MIN	.17	.12	.15	.15	.15	.15	.15	.20	.17	.17	.14	.13

CAL YR 1981 MAX 30330 MIN .11  
WTR YR 1982 MAX 12110 MIN .12



## SAN JACINTO RIVER BASIN

65

08072730 BEAR CREEK NEAR BARKER, TX

LOCATION.--Lat 29°49'50", long 95°41'12", Harris County, Hydrologic Unit 12040104, on bank at bridge on Clay Road, 2.5 mi (4.0 km) west of State Highway 6, and 4.1 mi (6.6 km) upstream from mouth of Langham Creek.

DRAINAGE AREA.--19.8 mi<sup>2</sup> (51.3 km<sup>2</sup>).

PERIOD OF RECORD.--July 1977 to current year.

Water-quality records: Chemical and biochemical analyses: June 1978 to September 1981.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 100.00 ft (30.480 m) National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Records fair except those for June and July, which are poor. Channel rectified in 1981 water year. Diversions and return of irrigation water from area above station.

AVERAGE DISCHARGE.--5 years, 19.5 ft<sup>3</sup>/s (0.552 m<sup>3</sup>/s), 14,130 acre-ft/yr (17.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,060 ft<sup>3</sup>/s (58.3 m<sup>3</sup>/s) Aug. 31, 1981, gage height, 15.86 ft (4.834 m); maximum gage height, 16.72 ft (5.096 m) Sept. 20, 1979, occurred prior to channel rectification; no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 738 ft<sup>3</sup>/s (20.9 m<sup>3</sup>/s) May 14 at 0400 hours, gage height, 12.69 ft (3.868 m), no other peak above base of 300 ft<sup>3</sup>/s (8.50 m<sup>3</sup>/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	36	96	.12	3.2	4.6	.03	.37	2.0	1.5	15	.76
2	1.0	36	43	.10	1.6	1.6	.03	.73	1.5	.00	8.0	.99
3	1.3	21	19	.07	.91	.46	.02	.31	1.2	.00	4.0	.95
4	9.5	12	11	.05	.59	.20	.02	.11	.90	.00	2.8	1.2
5	15	6.6	7.7	.03	.40	.08	.01	.05	.70	.00	4.0	.73
6	15	4.8	5.5	.12	.23	.08	.01	25	.60	.00	3.4	.72
7	14	3.6	6.3	.67	.14	.04	.00	30	.50	.00	2.5	.72
8	13	3.4	7.0	.98	.11	.02	.00	5.0	.40	.00	6.0	.89
9	13	12	6.9	1.0	.07	.02	.00	3.0	.30	.00	5.3	1.3
10	12	18	5.8	.78	.03	.01	.23	4.0	.25	.00	4.4	1.4
11	9.5	11	4.7	.58	.00	.00	.10	2.5	.20	.00	5.7	.35
12	7.6	6.6	3.6	1.4	.00	.00	.03	6.2	.15	.32	8.3	.59
13	6.4	4.9	2.2	3.4	.00	.00	.03	201	.12	15	6.4	1.7
14	6.3	4.1	1.7	4.6	.00	.00	.03	674	.10	25	2.9	1.8
15	5.0	3.1	1.5	3.2	.00	.00	.03	401	.10	10	1.4	1.1
16	6.9	2.3	1.4	1.8	.00	.00	.01	206	.09	10	1.6	6.6
17	14	2.3	1.8	1.1	.00	.00	.00	144	5.0	12	1.4	6.3
18	15	1.9	1.8	.72	.00	.00	.00	193	3.5	10	.77	3.1
19	15	1.5	1.6	.46	.00	.00	.00	143	2.5	10	2.3	1.5
20	8.7	1.2	1.4	.41	.03	.00	.00	131	2.0	25	1.5	1.4
21	5.2	1.1	1.4	.36	.02	.00	.18	139	7.0	30	1.2	3.5
22	3.6	.87	1.4	.25	.01	.00	.03	81	5.8	25	2.3	6.6
23	2.5	.51	2.1	.11	.00	.12	.02	39	.97	15	1.5	5.1
24	1.7	.22	.88	.07	.00	.00	3.2	24	.79	10	1.4	4.5
25	1.8	.16	.66	.05	.63	.00	16	15	.55	5.0	1.0	3.0
26	1.8	.10	.46	.04	16	.00	21	11	.61	10	.88	1.1
27	1.3	.05	.26	.04	21	.47	10	8.0	.38	15	1.1	.44
28	.82	.03	.22	.03	11	.19	3.8	6.0	.10	7.0	.85	.26
29	.70	33	.19	.03	---	.07	1.4	4.5	3.2	5.0	.67	.88
30	1.0	140	.15	1.3	---	.06	.47	3.5	1.2	10	1.1	.40
31	4.9	---	.10	5.0	---	.04	---	2.5	---	25	1.1	---
TOTAL	214.92	368.34	237.72	28.87	55.97	8.06	56.68	2503.77	42.71	275.82	100.77	59.88
MEAN	6.93	12.3	7.67	.93	2.00	.26	1.89	80.8	1.42	8.90	3.25	2.00
MAX	15	140	96	5.0	21	4.6	21	674	7.0	30	15	6.6
MIN	.70	.03	.10	.03	.00	.00	.00	.05	.09	.00	.67	.26
AC-FT	426	731	472	57	111	16	112	4970	85	547	200	119
CAL YR 1981	TOTAL	7320.32	MEAN	20.1	MAX	1120	MIN	.00	AC-FT	14520		
WTR YR 1982	TOTAL	3953.51	MEAN	10.8	MAX	674	MIN	.00	AC-FT	7840		

## SAN JACINTO RIVER BASIN

08072760 LANGHAM CREEK AT STATE HIGHWAY 6 NEAR ADDICKS, TX

LOCATION.--Lat 29°51'55", long 95°38'44", Harris County, Hydrologic Unit 12040104, on right bank 100 ft (30 m) downstream from bridge on State Highway 6, 2.2 mi (3.5 km) downstream from Dinners Creek, and 5.6 mi (9.0 km) north of Addicks.

DRAINAGE AREA.--25.8 mi<sup>2</sup> (66.8 km<sup>2</sup>).

PERIOD OF RECORD.--July 1977 to September 1982 (discharge measurements and supplemental peak discharges only Oct. 1, 1980, to Sept. 30, 1982), discontinued as a continuous-record station; converted to a flood-hydrograph partial-record station.

Water-quality records: Chemical and biochemical analyses: June 1978 to September 1981.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 90.00 ft (27.432 m) National Geodetic Vertical Datum of 1929, 1973 adjustment. Prior to June 12, 1979, water-stage recorder at bridge 100 ft (30 m) upstream at same datum.

REMARKS.--Records poor. No gage-height record was obtained during the 1981-82 water years, except during visits and from peak marks.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge estimated, 1,180 ft<sup>3</sup>/s (33.4 m<sup>3</sup>/s) Sept. 19, 1979, at 2100 hours, hours, gage height, 24.42 ft (7.443 m); no flow for few days during period July to September 1977, and the 1978 and 1980 water years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above 300 ft<sup>3</sup>/s (8.50 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Nov. 29	unknown	457	12.9	19.28	5.877
May 13	unknown	781	22.1	21.54	6.565

Minimum discharge not determined.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

Nov. 5.....	5.7	May 13.....	95
Dec. 8.....	3.8	June 23.....	.65
Jan. 21.....	3.4	Aug. 4.....	1.1
Mar. 4.....	.63	Sept. 13.....	.87
Apr. 6.....	.43		

## 08073000 ADDICKS RESERVOIR NEAR ADDICKS, TX

LOCATION.--Lat 29°47'28", long 95°37'24", Harris County, Hydrologic Unit 12040104, at dam on South Mayde Creek, 65 ft (20 m) upstream from reservoir outlet works, 2,700 ft (823 m) upstream from U.S. Highway 90, 1.2 mi (1.9 km) east of Addicks, and 1.4 mi (2.3 km) upstream from mouth.

DRAINAGE AREA.--129 mi<sup>2</sup> (334 km<sup>2</sup>). Prior to Aug. 1, 1977, 133 mi<sup>2</sup> (344 km<sup>2</sup>). Basin boundary change to relocation of drainage ditches. During extreme floods, basin may receive and (or) lose runoff due to basin interchange.

PERIOD OF RECORD.--June 1948 to current year. In October 1973, the upper gages were converted to flood-hydrograph partial-record stations.

Water-quality records: Chemical and biochemical analyses: June 1978 to September 1981.

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

GAGE.--Water-stage recorders. Datum of gage is National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence (since 1973).

REMARKS.--The reservoir is formed by a rolled earthfill dam 61,166 ft (18,643 m) long. The dam was completed in December 1948. The reservoir is operated for flood protection for the city of Houston. The outlet works consist of five concrete conduits 8 by 6 ft (2.4 by 1.8 m) wide, each controlled by a vertical slide gate. Runoff in excess of maximum design capacity will be discharged around both ends of dam. 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.....	121.6	-
Design flood.....	112.7	212,500
Ground elevation at ends of dam.....	112.0	200,800
Crest of spillway (invert).....	71.0	0

COOPERATION.--The capacity table, furnished by the Corps of Engineers, was based on extensive releveing survey in 1974, using National Geodetic Vertical Datum, 1973 adjustment.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 37,460 acre-ft (46.2 hm<sup>3</sup>) May 15, 1968, elevation, 100.02 ft (30.486 m), former datum and former capacity table; minimum, reservoir was dry at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1935 reached a stage of 89.9 ft (27.40 m), former datum, at bridge on U.S. Highway 90, 2,700 ft (823 m) downstream from gage, from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 14,620 acre-ft (18.0 hm<sup>3</sup>) May 19 at 1000 hours, elevation, 93.46 ft (28.487 m); minimum, 0.29 acre-ft (358 m<sup>3</sup>) Apr. 6, 7, elevation, 71.56 ft (21.811 m).

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

71.1	0	77.2	54	81.5	351	88.0	3,190
73.6	2	78.0	85	83.0	598	90.0	5,707
75.1	8	79.0	134	84.5	1,033	92.0	9,926
75.7	16	80.0	202	86.0	1,676	94.0	16,700
76.4	30						

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.44	1190.00	4360.00	.49	.80	1.00	.39	.4	.60	.36	1.40	.36
2	.49	1150.00	4340.00	.43	.66	.80	.36	.4	.47	.39	.94	.36
3	.49	376.00	3820.00	.44	.52	.59	.33	.4	.44	.35	.71	.35
4	.84	1.10	3320.00	.43	.41	.52	.31	.3	.42	.34	.53	.37
5	2.70	.67	2660.00	.43	.40	.45	.31	.3	.45	.33	.48	.39
6	4.40	.49	2060.00	.43	.40	1.10	.29	36.6	.40	.34	.45	.36
7	2.30	.44	1510.00	.43	.40	.56	.29	42.6	.46	.34	.46	.36
8	1.60	1.00	973.00	.44	.40	.45	.31	1.0	.41	.34	2.10	.36
9	1.40	8.00	470.00	.43	.39	.39	.31	.6	.39	.35	1.70	.36
10	1.10	2.50	134.00	.42	.39	.38	1.20	.5	.39	.35	1.50	.36
11	.81	.95	.53	.44	.39	.36	.48	.4	.39	.45	1.00	.36
12	.63	.60	.42	3.80	.39	.37	.34	27.0	.38	.62	.94	.36
13	.58	.49	.38	.93	.39	.37	.33	979.0	.52	1.80	.70	.65
14	.67	.45	.58	.70	.39	.38	.33	8760.0	1.00	1.70	.65	.55
15	.65	.43	.59	.52	.41	.35	.32	12030.0	.50	1.30	.50	.43
16	75.30	.41	.50	.44	.41	.34	.32	13220.0	.74	3.90	.44	.41
17	157.00	.41	.44	.41	.41	.33	.33	13960.0	.65	1.20	.43	.55
18	97.20	.40	.43	.41	.40	.33	.33	14490.0	.43	1.70	.43	.45
19	2.00	.39	.41	.46	.41	.31	.33	14280.0	.39	1.00	.52	.44
20	.82	.39	.41	.41	.83	.31	.33	12980.0	.38	1.20	.43	.41
21	.58	.37	.49	.44	.44	.31	1.30	11480.0	.43	1.40	.40	.41
22	.45	.36	.43	.43	.40	.36	1.10	9810.0	.43	2.90	.43	.48
23	.48	.35	.41	.39	.39	3.10	1.30	8070.0	.38	2.00	.44	.49
24	.43	.35	.39	.38	.39	.80	41.10	6870.0	.34	1.40	11.20	.52
25	.44	.34	.38	.36	4.40	.44	13.30	5530.0	.34	1.10	21.00	.49
26	.43	.34	.38	.37	115.00	.36	2.00	4040.0	.34	24.40	30.30	.50
27	.41	.34	.39	.36	45.00	3.00	1.00	2570.0	.62	1.40	41.10	.61
28	.43	.34	.38	.37	1.10	1.10	.58	1680.0	.41	1.00	49.50	.59
29	.40	379.00	.38	.50	---	.62	.43	1090.0	.35	.91	59.00	.62
30	.44	3460.00	.39	33.00	---	.49	.36	556.0	.44	1.80	.38	.77
31	307.00	---	.77	3.30	---	.43	---	163.0	---	3.00	.38	---
MAX	307	3460	4360	33	115	3.1	41	14490	1.0	24	59	.77
MIN	.40	.34	.38	.36	.39	.31	.29	.30	.34	.33	.38	.35
CAL YR 1981	MAX	34220	MIN	.29								
WTR YR 1982	MAX	14490	MIN	.29								

## SAN JACINTO RIVER BASIN

08073500 BUFFALO BAYOU NEAR ADDICKS, TX

LOCATION.--Lat 29°45'42", long 95°36'20", Harris County, Hydrologic Unit 12040104, near right bank at bridge on Dairy-Ashford Road over rectified channel, 1.8 mi (2.9 km) downstream from South Mayde Creek, and 2.6 mi (4.2 km) southeast of Addicks.

DRAINAGE AREA.--293 mi<sup>2</sup> (759 km<sup>2</sup>), unadjusted for basin boundary changes.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1945 to current year.

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1.40 ft (0.427 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment; records unadjusted to land-surface subsidence. Prior to Feb. 2, 1948, water-stage recorder at bridge on natural channel 1,200 ft (370 m) to right at same datum. Feb. 2 to May 21, 1948, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair except those for periods of no gage-height record, which are poor. Floodflow regulated by Barker and Addicks Reservoirs (stations 08072500 and 08073000) 3.2 and 3.0 mi (5.1 and 4.8 km) upstream, respectively, total capacity 315,900 acre-ft (390 hm<sup>3</sup>). Extreme low flow is sustained by drainage from irrigated lands.

AVERAGE DISCHARGE.--37 years, 208 ft<sup>3</sup>/s (5.891 m<sup>3</sup>/s), 150,700 acre-ft/yr (186 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft<sup>3</sup>/s (317 m<sup>3</sup>/s) Aug. 29, 1945, gage height, 81.23 ft (24.759 m), former site; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1896, 85.6 ft (26.09 m) in December 1935, adjusted to former site from floodmark 0.5 mi (0.8 km) downstream, on basis of slope of flood of Aug. 29, 1945, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,050 ft<sup>3</sup>/s (58.1 m<sup>3</sup>/s) May 13 at 1700 hours, gage height, 64.84 ft (19.763 m); minimum daily, 15 ft<sup>3</sup>/s (0.42 m<sup>3</sup>/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	500	750	55	120	100	37	31	162	29	157	23
2	85	200	720	45	50	70	30	29	35	28	71	22
3	80	700	710	45	45	50	28	29	34	28	54	23
4	100	900	696	45	35	41	26	26	32	25	43	23
5	200	550	680	42	30	44	25	23	29	27	37	23
6	400	124	664	40	27	37	25	132	28	25	34	23
7	450	93	642	38	25	46	23	356	26	26	37	23
8	300	120	597	40	27	34	23	182	28	28	110	23
9	280	231	420	35	27	27	26	54	27	29	195	23
10	260	271	282	35	25	25	44	36	27	30	154	24
11	150	167	163	35	23	23	51	30	27	31	117	24
12	110	102	60	150	22	24	35	64	26	36	86	27
13	90	81	55	120	22	28	28	803	27	134	49	29
14	100	71	53	70	25	28	27	584	40	187	35	39
15	70	63	52	50	23	26	26	560	36	190	30	33
16	120	58	47	40	22	25	26	498	31	96	25	28
17	400	52	41	35	21	21	26	527	35	109	24	30
18	450	51	60	30	20	22	26	690	32	66	24	29
19	300	48	45	27	20	22	28	1020	30	76	25	40
20	200	46	55	36	70	21	27	1450	29	75	27	32
21	130	46	55	36	80	21	109	1500	37	92	25	23
22	100	46	50	32	50	30	88	1470	34	141	24	22
23	80	44	45	25	35	157	67	1450	30	162	24	24
24	60	44	42	23	30	190	222	1340	28	133	21	24
25	90	44	40	20	100	69	387	1100	29	115	17	24
26	80	43	40	19	300	41	281	1320	28	103	16	25
27	75	40	40	18	200	68	110	1340	37	177	16	28
28	65	41	42	17	150	152	51	934	35	84	15	30
29	60	335	40	30	---	67	39	550	29	76	17	29
30	60	800	55	200	---	42	32	512	30	84	45	36
31	300	---	70	250	---	39	---	444	---	181	22	---
TOTAL	5335	5911	7311	1683	1624	1590	1973	19084	1058	2623	1576	806
MEAN	172	197	236	54.3	58.0	51.3	65.8	616	35.3	84.6	50.8	26.9
MAX	450	900	750	250	300	190	387	1500	162	190	195	40
MIN	60	40	40	17	20	21	23	23	26	25	15	22
AC-FT	10580	11720	14500	3340	3220	3150	3910	37850	2100	5200	3130	1600

CAL YR 1981 TOTAL 105965 MEAN 290 MAX 2820 MIN 11 AC-FT 210200  
WTR YR 1982 TOTAL 50574 MEAN 139 MAX 1500 MIN 15 AC-FT 100300

NOTE.--No gage-height record Oct. 1 to Nov. 5, Dec. 18 to Jan. 19, and Jan. 29 to Mar. 4.

## SAN JACINTO RIVER BASIN

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08073500 BUFFALO BAYOU NEAR ADDICKS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: August 1970 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 18...	1410	30	620	7.4	11.0	40	28	9.4	85	6.3	3000	680
JUL 13...	1045	39	640	7.6	28.0	40	40	5.0	64	5.2	720	950
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)	SILICA, DIS- SOLVED (MG/L AS SIO2)
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 13...	140	0	45	7.5	72	2.7	7.5	160	26	74	.4	23
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, 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 18...	--	39	19	2.2	.200	2.4	2.70	.80	3.50	2.30	10	
JUL 13...	352	89	15	1.5	.200	1.7	.360	1.8	2.20	.420	8.9	
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)				
JUL 13...	1045	<.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)					
JUL 13...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1					



## SAN JACINTO RIVER BASIN

08073600 BUFFALO BAYOU AT WEST BELT DRIVE, HOUSTON, TX

LOCATION.--Lat 29°45'43", long 95°33'27", Harris County, Hydrologic Unit 12040104, at downstream side of bridge on West Belt Drive in west Houston, 100 ft (30 m) downstream from Rummel Creek, 3.5 mi (5.6 km) downstream from station 08073500, and 3.7 mi (6.0 km) upstream from station 08073700.

DRAINAGE AREA.--307 mi<sup>2</sup> (795 km<sup>2</sup>), unadjusted for basin boundary changes.

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorders and crest-stage gage. Datum of gage is 0.67 ft (0.204 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Water-discharge records good. Floodflow regulated by Barker and Addicks Reservoirs (stations 08072500 and 08073000) 10.1 and 10.3 mi (16.3 and 16.6 km) upstream, respectively. Low flow is sustained by sewage effluent from Houston suburbs. Gage-height telemeter at station.

AVERAGE DISCHARGE.--11 years, 309 ft<sup>3</sup>/s (8.751 m<sup>3</sup>/s), 223,900 acre-ft/yr (276 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,350 ft<sup>3</sup>/s (152 m<sup>3</sup>/s) Aug. 31, 1981, gage height, 64.58 ft (19.684 m); minimum daily, 25 ft<sup>3</sup>/s (0.71 m<sup>3</sup>/s) Nov. 21, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,580 ft<sup>3</sup>/s (44.7 m<sup>3</sup>/s) May 23 at 2100 hours, gage height, 51.69 ft (15.755 m); minimum daily, 51 ft<sup>3</sup>/s (1.44 m<sup>3</sup>/s) for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	700	820	70	176	180	70	87	213	55	175	59
2	100	300	786	61	99	140	63	68	68	53	108	58
3	94	1000	760	60	96	100	59	63	68	53	89	73
4	131	1400	742	60	73	81	57	59	66	51	75	62
5	277	620	725	57	60	76	56	57	63	52	70	58
6	517	148	716	55	58	80	56	274	60	51	68	58
7	601	107	698	51	58	85	53	357	59	51	75	59
8	500	229	662	63	62	72	55	206	60	51	198	59
9	320	258	469	55	59	66	54	89	59	54	201	58
10	330	288	304	55	57	63	100	72	58	53	184	59
11	220	194	202	56	57	61	87	65	58	52	155	59
12	140	120	75	197	55	63	66	104	58	56	129	65
13	110	90	68	184	52	65	58	1000	57	241	94	63
14	130	76	69	114	52	64	57	800	71	270	76	73
15	90	67	67	86	60	64	55	700	71	371	68	72
16	160	64	62	69	55	65	55	600	62	268	63	67
17	600	61	58	64	52	68	56	648	64	173	62	66
18	620	59	86	63	51	63	55	704	59	119	62	67
19	450	57	60	59	51	61	57	961	57	150	62	71
20	330	56	74	68	120	60	55	1450	55	130	64	122
21	180	55	77	69	130	59	242	1550	64	131	62	62
22	120	54	66	65	90	77	155	1520	63	169	61	60
23	100	55	61	60	70	294	106	1530	57	179	61	61
24	80	54	58	58	60	209	340	1460	57	161	59	61
25	150	54	55	57	200	109	352	1120	56	145	54	61
26	120	53	53	55	500	73	273	1330	54	131	54	61
27	90	52	54	55	300	143	148	1430	61	189	54	62
28	80	51	58	56	220	179	90	1030	61	120	53	64
29	75	380	57	88	---	106	71	534	55	109	54	65
30	70	879	73	254	---	77	63	492	56	113	80	72
31	500	---	94	299	---	75	---	425	---	177	60	---
TOTAL	7390	7581	8209	2663	2973	2978	3064	20785	1970	3978	2730	1957
MEAN	238	253	265	85.9	106	96.1	102	670	65.7	128	88.1	65.2
MAX	620	1400	820	299	500	294	352	1550	213	371	201	122
MIN	70	51	53	51	51	59	53	57	54	51	53	58
AC-FT	14660	15040	16280	5280	5900	5910	6080	41230	3910	7890	5410	3880
CAL YR 1981	TOTAL	123871	MEAN	339	MAX	3820	MIN	40	AC-FT	245700		
WTR YR 1982	TOTAL	66278	MEAN	182	MAX	1550	MIN	51	AC-FT	131500		

## SAN JACINTO RIVER BASIN

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08073600 BUFFALO BAYOU AT WEST BELT DRIVE, HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: December 1978 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1979 to current year.

WATER TEMPERATURES: June 1979 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 922 micromhos June 25, 1979; minimum daily, 78 micromhos Aug. 31, 1981.

WATER TEMPERATURES (1979-80): Maximum daily, 30.5°C July 1, 1978; minimum daily, 8.5°C Jan. 23, 1981.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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											
09...	1255	272	288	7.3	18.5	--	160	7.7	81	4.4	46
JAN											
06...	0855	53	780	7.5	19.0	--	6.7	6.2	67	7.4	30
18...	1325	64	720	7.5	16.0	40	20	8.2	83	13	K1
MAR											
29...	1110	104	525	7.6	16.5	--	110	8.4	85	7.5	40
MAY											
17...	1045	417	170	6.9	23.0	--	54	6.9	81	4.7	76
JUL											
13...	1135	62	720	7.6	29.0	15	15	5.1	66	9.0	K2
AUG											
02...	1145	111	520	7.7	29.0	--	62	6.1	79	5.4	2500
SEP											
21...	1000	65	750	7.4	26.5	--	9.9	6.3	78	.8	K6

DATE	STREP- TOCOCCHI 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- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
NOV											
09...	260	73	0	23	3.7	27	1.4	5.5	77	15	32
JAN											
06...	K32	150	0	47	8.9	100	3.7	8.1	240	27	87
18...	K18	--	--	--	--	--	--	--	--	--	--
MAR											
29...	700	120	0	37	6.3	59	2.5	7.1	140	26	59
MAY											
17...	650	43	0	13	2.6	15	1.0	3.5	49	7.0	13
JUL											
13...	K16	130	0	42	6.7	97	3.8	6.9	200	23	86
AUG											
02...	600	110	0	36	5.6	63	2.7	8.9	150	18	58
SEP											
21...	60	130	0	41	7.6	110	4.3	7.5	207	27	92

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 CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
NOV										
09...	.3	11	177	164	--	--	--	--	--	.74
JAN										
06...	.4	20	437	442	--	--	--	--	--	1.7
18...	--	--	--	--	32	23	1.0	.270	1.3	--
MAR										
29...	.4	15	308	294	--	--	--	--	--	1.2
MAY										
17...	.2	7.2	100	91	--	--	--	--	--	.31
JUL										
13...	.4	22	--	405	10	2	.97	.830	1.8	--
AUG										
02...	.3	21	317	301	--	--	--	--	--	1.8
SEP										
21...	.4	25	436	435	--	--	--	--	--	3.9

## SAN JACINTO RIVER BASIN

08073600 BUFFALO BAYOU AT WEST BELT DRIVE AT HOUSTON, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	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
NOV 09...	--	.570	--	.00	.590	.470	--	260	191	98
JAN 06...	--	8.80	--	8.40	4.00	3.60	--	11	1.6	95
MAR 18...	<.070	--	--	9.50	2.60	--	13	--	--	--
MAY 29...	--	2.70	--	4.90	2.10	2.00	--	175	49	93
MAY 17...	--	.780	--	2.20	.600	.540	--	86	97	97
JUL 13...	3.00	--	1.7	4.70	3.20	--	7.7	--	--	--
AUG 02...	--	1.50	--	2.90	1.10	.920	--	95	28	91
SEP 21...	--	1.20	--	3.80	2.50	2.40	--	11	1.9	99

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
NOV 09...	1255	4	0	4	200	100	100	1	<1	10
MAR 29...	1110	4	0	4	300	200	140	<1	<1	10
JUL 13...	1135	--	--	5	--	--	150	--	<1	--
AUG 02...	1145	5	0	5	100	0	160	<1	<1	<10
SEP 21...	1000	5	0	5	<100	--	140	<1	<1	<10

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 09...	<10	2	--	<3	60	53	7	3900	3700	200
MAR 29...	<10	2	1	1	9	5	4	2900	2800	140
JUL 13...	<10	--	--	--	--	--	2	--	--	16
AUG 02...	10	1	--	<1	7	3	4	1300	1300	50
SEP 21...	10	4	--	<1	9	6	3	280	260	22

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
NOV 09...	17	15	2	130	110	19	.6	.5	.1	5
MAR 29...	20	17	3	130	60	68	.2	--	<.1	3
JUL 13...	--	--	3	--	--	40	--	--	.1	--
AUG 02...	6	--	<1	70	50	16	.3	.2	.1	2
SEP 21...	10	6	4	50	20	26	.2	--	<.1	1

## SAN JACINTO RIVER BASIN

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08073600 BUFFALO BAYOU AT WEST BELT DRIVE AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NICKEL, SUS- PENDE- RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE- RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 09...	3	2	<1	<1	<1	<1	50	40	9
MAR 29...	0	<1	<1	<1	<1	<1	30	5	25
JUL 13...	--	--	--	<1	--	<1	--	--	31
AUG 02...	--	<1	<1	<1	<1	<1	30	0	31
SEP 21...	--	<1	<1	<1	<1	<1	50	30	23

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
JUL 13...	1135	<.10	<.10	.30	<.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)
JUL 13...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

DRAINAGE AREA.--1.37 mi<sup>2</sup> (3.55 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft<sup>3</sup>/s (8.50 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)		Elevation (ft) (m)		Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)		Elevation (ft) (m)	
Oct. 6	1725	433	12.3	80.97	24.680	July 13	1815	*468	13.3	81.33	24.789
Oct. 31	1430	402	11.4	80.52	24.542	July 15	1700	403	11.4	80.65	24.582
May 13	1630	442	12.5	81.06	24.707	July 19	1825	432	12.3	80.96	24.677
May 17	1735	368	10.4	80.26	24.463						

Minimum discharge, not determined.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1981 to September 1982.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

[illegible]



WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

[illegible]

## SAN JACINTO RIVER BASIN

08073630 BETTINA STREET DITCH AT KIMBERLY STREET AT HOUSTON, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

	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)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JUN												
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	55	12	21	.6	3.9	.2	1.4	43	14	4.3	<.1	1.9
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	55	9	21	.7	4.9	.3	1.7	46	13	4.0	.1	2.0
13...	47	8	18	.5	4.0	.3	1.7	39	12	2.7	<.1	2.5
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	47	8	18	.5	4.0	.3	1.7	39	12	2.7	<.1	2.5
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--
	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)	
DATE												
JAN												
18...	--	1	2	--	<.020	<.09	.190	.70	.89	1.20	6.3	
APR												
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--	--	--
06...	62	40	8	.41	.070	.48	.410	1.2	1.60	.350	19	
06...	56	60	12	.28	.060	.34	.340	.96	1.30	.270	15	
12...	--	--	--	.84	.360	1.2	.160	2.2	2.40	.520	39	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	1.3	.130	1.4	.550	2.1	2.60	.360	25	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	1.1	.100	1.2	1.10	1.9	3.00	2.10	25	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	.96	.140	1.1	.390	1.9	2.30	.940	39	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
13...	38	178	42	.31	.020	.33	.440	1.9	2.30	.480	33	--
13...	51	479	69	.15	.040	.19	.240	1.1	1.30	.500	32	--
13...	39	106	23	.17	.030	.20	.180	.92	1.10	.230	10	--
14...	138	59	12	.19	.070	.26	1.00	2.7	3.70	.550	11	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--

## SAN JACINTO RIVER BASIN

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08073630 BETTINA STREET DITCH AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L)	SOLIDS, VOLATILE, TILE, 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)
JUN											
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--
22...	--	90	27	.88	.060	.94	.420	3.7	4.10	1.30	30
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	73	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	75	--	--	--	--	--	--	--	--	--	--
13...	64	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--
13...	73	--	--	--	--	--	--	--	--	--	--
14...	--	31	7	--	--	--	--	--	--	--	10
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	14	4	--	--	--	--	--	--	--	10
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	22	5	--	--	--	--	--	--	--	12
14...	--	--	--	--	--	--	--	--	--	--	--
14...	--	4	3	--	--	--	--	--	--	--	11
16...	--	--	--	.44	.190	.63	.370	2.2	2.60	.440	20
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	.66	.050	.71	.150	1.9	2.00	.180	11
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	.67	.050	.72	.140	2.0	2.10	.250	13
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	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)
JUL											
16...	1504	193	87	--	--	--	--	--	--	--	--
16...	1512	184	84	.66	.050	.71	.140	3.0	3.10	.210	13
SEP											
18...	2048	8.2	447	--	--	--	--	--	--	--	--
18...	2103	32	253	--	--	--	--	--	--	--	--
18...	2118	32	227	--	--	--	--	--	--	--	--
18...	2133	32	516	--	--	--	--	--	--	--	--
18...	2148	32	336	--	--	--	--	--	--	--	--
18...	2203	30	318	--	--	--	--	--	--	--	--

## SAN JACINTO RIVER BASIN

08073630 BETTINA STREET DITCH AT KIMBERLY STREET AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 CK)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY							
12...	1135	3	<100	<1	<10	9	60
13...	1304	2	15	<3	<10	3	40
JUN							
22...	1115	3	100	<1	<10	8	100

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY						
12...	3	<10	<.1	<1	<1	110
13	4	6	<.1	<1	<1	94
JUN						
22...	16	20	.1	<1	<1	30

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
MAY								
12...	1135	<.10	<.10	.10	<.10	<.10	<2.0	.2
13...	1304	<.10	<.10	.30	<.10	<.10	<2.0	.2
JUN								
22...	1115	<.10	<.10	<.10	<.10	<.10	<2.0	.3

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)
MAY							
12...	<.1	.10	<2.0	<2.0	<.10	<.10	<.1
13...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUN							
22...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

## SAN JACINTO RIVER BASIN

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08073700 BUFFALO BAYOU AT PINEY POINT, TX

LOCATION.--Lat 29°44'48", long 95°31'24", Harris County, Hydrologic Unit 12040104, on downstream side of bridge on Piney Point Road, village of Piney Point, 3.7 mi (6.0 km) downstream from Rummel Creek, 7.2 mi (11.6 km) downstream from gage near Addicks (station 08073500), and 12.5 mi (20.1 km) upstream from gage at Houston (station 08074000).

DRAINAGE AREA.--317 mi<sup>2</sup> (821 km<sup>2</sup>).

PERIOD OF RECORD.--October 1963 to September 1976, October 1976 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 1.35 ft (0.412 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Station is operated for the purpose of gate regulations at Barker and Addicks Reservoirs (stations 08072500 and 08073000), located 14.0 and 13.8 mi (22.5 and 22.2 km) upstream, respectively. Low flow is partly sustained by sewage effluent from Houston suburbs. Gage-height telemeter at station.

AVERAGE DISCHARGE.--13 years (water years 1963-76), 265 ft<sup>3</sup>/s (7.505 m<sup>3</sup>/s), 192,000 acre-ft/yr (237 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge estimated, 5,700 ft<sup>3</sup>/s (161 m<sup>3</sup>/s) Aug. 31, 1981 gage height, 57.20 ft (17.435 m), from floodmark; minimum daily, 6.0 ft<sup>3</sup>/s (0.17 m<sup>3</sup>/s) Dec. 6, 7, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 50.12 ft (15.277 m) May 13 at 1800 hours, from floodmark; minimum, 32.69 ft (9.964 m) Aug. 29.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34.46	---	40.47	34.25	36.15	36.30	33.70	36.24	37.60	33.43	35.37	33.27
2	34.28	39.00	40.04	33.20	34.40	36.50	33.60	35.00	34.55	33.38	34.71	33.21
3	34.18	42.80	39.87	33.20	34.20	35.20	---	33.48	33.83	33.41	34.18	34.64
4	35.16	43.20	39.74	33.56	33.90	34.00	---	33.43	33.72	33.30	33.86	34.49
5	39.45	42.40	39.62	33.62	33.70	33.75	33.22	33.33	33.64	33.41	33.58	33.28
6	42.09	36.00	39.63	33.43	---	34.35	33.20	40.61	33.55	33.30	33.45	33.28
7	42.20	34.69	39.67	33.29	---	34.05	33.20	39.13	33.41	33.28	34.04	33.30
8	42.16	39.00	39.57	34.15	33.60	33.88	33.20	37.03	33.44	33.32	38.28	33.24
9	37.15	38.40	39.10	33.90	33.54	33.62	33.30	34.72	33.43	33.59	35.78	33.20
10	36.65	36.51	37.12	33.39	33.50	33.50	35.94	34.02	33.39	33.59	35.75	33.19
11	36.44	36.23	36.53	33.40	33.50	33.42	34.24	33.74	33.34	33.41	35.91	33.22
12	35.24	35.09	34.34	37.65	33.40	---	33.78	35.38	33.34	33.51	34.85	33.82
13	34.66	34.33	33.85	35.93	---	---	33.40	50.12	33.36	41.49	34.42	33.54
14	36.24	34.00	33.80	35.20	---	---	33.30	48.35	34.04	40.75	33.84	33.71
15	35.12	33.86	33.80	34.31	---	---	33.21	---	34.04	42.67	33.68	33.64
16	39.07	33.78	33.63	34.02	33.40	---	33.19	---	33.50	39.69	33.46	33.59
17	39.69	33.67	33.63	33.72	33.40	---	33.30	---	33.69	36.95	33.35	33.39
18	40.57	33.53	35.06	33.61	33.40	---	33.22	41.00	35.05	35.37	33.37	33.56
19	38.40	33.54	34.37	33.57	33.30	---	33.25	43.00	34.45	38.22	33.36	36.00
20	37.70	33.50	34.98	33.88	---	---	33.25	44.10	33.73	36.60	33.39	37.80
21	36.28	33.50	34.95	33.88	---	---	39.46	44.20	33.80	35.65	33.33	33.41
22	34.80	33.50	34.00	33.74	34.00	---	36.98	---	33.82	35.65	33.32	33.25
23	34.38	33.50	33.72	33.64	33.70	39.87	35.18	---	34.02	35.35	33.31	33.29
24	34.12	33.50	33.58	33.50	33.40	---	40.40	44.30	35.00	36.92	33.28	33.28
25	34.20	33.45	33.55	33.50	---	---	37.75	43.00	34.15	35.15	33.08	33.29
26	34.20	33.45	33.45	33.42	---	33.90	37.29	43.56	33.35	34.86	33.08	33.25
27	33.80	33.44	33.46	33.37	---	---	35.95	43.74	33.68	35.66	33.10	33.27
28	33.60	33.38	33.58	33.47	---	---	34.59	43.17	33.67	34.78	33.09	33.36
29	33.60	41.08	33.58	35.36	---	34.90	33.95	39.91	33.42	34.38	33.12	33.37
30	33.60	41.04	35.45	40.32	---	34.00	33.62	38.68	33.50	34.65	34.78	33.60
31	---	---	35.54	37.85	---	33.90	---	38.35	---	35.49	34.28	---
MAX	---	---	40.47	40.32	---	---	---	---	37.60	42.67	38.28	37.80
MIN	---	---	33.45	33.20	---	---	---	---	33.34	33.28	33.08	33.19



## SAN JACINTO RIVER BASIN

08074000 BUFFALO BAYOU AT HOUSTON, TX

LOCATION.--Lat 29°45'36", long 95°24'30", Harris County, Hydrologic Unit 12040104, at bridge on Shepherd Drive in Houston and 0.8 mi (1.3 km) upstream from Waugh Drive.

DRAINAGE AREA.--358 mi<sup>2</sup> (927 km<sup>2</sup>), unadjusted for basin boundary changes.

PERIOD OF RECORD.--May 1936 to September 1957, October 1957 to December 1961 (high-water records and discharge measurements) January 1962 to September 1975, October 1975 to current year (high-water records and discharge measurements).

Water-quality records: Chemical, biochemical, and pesticide analysis: October 1968 to September 1981.

REVISED RECORDS.--WSP 1732: Drainage area (former site).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1.36 ft (0.414 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment; records unadjusted for land-surface subsidence. Prior to June 19, 1936, nonrecording gage, and June 19, 1936, to Jan. 16, 1962, water-stage recorder at site 0.8 mi (1.3 km) downstream at 4.08-foot (1.244 m) lower datum. Jan. 17, 1962, to Sept. 30, 1973, auxiliary water-stage recorder 0.8 mi (1.3 km) downstream. Water-stage recorder at Main Street (station 08074600) used as auxiliary gage after Sept. 30, 1973.

REMARKS.--Records poor. Although floodflows are regulated by Barker and Addicks Reservoirs (stations 08072500 and 08073000) located 26.3 and 26.8 mi (42.3 and 42.6 km) upstream, respectively, flood peaks from the urbanized areas below these reservoirs are often independent of the regulation. Discharge is computed using a stage-fall-discharge relationship for all storms which produce peak discharges above 1,500 ft<sup>3</sup>/s (42.5 m<sup>3</sup>/s). Discharges below 1,000 ft<sup>3</sup>/s are computed or estimated following designated storm periods only. Low flow is mostly sustained by sewage effluent from Houston suburbs. Gage heights are affected by tides, backwater from Whiteoak Bayou, and other streams. Gage-height telemeter at station.

AVERAGE DISCHARGE.--8 years (water years 1936-44) unregulated, 272 ft<sup>3</sup>/s (7.703 m<sup>3</sup>/s), 197,100 acre-ft/yr (243 hm<sup>3</sup>/yr); 26 years (water years 1944-57, 1962-75) regulated, 274 ft<sup>3</sup>/s (7.760 m<sup>3</sup>/s), 198,500 acre-ft/yr (245 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft<sup>3</sup>/s (309 m<sup>3</sup>/s) Aug. 30, 1945, gage height, 28.82 ft (8.784 m), at site 0.8 mi (1.3 km) downstream at present datum; minimum daily, 1.3 ft<sup>3</sup>/s (0.037 m<sup>3</sup>/s) May 24, 1939, Nov. 5, 1950.

EXTREMES OUTSIDE PERIOD OF RECORD.--All flood data at site 0.8 mi (1.3 km) downstream at present datum. Maximum gage height since at least 1835, 49.0 ft (14.94 m) Dec. 9, 1935, discharge 40,000 ft<sup>3</sup>/s (1,130 m<sup>3</sup>/s); furnished by engineer for Harris County. Flood of May 31, 1929, reached a gage height of 43.5 ft (13.26 m), discharge 19,000 ft<sup>3</sup>/s (538 m<sup>3</sup>/s), at bridge on Capitol Avenue affected by bridge; furnished by city of Houston.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,770 ft<sup>3</sup>/s (163 m<sup>3</sup>/s) May 13 at 1800 hours, gage height, 19.60 ft (5.974 m); minimum discharge not determined (affected by tides).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1450						---		---		
2	---	349						---		---		
3	---	986						---		---		
4	---	1430						---		---		
5	562	1210						---		---		
6	926	316						---		---		
7	1180	---						---		---		
8	1020	---						---		---		
9	---	---						---		---		
10	---	---						---		---		
11	---	---						---		---		
12	---	---						---		---		
13	---	---						2760		---		
14	---	---						2800		---		
15	---	---						777		---		
16	---	---						670		---		
17	---	---						1220		---		
18	---	---						1280		---		
19	---	---						1040		---		
20	---	---						1540		---		
21	---	---						1770		---		
22	---	---						1770		---		
23	---	---						1940		---		
24	---	---						1790		---		
25	---	---						1380		---		
26	---	---						1430		---		
27	---	---						1670		---		
28	---	---						1540		---		
29	---	800						932		---		
30	---	1110						---		420		
31	768	---						---		---		
TOTAL	---	---						---		---		
MEAN	---	---						---		---		
MAX	---	---						---		---		
MIN	---	---						---		---		
AC-FT	---	---						---		---		

LOCATION.--Lat 29°51'31", long 95°29'09", Harris County, Hydrologic Unit 12040104, over a 60-inch (152 mm) storm sewer in the center median at Bingle Road and 3,000 ft (914 m) north of the station Cole Creek at Bingle Road, Houston (08074150).

WATER-DISCHARGE RECORDS

GAGE.--Flood-hydrograph and rainfall recorder and crest-stage gage. Datum of gage is arbitrary.

REMARKS.--Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the Houston, Texas Metropolitan Area, 1981".

EXTREMES FOR PERIOD OF RECORD:--Maximum discharge not determined, rating definition pending; maximum gage height, 13.97 ft (4.258 m) Aug. 31, 1981, is a recorded pressure head in the access pipe and exceeds gage height for full pipe flow.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 11.56 ft (3.523 m) Oct. 6 at 1710 hours is a recorded pressure head and exceeds gage height for full pipe flow, no other peak stages above base of 11.00 ft (3.353 m). Maximum discharge not determined, rating definition pending.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: May 1980 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

[illegible]

## SAN JACINTO RIVER BASIN

08074145 BINGLE ROAD STORM SEWER AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

[illegible][illegible]

## SAN JACINTO RIVER BASIN

08074145 BINGLE ROAD STORM SEWER AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982 SOLIDS,

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JUN								
14...	1456	8.4	135	--	--	--	--	--
14...	1511	3.4	136	--	--	--	--	--
14...	1526	2.0	171	--	--	--	--	--
14...	1541	1.3	205	--	--	--	--	--
26...	1914	4.9	1060	--	--	--	--	--
26...	1929	8.7	123	--	--	--	--	--
26...	1944	16	153	--	--	--	--	--
26...	1959	5.8	119	--	--	--	--	--
26...	2014	3.0	128	--	--	--	--	--
26...	2029	1.8	146	--	--	--	--	--
26...	2044	1.3	152	--	--	--	--	--
JUL								
13...	1751	4.9	174	--	--	--	--	--
13...	1806	78	128	--	--	--	--	--
13...	1821	70	103	--	--	--	--	--
13...	1836	28	112	--	--	--	--	--
13...	1851	11	127	--	--	--	--	--
13...	1906	7.8	133	--	--	--	--	--
13...	1921	4.2	141	--	--	--	--	--
13...	1936	2.4	152	--	--	--	--	--
16...	1456	4.9	134	--	--	--	--	1.3
16...	1511	15	176	--	--	--	--	.95
16...	1526	8.8	156	--	--	--	--	.92
16...	1541	12	156	--	--	--	--	.85
16...	1556	6.0	162	--	--	--	--	.74
16...	1611	3.6	170	--	--	--	--	--
16...	1626	2.4	185	--	--	--	--	--
16...	1641	1.7	180	--	--	--	--	1.1
19...	1808	4.9	103	--	--	--	--	--
19...	1823	51	140	--	--	--	--	--
19...	1838	15	128	--	--	--	--	--
19...	1853	6.2	150	--	--	--	--	--
19...	1908	3.8	171	--	--	--	--	--
19...	1923	2.6	172	--	--	--	--	--
30...	1717	4.9	132	5	11	134	31	--
30...	1732	84	103	20	42	297	45	--
30...	1747	30	106	15	41	177	37	--
30...	1802	14	116	--	--	--	--	--
30...	1817	10	117	--	--	--	--	--
30...	1832	6.9	125	30	34	121	35	--

## SAN JACINTO RIVER BASIN

08074145 BINGLE ROAD STORM SEWER AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JUN							
14...	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--
JUL							
13...	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--
16...	.090	1.4	.160	1.8	2.00	.180	14
16...	.150	1.1	.070	2.8	2.90	.250	28
16...	.180	1.1	.060	2.0	2.10	.210	29
16...	.150	1.0	.060	2.1	2.20	.200	27
16...	.120	.86	<.060	--	.70	.150	30
16...	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--
16...	.100	1.2	.080	2.4	2.50	.190	25
19...	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	14
30...	--	--	--	--	--	--	17
30...	--	--	--	--	--	--	17
30...	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	18

DATE	TIME	DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
AUG								
30...	1409			5.0	181			
30...	1424			49	138			
30...	1439			18	111			
30...	1454			6.0	122			
30...	1509			3.1	139			
30...	1524			2.0	160			
JAN								
12...	1943			<100	<1	<10	3	90
MAR								
22...	1958			<100	<1	<10	6	150
22...	2028			<100	<1	<10	10	20
APR								
22...	1105			110	<3	<10	4	26
MAY								
06...	1330			23	<3	<10	6	82
12...	1035			41	<3	<10	4	180
JUL								
13...	1751			54	<1	<10	4	3
13...	1806			32	<1	<10	4	5
13...	1851			29	<1	<10	6	17
13...	1936			36	<1	<10	8	21
19...	1823			49	<1	<10	3	7
19...	1908			40	<1	<10	5	17
AUG								
30...	1409			53	<1	<10	5	7
30...	1424			35	<1	<10	10	18
30...	1439			25	<1	<10	9	27
30...	1524			37	<1	<10	11	41



SAN JACINTO RIVER BASIN

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08074145 BINGLE ROAD STORM SEWER AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 12...	2	10	<.1	<1	<1	50		
MAR 22...	8	70	<.1	<1	<1	160		
22...	5	10	<.1	<1	<1	180		
APR 22...	<1	<3	<.1	<1	<1	38		
MAY 06...	8	<3	<.1	<1	<1	21		
12...	1	<3	<.1	<1	<1	18		
JUL 13...	6	2	.1	<1	<1	210		
13...	<1	<1	.1	<1	<1	88		
13...	<1	<1	<.1	<1	<1	39		
13...	3	<1	<.1	<1	<1	38		
19...	<1	2	<.1	<1	<1	53		
19...	<1	<1	<.1	<1	<1	11		
AUG 30...	<1	<1	<.1	<1	<1	86		
30...	3	1	<.1	<1	<1	37		
30...	<1	<1	<.1	<1	<1	38		
30...	2	1	<.1	<1	<1	44		
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)
APR 22...	1105	<.10	<.10	<.10	<.10	<.10	<2.0	.8
MAY 12...	1035	<.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)	
APR 22...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1	
MAY 12...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1	

## SAN JACINTO RIVER BASIN

08074150 COLE CREEK AT DEIHL ROAD, HOUSTON, TX

LOCATION.--Lat 29°51'04", long 95°29'16", Harris County, Hydrologic Unit 12040104, on downstream side of bridge at Deihl Road in northwest Houston and 1.8 mi (2.9 km) upstream from mouth.

DRAINAGE AREA.--7.50 mi<sup>2</sup> (19.42 km<sup>2</sup>). Prior to Oct. 1, 1976, 8.05 mi<sup>2</sup> (20.85 km<sup>2</sup>). Prior to Oct. 1, 1979, 7.33 mi<sup>2</sup> (18.98 km<sup>2</sup>). Drainage area changes are the result of drainage ditch relocations and extensions.

PERIOD OF RECORD.--April 1964 to current year. Gage at temporary location 1.0 mi (1.6 km) downstream at Antoine Drive May 18, 1965, to Sept. 1, 1966, due to bridge construction and channel rectification.

REVISED RECORDS.--WRD TX-74-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929, 1957 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Records fair except those for Apr. 18 to May 23, which are poor. No diversion above station. Low flow is partly sustained by sewage effluent from Houston suburbs. Recording rain gage at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 7.61 ft<sup>3</sup>/s (0.216 m<sup>3</sup>/s), 5,510 acre-ft/yr (6.79 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,020 ft<sup>3</sup>/s (57.2 m<sup>3</sup>/s) Mar. 20, 1972, elevation, 78.60 ft (23.957 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft<sup>3</sup>/s (11.3 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Elevation (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Elevation (ft) (m)
Oct. 6	1800	427 12.1	74.66 22.756	May 13	unknown	*800 22.7	unknown -
Nov. 29	1730	424 12.0	74.65 22.753	May 17	unknown	600 17.0	unknown -

Minimum daily discharge, 0.26 ft<sup>3</sup>/s (0.007 m<sup>3</sup>/s) July 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	17	10	2.0	2.3	2.3	1.2	1.4	2.0	.26	.82	.67
2	3.0		3.4	2.0	4.0	1.9	1.4	1.4	1.5	.59	.87	.58
3	2.9	.98	2.3	2.0	2.0	1.7	1.1	1.3	1.6	.37	1.0	1.1
4	1.2	1.0	5.2	1.6	1.6	1.5	1.3	1.3	1.2	.61	.56	1.7
5	9.6	2.0	5.8	1.6	1.6	1.5	1.2	1.3	1.2	.34	.42	.75
6	73	1.9	2.9	1.7	1.3	1.5	1.0	60	1.1	.42	.58	.66
7	32	.93	2.5	1.4	1.0	1.7	1.1	35	1.2	.37	1.2	.66
8	5.2	10	1.9	1.4	4.0	2.0	1.0	5.0	1.1	.39	62	.71
9	2.8	3.8	4.2	1.4	2.0	1.5	2.0	2.0	1.8	.59	3.0	.66
10	2.6	1.2	3.1	1.4	1.8	1.3	5.8	1.5	1.9	.66	.81	.59
11	1.4	.74	1.9	1.4	1.7	1.2	1.8	1.4	1.4	.80	.88	.55
12	.93	.88	1.4	16	1.6	1.3	1.2	30	1.2	.64	.75	.51
13	5.5	.70	1.2	4.8	1.4	1.1	1.1	150	3.6	15	.66	.66
14	5.3	.67	1.6	2.4	1.4	1.0	1.2	200	12	24	.53	.52
15	2.7	.71	1.6	1.8	1.7	1.1	1.3	25	1.7	7.3	.40	.47
16	2.7	.67	1.7	1.6	1.5	1.4	1.2	10	1.1	8.9	.50	.47
17	5.9	.85	1.6	1.4	1.4	1.3	1.4	30	.94	1.6	.48	.73
18	6.0	.89	1.6	1.6	1.4	1.3	1.2	70	9.8	.82	.38	1.4
19	2.0	1.3	1.4	2.1	1.5	3.6	1.2	15	4.4	2.9	.57	2.6
20	1.2	.83	2.4	1.7	8.0	1.4	1.2	8.0	2.9	.90	.49	.97
21	1.0	.65	3.0	1.5	2.3	1.3	20	5.0	7.9	.80	.36	.67
22	1.2	.42	1.6	1.7	1.5	2.0	5.0	3.0	3.7	.80	.58	.73
23	1.3	.52	1.8	1.7	1.6	6.0	2.0	2.5	.84	.93	.63	.56
24	1.1	.67	1.6	1.5	1.4	2.7	45	2.7	.85	.73	.56	.54
25	2.3	.47	1.6	1.5	12	1.5	15	2.4	.68	.79	.44	.53
26	2.8	.37	1.4	1.5	38	1.0	5.0	2.0	.84	.90	.51	.49
27	2.1	.33	1.4	1.4	5.8	13	2.0	1.9	1.1	.87	.53	.50
28	1.6	.34	1.5	1.3	2.3	3.5	1.6	1.9	.54	.57	.50	.50
29	1.1	129	1.8	2.0	---	1.8	1.4	1.6	.44	.69	.54	.68
30	1.2	64	6.0	25	---	1.9	1.4	1.4	.29	4.0	3.7	.82
31	49	---	5.6	5.0	---	2.4	---	1.1	---	4.0	1.2	---
TOTAL	232.73	245.52	85.0	95.4	108.1	68.7	128.3	675.1	70.82	82.54	86.45	22.98
MEAN	7.51	8.18	2.74	3.08	3.86	2.22	4.28	21.8	2.36	2.66	2.79	.77
MAX	73	129	10	25	38	13	45	200	12	24	62	2.6
MIN	.93	.33	1.2	1.3	1.0	1.0	1.0	1.1	.29	.26	.36	.47
AC-FT	462	487	169	189	214	136	254	1340	140	164	171	46

CAL YR 1981 TOTAL 3591.25 MEAN 9.84 MAX 641 MIN .20 AC-FT 7120  
WTR YR 1982 TOTAL 1901.64 MEAN 5.21 MAX 200 MIN .26 AC-FT 3770

NOTE.--No gage-height record Apr. 18 to May 23.

## SAN JACINTO RIVER BASIN

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08074250 BRICKHOUSE GULLY AT COSTA RICA STREET, HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1970 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 18...	1045	3.0	700	8.2	13.0	15	2.5	12.5	118	3.8	50000	13000
MAY 12...	0905	115	177	7.9	22.0	90	160	8.5	98	15	30000	45000
JUL 13...	0915	2.5	735	8.9	28.0	10	2.3	17.6	224	4.6	500	750
AUG 09...	1415	36	456	--	29.0	30	120	--	--	--	--	--
09...	1435	48	245	--	28.0	40	75	--	--	--	--	--
09...	1535	34	185	--	29.5	40	24	--	--	--	--	--

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- 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 18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 12...	60	0	21	1.8	13	.8	3.4	65	7.0	9.1	.2	5.1
JUL 13...	200	0	54	15	84	2.8	2.0	240	16	91	.4	27
AUG 09...	120	0	39	6.2	54	2.2	3.5	170	14	42	.3	17
09...	68	0	22	3.1	23	1.2	2.9	86	13	17	.2	8.6
09...	59	0	20	2.2	17	1.0	3.5	68	10	12	.2	7.3

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, 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)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 18...	--	0	1	2.3	.020	2.3	1.10	.80	1.90	1.00	--	4.6
MAY 12...	100	420	33	.50	.120	.62	.590	1.6	2.20	.350	--	21
JUL 13...	434	<2	2	--	<.020	<.10	<.060	--	1.20	.770	--	5.0
AUG 09...	278	244	20	.46	.050	.51	.130	3.1	3.20	.980	--	12
09...	142	214	42	.94	.060	1.0	.190	3.0	3.20	.410	.150	23
09...	113	72	18	.87	.060	.93	.180	1.9	2.10	.150	--	13

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY 12...	0905	5	76	<3	<10	2	45
JUL 13...	0915	5	440	<1	<10	1	3
AUG 09...	1415	8	200	<1	10	2	25
09...	1535	6	78	<1	<10	2	21

## SAN JACINTO RIVER BASIN

08074250 BRICKHOUSE GULLY AT COSTA RICA STREET, HOUSTON, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY 12...	1	<3	<.1	<1	<1	<12
JUL 13...	4	2	<.1	<1	<1	6
AUG 09...	<1	4	<.1	<1	<1	6
09...	<1	8	<.1	<1	<1	21

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)
MAY 12...	0905	<.10	<.10	.10	<.10	<.10	<2.0	.5
JUL 13...	0915	<.10	<.10	.20	<.10	<.10	<2.0	<.1
AUG 09...	1415	<.10	<.10	<.10	<.10	<.10	<2.0	1.2
09...	1535	<.10	<.10	<.10	<.10	<.10	<2.0	1.2

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)
MAY 12...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUL 13...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
AUG 09...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
09...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1





WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

[illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (NTU)	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)
MAR							
22...	2045	157	--	--	--	--	--
22...	2100	193	--	--	--	--	--
22...	2115	206	--	--	--	--	--
22...	2130	209	--	--	--	--	--
JUL							
30...	1747	260	--	--	--	--	--
30...	1802	66	--	--	--	--	--
30...	1817	68	--	--	--	--	--
30...	1832	119	--	--	--	--	--
30...	1847	155	--	--	--	--	--
30...	1902	124	--	--	--	--	--
AUG							
02...	1610	102	20	10	302	112	.58
02...	1625	68	--	--	--	--	--
02...	1640	65	--	--	--	--	--
02...	1655	78	55	2.4	21	9	1.1
02...	1710	109	--	--	--	--	--
02...	1725	142	65	7.7	94	28	.85

## SAN JACINTO RIVER BASIN

08074400 LAZYBROOK STREET STORM SEWER AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
MAR						
22...	--	--	--	--	--	--
22...	--	--	--	--	--	--
22...	--	--	--	--	--	--
22...	--	--	--	--	--	--
JUL						
30...	--	--	--	--	--	--
30...	--	--	--	--	--	--
30...	--	--	--	--	--	--
30...	--	--	--	--	--	--
30...	--	--	--	--	--	--
30...	--	--	--	--	--	--
AUG						
02...	.080	.66	1.10	2.9	4.00	.650
02...	--	--	--	--	--	--
02...	--	--	--	--	--	--
02...	.060	1.2	.310	1.8	2.10	.720
02...	--	--	--	--	--	--
02...	.060	.91	.700	2.0	2.70	1.00

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
JUL							
30...	1747	2	51	<1	<10	1	110
30...	1817	1	17	<1	<10	2	34
30...	1902	2	25	<1	<10	2	68

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)
JUL						
30...	<1	12	.1	<1	<1	6
30...	<1	3	.1	1	<1	80
30...	<1	2	.1	<1	<1	380

## SAN JACINTO RIVER BASIN

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08074500 WHITEOAK BAYOU AT HOUSTON, TX

LOCATION.--Lat 29°46'30", long 95°23'49", Harris County, Hydrologic Unit 12040104, at downstream side of downstream bridge on Heights Boulevard in Houston, 560 ft (171 m) downstream from Texas and New Orleans Railroad Co. bridge, 2.4 mi (3.9 km) upstream from Little Whiteoak Bayou, and 4.0 mi (6.4 km) upstream from mouth.

DRAINAGE AREA.--86.3 mi<sup>2</sup> (223.5 km<sup>2</sup>). Prior to Oct. 1, 1976, 84.7 mi<sup>2</sup> (219.4 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1936 to current year (October 1965 to September 1966, monthly discharge only).

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 7.35 ft (2.240 m) below National Geodetic Vertical Datum of 1929; unadjusted for land-surface subsidence. Prior to June 17, 1936, nonrecording gage, and June 17, 1936, to Apr. 28, 1965, water-stage recorder at site 480 ft (146 m) upstream at same datum.

REMARKS.--Water-discharge records good. Low flow is partly sustained by industrial waste. No diversion above station.

AVERAGE DISCHARGE.--46 years, 81.0 ft<sup>3</sup>/s (2.294 m<sup>3</sup>/s), 58,680 acre-ft/yr (72.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,300 ft<sup>3</sup>/s (490 m<sup>3</sup>/s) Mar. 20, 1972, gage height, 43.50 ft (13.259 m); maximum gage height, 43.60 ft (13.289 m) Nov. 13, 1961; no flow for many days during 1965 water year (result of construction dams).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1919, 51.5 ft (15.70 m) Dec. 9, 1935, prior to channel rectification, present site and datum, discharge 14,750 ft<sup>3</sup>/s (418 m<sup>3</sup>/s), furnished by the engineer for Harris County. The flood of May 31, 1929, reached a stage of 47.0 + 0.5 ft (14.33 + 0.15 m), prior to channel rectification, present site and datum, discharge 9,360 ft<sup>3</sup>/s (265 m<sup>3</sup>/s), computed on basis of currentmeter measurement at stage 1.0 ft (0.30 m) below crest, furnished by city of Houston.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,090 ft<sup>3</sup>/s (257 m<sup>3</sup>/s) May 13 at 1800 hours, gage height, 33.89 ft (10.330 m), no other peak above base of 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s); minimum daily, 25 ft<sup>3</sup>/s (0.71 m<sup>3</sup>/s) Sept. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	325	290	39	50	45	35	59	36	30	34	28
2	40	77	151	38	52	42	32	42	38	33	30	26
3	50	46	89	44	44	38	33	34	38	33	32	40
4	36	48	61	35	36	38	32	31	39	32	30	51
5	301	44	52	33	36	40	35	33	33	54	30	27
6	538	42	63	32	36	92	33	519	38	33	29	28
7	580	37	74	31	33	49	35	346	31	36	85	29
8	228	200	46	31	43	39	35	80	29	32	742	27
9	68	213	41	31	38	36	48	40	31	32	210	26
10	50	61	41	30	33	35	225	35	34	37	58	25
11	36	38	41	31	32	37	52	33	32	32	39	26
12	77	34	35	317	33	39	38	668	30	32	35	27
13	69	32	38	138	32	36	37	2910	157	347	29	29
14	87	30	65	60	32	37	34	1220	146	395	29	33
15	65	30	49	42	36	40	32	368	50	132	28	28
16	211	30	37	37	33	36	32	191	46	181	28	27
17	134	31	33	36	33	36	36	581	48	96	29	28
18	230	30	34	35	32	34	32	671	37	57	31	29
19	78	30	35	34	30	39	34	238	123	80	32	56
20	47	31	75	34	179	34	34	205	110	51	30	32
21	41	30	68	33	65	34	306	120	115	53	30	28
22	42	29	37	32	37	100	259	99	82	63	29	28
23	41	30	33	32	32	301	76	157	36	36	30	28
24	36	31	33	30	31	63	431	87	54	30	30	28
25	126	31	32	30	179	38	197	61	34	37	31	27
26	68	29	30	30	593	35	70	44	140	155	29	27
27	35	27	32	30	148	274	43	47	135	50	29	29
28	31	27	31	33	63	113	36	48	41	33	29	27
29	32	1270	31	74	---	46	33	43	32	30	29	29
30	31	938	86	423	---	43	31	34	31	137	200	29
31	574	---	132	204	---	41	---	34	---	94	33	---
TOTAL	4022	3851	1895	2059	2020	1910	2386	9078	1826	2473	2089	902
MEAN	130	128	61.1	66.4	72.1	61.6	79.5	293	60.9	79.8	67.4	30.1
MAX	580	1270	290	423	593	301	431	2910	157	395	742	56
MIN	31	27	30	30	30	34	31	31	29	30	28	25
AC-FT	7980	7640	3760	4080	4010	3790	4730	18010	3620	4910	4140	1790
CAL YR 1981	TOTAL	54471	MEAN	149	MAX	9000	MIN	24	AC-FT	108000		
WTR YR 1982	TOTAL	34511	MEAN	94.6	MAX	2910	MIN	25	AC-FT	68450		

## SAN JACINTO RIVER BASIN

08074500 WHITEOAK BAYOU AT HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

								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)	STREPTO- COCCI FECAL, KF AGAR (COLS. PER 100 ML)	
DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)				
JAN 18...	0835	31	900	7.7	12.5	15	7.2	9.8	90	9.6	K400	54
MAY 06...	2000	1560	176	8.0	21.0	50	90	8.5	96	14	120000	74000
06...	2230	1090	222	7.7	21.0	60	170	8.5	96	17	240000	89000
07...	1030	314	390	7.3	20.0	60	37	7.4	81	22	200000	51000
JUN 21...	1310	128	592	8.3	31.5	40	170	8.1	110	8.4	5100	620
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)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 06...	50	0	17	1.9	13	.8	3.7	59	6.0	12	.2	6.1
06...	61	0	20	2.8	18	1.0	4.7	72	7.0	19	.3	8.1
07...	93	0	30	4.4	34	1.6	7.0	110	21	34	.5	11
JUN 21...	150	0	48	8.4	63	2.3	4.7	160	22	68	.4	18
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, 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 18...	--	5	1	4.6	.170	4.8	3.70	.10	3.80	4.30	10	
MAY 06...	96	246	15	.46	.100	.56	.530	2.4	2.90	.910	23	
06...	123	366	19	.62	.140	.76	.830	2.6	3.40	1.50	23	
07...	208	112	18	.96	.140	1.1	1.80	3.4	5.20	2.00	23	
JUN 21...	329	218	31	2.0	.120	2.1	.270	1.9	2.20	1.10	14	



SAN JACINTO RIVER BASIN

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08074500 WHITEOAK BAYOU AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY							
06...	2000	6	49	<3	<10	3	160
07...	1030	8	110	<3	<10	4	98
JUN							
21...	1310	9	280	<1	10	12	5

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY						
06...	7	5	<.1	<1	<1	19
07...	5	52	<.1	<1	<1	23
JUN						
21...	5	<1	.1	<1	<1	4

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)
JUN								
21...	1310	<.10	<.10	.30	<.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)
JUN							
21...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

DRAINAGE AREA.--18.0 mi<sup>2</sup> (46.6 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1.400 ft<sup>3</sup>/s (39.6 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)		Elevation (ft) (m)		Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)		Gage height (ft) (m)	
Oct. 6	1845	1,870	53.0	30.93	9.427	May 13	1715	*2,620	74.2	34.59	10.543
Nov. 29	unknown	1,800	51.0	30.71	9.360	May 17	1900	1,480	41.9	30.80	9.388

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: June 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

[illegible]

## SAN JACINTO RIVER BASIN

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08074540 LITTLE WHITEOAK BAYOU AT TRIMBLE STREET, HOUSTON, TX-Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
JAN 18...	--	2	0	.14	.070	.21	2.90	.00	2.90	1.10	6.8
MAY 06...	96	137	25	.28	.080	.36	.440	1.9	2.30	.510	25
06...	96	262	16	.24	.080	.32	.600	2.8	3.40	.750	34
06...	101	125	16	.33	.060	.39	.610	1.9	2.50	.630	20
07...	194	13	1	.36	.100	.46	.990	1.3	2.30	.580	13
JUN 21...	293	11	10	.05	.270	.32	.570	1.4	2.00	.800	20
22...	--	316	55	.29	.050	.34	.570	2.3	2.90	.650	38
22...	--	440	81	.54	.050	.59	.680	2.5	3.20	.550	35
22...	--	321	52	.54	.050	.59	.370	1.1	1.50	.380	25
23...	--	30	12	.41	.110	.52	.710	1.9	2.60	.450	13

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY 06...	1700	13	48	<3	<10	4	90
06...	2215	12	63	<3	10	4	99
JUN 21...	1145	14	130	<1	10	5	18
22...	0952	25	200	<1	<10	3	100
22...	1115	34	<100	<1	<10	6	90
23...	0845	39	100	<1	<10	7	100

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY 06...	10	15	<.1	<1	<1	19
06...	8	18	<.1	<1	<1	18
JUN 21...	2	7	.1	1	<1	<3
22...	3	80	<.1	<1	<1	20
22...	5	10	<.1	<1	<1	10
23...	3	10	.1	<1	<1	20

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
JUN 21...	1145	<.10	<.10	<.10	<.10	<.10	<2.0	<.1
22...	0952	<.10	<.10	<.10	<.10	<.10	<2.0	.3
22...	1115	<.10	<.10	<.10	<.10	<.10	<2.0	<.1
23...	0845	<.10	<.10	.20	<.10	<.10	<2.0	2.3

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)
JUN 21...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
22...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
22...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
23...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

LOCATION.--Lat 29°45'54", long 95°21'32", Harris County, Hydrologic Unit 12040104, on left bank at mouth of Whiteoak Bayou at upstream side of Main Street viaduct in Houston and 3.2 mi (5.1 km) downstream from station 08074000.

PERIOD OF RECORD.--January 1982 to April 1982 (discontinued).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 1.47 ft (0.448 m) below National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers), 1973 adjustment; unadjusted for land-surface subsidence. Gage removed for bridge repairs on Apr. 5, 1982.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 23.6 ft (7.19 m) June 13, 1973; minimum, -3.5 ft (-1.07 m) Jan. 13, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum gage height since at least 1835, 38.5 ft (11.73 m) Dec. 9, 1935, present site and datum, unadjusted for land-surface subsidence.

EXTREMES FOR PERIOD OCTOBER 1981 TO APRIL 4 1982.--Maximum gage height, 8.3 ft (2.53 m) Nov. 29 at 1900 hours; no flow Jan 8.

[illegible]

## SAN JACINTO RIVER BASIN

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08074700 BUFFALO BAYOU AT 69TH STREET, HOUSTON, TX

LOCATION.--Lat 29°45'15", long 95°17'51", Harris County, Hydrologic Unit 12040104, at downstream side of bridge on 69th Street in Houston, 1.1 mi (1.8 km) upstream from Turning Basin, 2.8 mi (4.5 km) upstream from Brays Bayou, and 4.8 mi (7.7 km) downstream from Whiteoak Bayou.

DRAINAGE AREA.--476 mi<sup>2</sup> (1,233 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1.73 ft (0.527 m) below National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers), 1973 adjustment; unadjusted for land-surface subsidence.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 15.1 ft (4.60 m) Sept. 11, 12, 1961, result of Hurricane Carla; minimum, -3.5 ft (-1.07 m) Jan. 13, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 6.7 ft (2.04 m) May 13 at 1800 hours; minimum, 0.2 ft (0.06 m) Jan. 8.

## GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUNE		JULY		AUG		SEPT	
	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.
1	4.4	2.9	-	-	4.0	1.6	3.4	1.9	-	-	3.3	1.6	4.2	2.1	4.4	2.5	3.8	2.6	3.7	2.2	-	-	-	-
2	4.1	2.4	-	-	3.4	1.9	3.7	2.7	-	-	3.5	1.9	4.5	2.6	3.9	2.4	4.3	2.9	3.6	2.2	-	-	-	-
3	4.4	3.4	-	2.3	3.7	2.3	3.8	1.6	-	-	3.7	1.9	4.0	2.2	3.7	2.2	4.2	2.8	3.4	2.0	-	-	-	-
4	4.6	3.1	4.0	2.5	3.6	1.4	2.6	1.1	-	-	3.7	1.9	4.7	3.1	3.9	2.7	4.2	2.4	3.6	1.7	-	-	-	-
5	4.6	3.0	4.2	2.3	3.3	2.5	3.4	1.6	-	-	3.8	1.9	4.3	2.8	4.6	2.8	3.9	1.9	3.9	1.8	-	-	-	-
6	4.4	2.7	3.8	2.2	4.1	2.7	3.7	2.1	-	-	3.5	.7	4.1	2.0	4.6	3.4	4.2	2.2	4.0	2.1	-	-	-	-
7	4.2	2.8	4.0	2.4	4.3	2.9	3.6	1.0	-	-	3.0	.5	4.9	4.0	3.3	2.2	4.2	2.2	-	1.8	5.0	2.5	-	-
8	3.8	2.4	4.4	3.1	3.5	1.9	2.8	.2	-	-	3.4	2.0	4.6	3.2	3.9	1.9	4.1	2.1	-	-	4.0	2.4	-	-
9	-	-	3.4	1.6	3.6	1.7	3.2	1.1	-	-	3.5	2.3	4.1	2.9	4.5	2.4	4.3	2.4	-	-	4.4	2.6	-	-
10	-	-	3.1	1.1	4.0	1.8	3.1	1.2	-	-	3.7	1.5	4.5	3.0	4.7	2.6	4.1	2.3	3.8	2.0	3.9	2.8	-	-
11	-	-	3.8	1.8	4.0	2.1	3.0	.8	-	-	3.5	2.4	4.1	2.3	4.7	3.0	4.2	2.2	3.6	2.1	3.8	2.6	-	-
12	-	-	3.9	2.0	3.9	1.5	4.4	2.0	-	-	3.7	2.5	4.5	2.5	5.5	3.1	4.0	2.2	3.6	2.0	4.0	2.5	-	-
13	-	-	3.8	1.9	3.3	1.5	3.0	.4	-	-	3.8	2.3	4.0	2.3	6.7	4.0	4.1	2.3	3.5	2.4	3.8	2.3	-	-
14	-	-	3.9	1.8	3.4	.8	2.0	.3	-	-	3.7	2.6	4.2	1.9	6.1	4.1	4.4	2.7	3.9	2.6	3.9	2.0	-	-
15	-	-	4.1	2.3	3.8	1.2	2.9	1.9	-	-	3.8	2.2	4.3	2.2	4.7	3.4	4.8	3.6	3.8	2.5	3.8	1.9	-	-
16	-	-	4.2	2.1	3.3	2.0	3.2	1.8	-	-	3.8	2.4	4.5	3.0	4.8	3.2	4.3	2.8	4.0	2.4	3.8	1.7	-	-
17	-	-	3.9	2.3	3.7	.8	3.1	1.4	-	-	3.7	2.2	3.9	2.3	5.7	3.7	4.1	2.7	4.0	2.2	3.9	1.9	4.2	-
18	-	-	4.0	2.7	2.5	.8	3.5	2.3	-	-	4.2	2.4	4.2	2.4	4.4	3.1	4.1	2.2	4.0	2.1	4.3	2.1	4.1	2.7
19	-	-	4.3	1.6	3.6	2.3	3.4	1.8	-	-	4.0	2.4	4.2	2.8	4.4	3.4	4.1	2.2	3.8	1.8	4.5	2.3	4.2	2.9
20	-	-	2.5	.8	4.6	3.5	3.3	1.7	-	-	3.8	2.5	4.2	2.8	4.5	3.1	4.1	2.0	-	-	4.6	2.7	4.2	2.5
21	-	-	4.1	2.5	4.8	3.4	3.3	1.8	-	-	4.1	3.1	3.9	2.4	4.6	2.8	4.1	2.0	-	-	4.2	2.9	3.8	2.6
22	-	-	4.1	2.8	3.7	2.2	3.5	2.1	-	-	3.9	2.0	3.7	2.2	4.7	2.7	4.2	1.9	-	-	4.0	2.8	4.5	3.0
23	-	-	4.0	2.8	3.2	1.0	3.5	1.3	-	-	4.6	2.8	4.2	2.6	4.8	2.6	4.0	1.8	-	-	4.0	2.8	4.6	3.2
24	-	-	3.9	2.2	3.3	1.6	3.5	1.8	3.3	2.2	4.3	2.9	4.6	2.9	4.5	2.7	4.2	1.8	-	-	3.6	2.4	4.4	3.1
25	-	-	4.1	2.4	3.5	1.7	3.6	1.9	3.9	2.0	3.9	3.0	4.5	2.8	4.4	2.3	4.3	1.9	-	-	3.5	2.2	4.3	2.3
26	-	-	4.5	2.9	3.6	1.7	-	-	3.9	2.2	4.0	2.0	4.3	2.4	4.5	2.1	4.6	1.9	-	-	3.5	2.1	4.3	2.2
27	-	-	3.8	1.8	3.8	2.0	-	-	3.0	1.6	5.0	3.2	4.1	2.1	4.5	2.3	3.8	2.0	-	-	3.7	2.1	4.6	2.9
28	-	-	3.9	2.1	3.8	1.8	-	-	3.3	2.2	4.9	3.1	4.4	2.2	4.6	2.8	4.0	2.4	-	-	3.7	2.0	4.6	3.0
29	-	-	4.1	2.6	3.5	1.7	-	-	---	---	5.3	3.0	4.4	2.4	4.4	2.7	3.7	2.2	-	-	-	-	5.0	3.1
30	-	-	4.4	2.5	4.3	2.6	-	-	---	---	4.7	3.4	4.2	2.2	4.4	2.6	3.6	2.2	-	-	-	-	5.3	3.5
31	-	-	---	---	4.3	2.2	-	-	---	---	4.4	2.7	---	---	4.2	3.0	---	---	-	-	-	-	---	---



## SAN JACINTO RIVER BASIN

08074800 KEEGANS BAYOU AT ROARK ROAD NEAR HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1968 to current year. Sediment analyses: October 1970 to September 1971.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN												
18...	1105	6.3	710	7.8	15.0	10	6.1	8.8	87	1.3	K1	K1
APR												
22...	1055	29	360	7.1	16.0	90	140	7.1	72	6.3	130	2400
MAY												
07...	1230	41	340	7.6	20.5	90	110	6.3	70	4.9	3000	3000
13...	1908	1240	117	7.0	19.5	90	340	--	--	6.8	--	--
JUN												
18...	0040	46	394	--	--	--	--	--	--	--	--	--
18...	2040	44	714	--	--	10	88	--	--	--	--	--
18...	2140	161	299	--	--	10	120	--	--	--	--	--
18...	2240	73	220	--	--	20	78	--	--	--	--	--
18...	2340	51	291	--	--	--	--	--	--	--	--	--
19...	0140	40	380	--	--	30	170	--	--	--	--	--
22...	0728	2.7	750	7.7	27.5	20	21	5.0	63	5.3	K12	K8
JUL												
15...	1430	53	557	--	--	20	50	--	--	--	--	--
15...	1530	38	268	--	--	40	190	--	--	--	--	--
15...	1630	376	232	--	--	45	370	--	--	--	--	--
15...	1730	211	169	--	--	50	160	--	--	--	--	--
15...	1830	172	196	--	--	--	--	--	--	--	--	--
15...	1930	141	247	--	--	50	410	--	--	--	--	--
30...	1905	50	706	--	--	10	34	--	--	--	--	--
30...	2005	318	137	--	--	35	56	--	--	--	--	--
30...	2105	135	188	--	--	30	80	--	--	--	--	--
30...	2205	10	245	--	--	--	--	--	--	--	--	--
30...	2305	73	276	--	--	--	--	--	--	--	--	--
31...	0005	57	288	--	--	35	110	--	--	--	--	--
AUG												
08...	0530	50	489	--	--	20	22	--	--	--	--	--
08...	0630	171	139	--	--	25	63	--	--	--	--	--
08...	0730	122	133	--	--	--	--	--	--	--	--	--
08...	0830	120	239	--	--	--	--	--	--	--	--	--
08...	0930	127	241	--	--	--	--	--	--	--	--	--
08...	1030	109	228	--	--	40	110	--	--	--	--	--
08...	1635	132	246	--	28.0	50	72	--	--	--	--	--
09...	0705	23	346	--	26.0	90	69	--	--	--	--	--
09...	1500	38	321	7.3	27.0	90	60	--	--	--	--	--
10...	1040	11	540	7.1	--	30	32	--	--	--	--	--
11...	1430	8.1	591	7.6	30.5	30	84	--	--	--	--	--

08074800 KEEGANS BAYOU AT ROARK ROAD NEAR HOUSTON, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

	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- 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)
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
APR 22...	98	11	30	5.5	29	1.3	7.2	87	24	34	.3	12
MAY 07...	100	9	31	6.2	24	1.1	7.1	94	25	24	.5	13
13...	37	0	11	2.2	6.5	.5	3.6	39	7.0	5.8	.2	5.1
JUN 18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--
22...	180	0	53	11	72	2.5	7.6	180	30	85	.3	24
JUL 15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
08...	67	5	21	3.5	20	1.1	4.4	62	14	30	.1	10
09...	99	0	31	5.2	29	1.3	5.8	110	20	31	.3	13
09...	--	--	--	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--	--	--
	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)	
JAN 18...	--	3	0	6.8	.170	7.0	1.20	1.2	2.40	4.50	8.5	
APR 22...	194	210	24	2.0	.200	2.2	.720	2.4	3.10	1.50	15	
MAY 07...	187	106	2	2.3	.200	2.5	.680	1.6	2.30	1.80	13	
13...	65	636	21	.41	.150	.56	.300	1.3	1.60	.790	19	
JUN 18...	--	--	--	--	--	--	--	--	--	--	--	
18...	--	144	21	--	--	--	--	--	--	--	7.7	
18...	--	292	23	--	--	--	--	--	--	--	24	
18...	--	185	29	--	--	--	--	--	--	--	15	
18...	--	--	--	--	--	--	--	--	--	--	--	
19...	--	259	22	--	--	--	--	--	--	--	17	
22...	391	27	13	14	.270	14	.450	1.1	1.50	5.00	9.6	
JUL 15...	--	109	12	4.6	.390	5.0	.100	1.4	1.50	.050	12	
15...	--	472	58	.33	.220	.55	.200	6.2	6.40	2.60	23	
15...	--	1320	128	.82	.180	1.0	.120	2.6	2.70	1.10	33	
15...	--	469	46	1.4	.060	1.5	.080	.82	.90	.080	11	
15...	--	--	--	--	--	--	--	--	--	--	--	
15...	--	656	76	1.6	.220	1.8	.140	2.3	2.40	3.50	16	
30...	--	93	18	--	--	--	--	--	--	--	5.0	
30...	--	366	52	--	--	--	--	--	--	--	11	
30...	--	251	38	--	--	--	--	--	--	--	9.6	
30...	--	--	--	--	--	--	--	--	--	--	--	
30...	--	--	--	--	--	--	--	--	--	--	--	
31...	--	212	36	--	--	--	--	--	--	--	9.3	
AUG 08...	--	85	12	4.8	.240	5.0	.410	2.1	2.50	4.00	13	
08...	--	134	13	.82	.060	.88	.160	1.7	1.90	.740	10	
08...	--	--	--	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	
08...	--	--	--	--	--	--	--	--	--	--	--	
08...	--	218	14	1.3	.110	1.4	.280	2.3	2.60	1.30	12	
08...	141	169	21	1.9	.110	2.0	.280	2.5	2.80	1.40	11	
09...	202	89	13	1.7	.210	1.9	.510	2.1	2.60	.480	9.0	
09...	--	103	17	1.7	.170	1.9	.430	1.5	1.90	.250	11	
10...	--	43	11	3.8	.280	4.1	.650	2.6	3.20	3.70	8.5	
11...	--	108	21	4.8	.380	5.2	.640	1.7	2.30	4.10	10	

## SAN JACINTO RIVER BASIN

08074800 KEEGANS BAYOU AT ROARK ROAD NEAR HOUSTON, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY 13...	1908	6	26	<3	<10	3	110
JUN 22...	0728	10	96	1	<10	6	4
AUG 08...	1635	5	50	<1	<10	2	62
09...	0705	17	69	<1	<10	2	66

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY 13...	3	3	<.1	<1	<1	<12
JUN 22...	5	28	<.1	2	<1	16
AUG 08...	<1	10	<.1	<1	<1	88
09...	<1	9	<.1	1	<1	28

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
MAY 13...	1908	<.10	<.10	2.6	<.10	<.10	<2.0	.1
JUN 22...	0728	--	--	--	--	--	<2.0	--
AUG 08...	1635	<.10	<.10	.20	<.10	<.10	<2.0	.1
09...	0705	<.10	<.10	.90	<.10	<.10	<2.0	.2

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)
MAY 13...	<.1	.10	<2.0	<2.0	.20	<.10	<.1
JUN 22...	--	--	<2.0	<2.0	--	--	--
AUG 08...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
09...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

## SAN JACINTO RIVER BASIN

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08075000 BRAYS BAYOU AT HOUSTON, TX

LOCATION.--Lat 29°41'49", long 95°24'43", Harris County, Hydrologic Unit 12040104, near right bank at downstream side of Main Street Bridge in southwest Houston, 1.6 mi (2.6 km) upstream from Harris Gully, and 11.6 mi (18.7 km) upstream from Buffalo Bayou.

DRAINAGE AREA.--94.9 mi<sup>2</sup> (245.8 km<sup>2</sup>). Prior to October 1976, 88.4 mi<sup>2</sup> (229.0 km<sup>2</sup>). Changes due to drainage ditch relocations.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1936 to current year.

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 7.16 ft (2.182 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence. Prior to June 20, 1936, nonrecording gage, and June 20, 1936, to Nov. 25, 1959, water-stage recorder at site 0.8 mi (1.3 km) downstream at same datum.

REMARKS.--Water-discharge records good. No diversion above station. Low flow is mostly sewage effluent from Houston suburbs.

AVERAGE DISCHARGE.--46 years, 120 ft<sup>3</sup>/s (3.398 m<sup>3</sup>/s), 86,940 acre-ft/yr (107 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft<sup>3</sup>/s (821 m<sup>3</sup>/s) June 15, 1976, gage height, 52.13 ft (15.889 m); minimum daily, 0.1 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) Oct. 11, 12, 1937, Mar. 14, Apr. 1, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1911, 56.0 ft (17.07 m) in June 1919 before channel rectification, former site, from information by engineer for city of Houston.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Oct. 31	1700	7,770	220	37.46	11.418
Nov. 29	1515	6,950	197	36.63	11.165
May 13	1730	*17,700	501	45.57	13.890

Minimum daily discharge, 83 ft<sup>3</sup>/s (2.35 m<sup>3</sup>/s) Jan. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	923	184	104	127	131	108	118	95	101	179	114
2	95	253	123	106	120	119	109	125	95	97	128	108
3	135	165	113	108	117	113	97	105	95	92	123	563
4	100	132	102	100	105	110	96	96	95	91	103	223
5	1120	114	98	96	102	105	98	96	95	123	102	121
6	620	109	124	92	111	295	92	594	95	99	103	117
7	350	107	190	88	104	131	94	495	95	97	334	119
8	390	260	125	86	125	109	95	140	95	98	1420	109
9	120	255	119	90	146	103	93	101	94	99	353	112
10	130	130	102	91	103	104	201	100	98	103	210	109
11	210	118	100	92	100	108	134	101	100	104	173	107
12	180	115	98	526	97	109	102	114	103	104	122	118
13	110	102	121	192	96	106	98	4440	97	139	118	128
14	160	102	137	140	113	104	97	1360	176	389	113	112
15	135	102	104	111	127	104	95	336	108	497	110	116
16	110	104	98	103	108	101	96	186	108	329	106	114
17	139	102	105	103	101	98	102	280	111	301	108	109
18	417	103	101	98	100	98	96	554	109	178	112	109
19	147	103	103	93	100	99	99	200	203	133	116	135
20	113	97	163	89	509	98	96	130	126	138	111	472
21	102	100	178	87	202	96	782	100	125	174	164	153
22	102	100	127	89	120	132	580	140	112	167	112	119
23	101	101	112	88	107	279	225	500	153	176	100	108
24	94	100	104	89	107	150	706	300	188	232	100	109
25	99	98	94	89	501	108	327	120	157	175	100	112
26	111	100	96	83	1340	96	153	110	338	226	100	113
27	101	94	95	86	286	306	116	100	247	129	102	117
28	96	95	99	98	162	178	115	100	126	111	103	117
29	98	1420	98	200	---	116	104	100	107	117	109	116
30	97	399	182	691	---	107	98	100	102	556	127	111
31	2180	---	241	296	---	107	---	100	---	215	117	---
TOTAL	8057	6103	3836	4404	5436	4020	5304	11441	3848	5590	5478	4390
MEAN	260	203	124	142	194	130	177	369	128	180	177	146
MAX	2180	1420	241	691	1340	306	782	4440	338	556	1420	563
MIN	94	94	94	83	96	96	92	96	94	91	100	107
AC-FT	15980	12110	7610	8740	10780	7970	10520	22690	7630	11090	10870	8710
CAL YR 1981	TOTAL	87005	MEAN	238	MAX	13100	MIN	80	AC-FT	172600		
WTR YR 1982	TOTAL	67907	MEAN	186	MAX	4440	MIN	83	AC-FT	134700		

SAN JACINTO RIVER BASIN  
08075000 BRAYS BAYOU AT HOUSTON, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 18...	0845	76	800	7.9	17.0	5	6.2	9.8	100	4.4	66	K18
APR 22...	1250	477	390	7.4	17.0	40	85	8.2	84	7.5	52	1000
MAY 13...	1830	16200	110	6.6	19.5	90	260	7.1	78	10	51000	66000
MAY 14...	0830	1360	210	6.4	21.0	120	160	7.2	81	13	54000	29000
JUN 22...	0800	88	835	7.7	27.5	10	7.7	7.6	96	2.9	K1	K2

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)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
APR 22...	95	0	29	5.4	38	1.7	5.2	100	26	31	.3	12
MAY 13...	32	0	9.7	2.0	6.5	.5	2.9	39	6.0	4.7	.1	3.9
MAY 14...	69	5	21	3.9	13	.7	3.9	64	21	10	.2	8.8
JUN 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)
JAN 18...	--	1	0	2.7	.320	3.0	5.90	.20	6.10	4.00	6.0
APR 22...	207	134	14	1.3	.260	1.6	1.60	2.3	3.90	.960	14
MAY 13...	59	514	35	.28	.110	.39	.370	.54	.91	.640	15
MAY 14...	120	248	23	.53	.120	.65	.580	3.2	3.80	.770	16
JUN 22...	--	16	10	1.4	.450	1.8	4.40	.00	4.10	2.10	11



## SAN JACINTO RIVER BASIN

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08075000 BRAYS BAYOU AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY 13...	1830	42	24	<3	<10	3	77
JUN 22...	0800	16	200	<1	<10	4	50

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY 13...	<1	3	<.1	<1	<1	<12
JUN 22...	2	10	<.1	1	<1	20

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
MAY 13...	1830	<.10	<.10	2.2	<.10	<.10	<2.0	.5
JUN 22...	0800	<.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)
MAY 13...	<.1	.10	<2.0	<2.0	.30	<.10	<.1
JUN 22...	<.1	<.10	<2.0	<2.0	.30	<.10	<.1

## SAN JACINTO RIVER BASIN

08075400 SIMS BAYOU AT HIRAM CLARKE STREET, HOUSTON, TX

LOCATION.--Lat 29°37'07", long 95°26'45", Harris County, Hydrologic Unit 12040104, on right bank at downstream side of bridge on Hiram Clarke Street in southwest Houston, 12.7 mi (20.4 km) upstream from gage Sims Bayou at Houston, and 19.7 mi (31.7 km) upstream from mouth.

DRAINAGE AREA.--20.2 mi<sup>2</sup> (52.3 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1964 to current year (discharge measurements and supplemental peak discharges only Dec. 6, 1978, to Aug. 31, 1979).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929, 1959 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Water-discharge records fair. Channel bed was lowered 5 to 6 ft (1.5 to 1.8 m) during rectification of 1978. No known diversion above station. Low flow is partly sustained by sewage effluent from Houston suburbs. Records furnished by Houston Lighting and Power Co. show that during the current year, about 553 acre-ft (1.21 hm<sup>3</sup>) of ground water was used for cooling purposes then released to the bayou about 200 ft (61 m), revised, upstream from gage. Rain gage and gage-height telemeters located at station.

AVERAGE DISCHARGE.--17 years (water years 1965-78, 1980-82), 27.6 ft<sup>3</sup>/s (0.782 m<sup>3</sup>/s), 20,000 acre-ft/yr (24.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 4,500 ft<sup>3</sup>/s (127 m<sup>3</sup>/s) June 15, 1976, elevation, 57.12 ft (17.410 m); minimum daily, 1.5 ft<sup>3</sup>/s (0.042 m<sup>3</sup>/s) July 26, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 650 ft<sup>3</sup>/s (18.4 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Elevation (ft)	(m)
Oct. 5	1930	1,620	45.9	48.24	14.704
Oct. 31	1800	1,030	29.2	46.03	14.030
May 13	1830	*2,240	63.4	50.58	15.417

Minimum daily discharge, 9.8 ft<sup>3</sup>/s (0.28 m<sup>3</sup>/s) Dec. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	213	19	22	22	25	20	16	13	14	16	13
2	11	44	12	20	20	23	19	15	13	14	15	12
3	15	22	14	18	17	23	20	15	14	13	14	24
4	14	20	17	15	15	22	18	15	14	14	14	32
5	475	17	17	15	16	21	19	14	14	13	14	15
6	267	15	17	14	18	24	19	35	13	12	14	14
7	96	14	22	14	19	23	18	51	12	13	73	14
8	73	23	26	14	18	22	19	16	12	14	172	13
9	28	30	15	15	19	22	18	14	12	13	30	12
10	22	20	11	16	19	22	28	15	13	13	37	11
11	20	15	10	16	15	24	21	15	13	13	45	13
12	20	14	11	85	15	22	19	15	13	13	14	13
13	21	15	16	31	16	21	19	562	12	13	12	13
14	78	14	13	26	17	20	19	343	21	13	12	13
15	60	14	11	24	17	20	18	54	14	13	12	12
16	24	13	11	22	16	20	19	24	13	13	11	12
17	20	13	9.8	21	16	21	21	18	14	15	12	12
18	71	12	12	19	15	21	20	16	14	14	11	13
19	27	14	12	18	15	21	20	16	13	14	11	17
20	18	12	17	15	88	20	20	15	13	16	12	23
21	16	12	26	16	37	19	42	15	13	15	12	14
22	15	14	13	16	20	20	55	18	14	15	13	12
23	16	13	12	15	18	39	34	39	14	15	11	12
24	17	15	12	15	20	22	102	29	13	15	12	12
25	16	15	13	15	27	19	50	18	17	14	12	13
26	16	15	11	12	208	18	21	15	20	14	12	12
27	14	12	11	15	54	51	16	15	24	17	12	12
28	13	12	11	19	30	28	14	15	13	16	12	13
29	13	25	12	34	---	20	15	15	13	14	11	13
30	13	31	26	141	---	19	15	16	14	15	13	13
31	282	---	79	61	---	20	---	14	---	17	13	---
TOTAL	1802	718	518.8	799	827	712	758	1493	425	437	684	427
MEAN	58.1	23.9	16.7	25.8	29.5	23.0	25.3	48.2	14.2	14.1	22.1	14.2
MAX	475	213	79	141	208	51	102	562	24	17	172	32
MIN	11	12	9.8	12	15	18	14	14	12	12	11	11
AC-FT	3570	1420	1030	1580	1640	1410	1500	2960	843	867	1360	847
CAL YR 1981	TOTAL	15083.2	MEAN	41.3	MAX	2350	MIN	9.6	AC-FT	29920		
WTR YR 1982	TOTAL	9600.8	MEAN	26.3	MAX	562	MIN	9.8	AC-FT	19040		

## SAN JACINTO RIVER BASIN

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08075400 SIMS BAYOU AT HIRAM CLARKE STREET, HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1970 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)
JAN 18...	1005	16	1000	8.1	16.0	10	16	8.6	86	7.2
MAR 22...	2155	28	900	9.0	20.5	30	32	5.6	62	>23
22...	2250	32	780	9.2	20.0	40	34	6.0	66	>23
23...	0210	36	785	8.5	19.5	40	80	4.8	52	>22
23...	1320	61	540	8.0	18.0	90	150	7.5	79	>23
24...	1310	21	780	8.1	23.0	25	35	7.1	83	5.3
JUN 21...	1355	13	1030	8.0	32.0	20	27	6.4	87	12
DATE	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)	CALCIUM DIS- SOLVED (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)	
JAN 18...	K10	26	--	--	--	--	--	--	--	--
MAR 22...	7700	8200	--	--	--	--	--	--	--	--
22...	20000	8700	--	--	--	--	--	--	--	--
23...	26000	13000	--	--	--	--	--	--	--	--
23...	2100	550	97	0	28	6.6	79	3.5	6.7	
24...	K31	40	--	--	--	--	--	--	--	--
JUN 21...	1000	720	150	0	44	10	150	5.6	10	
DATE	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)	SOLIDS, VOLATILE, TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	
JAN 18...	--	--	--	--	--	--	23	22	2.0	
MAR 22...	--	--	--	--	--	--	62	24	.65	
22...	--	--	--	--	--	--	77	23	.66	
23...	--	--	--	--	--	--	124	38	.64	
23...	160	14	62	.4	12	305	282	56	.73	
24...	--	--	--	--	--	--	46	17	1.4	
JUN 21...	230	120	110	.5	22	605	59	23	.81	
DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, 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)	CARBON, ORGANIC TOTAL (MG/L AS C)	
JAN 18...	.360	2.4	4.70	--	.90	5.60	4.30	4.20	11	
MAR 22...	.350	1.0	5.00	--	6.0	11.0	3.50	--	25	
22...	.340	1.0	5.20	--	5.8	11.0	3.40	--	30	
23...	.280	.92	5.00	5.00	4.0	9.00	4.10	--	44	
23...	.210	.94	4.90	--	3.5	8.40	3.80	--	43	
24...	.350	1.7	3.40	--	3.0	6.40	3.20	--	13	
JUN 21...	.490	1.3	2.60	--	1.9	4.50	7.60	--	19	

## SAN JACINTO RIVER BASIN

08075400 SIMS BAYOU AT HIRAM CLARKE STREET, HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	
JUN 21...	1355	70	96	<1	<10	8	<3	
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)	
JUN 21...		6	58	.1	<1	<1	27	
DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
JUN 21...	1355	<.10	<.10	.90	<.10	<.10	<2.0	<.1
DATE	TIME	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)
JUN 21...		<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

## SAN JACINTO RIVER BASIN

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08075500 SIMS BAYOU AT HOUSTON, TX

Location.--Lat 29°40'27", long 95°17'21", Harris County, Hydrologic Unit 12040104, on left bank at downstream side of bridge on State Highway 35 in southeast Houston and 7.0 mi (11.3 km) upstream from mouth.

DRAINAGE AREA.--63.0 mi<sup>2</sup> (163.2 km<sup>2</sup>). Prior to Oct. 1, 1976, 64.0 mi<sup>2</sup> (165.8 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1922: 1960. WDR TX-76-2: 1975(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3.09 ft (0.942 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Water-discharge records fair. Low flow is largely sustained by sewage effluent from Houston suburbs and industrial wastes. Rainfall and gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years, 81.2 ft<sup>3</sup>/s (2.300 m<sup>3</sup>/s), 58,830 acre-ft/yr (72.5 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft<sup>3</sup>/s (317 m<sup>3</sup>/s) June 9, 1975, and June 16, 1976; maximum gage height, 33.17 ft (10.110 m) June 9, 1975; minimum daily, 0.9 ft<sup>3</sup>/s (0.025 m<sup>3</sup>/s) Aug. 7, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft<sup>3</sup>/s (62.3 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Oct. 5	2400	7,860	223	30.44	9.278
Oct. 31	2200	2,650	75.0	21.15	6.446
May 13	2230	4,950	140	25.91	7.897

Minimum daily discharge, 30 ft<sup>3</sup>/s (0.85 m<sup>3</sup>/s) July 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	1070	79	81	76	62	42	34	36	36	57	33
2	37	167	43	58	60	54	39	37	34	35	72	32
3	54	74	37	52	52	55	35	34	35	35	42	40
4	45	54	39	45	44	49	35	35	35	34	36	93
5	1560	45	46	43	45	43	34	35	36	37	36	42
6	3210	42	47	40	51	45	33	94	35	36	37	35
7	576	37	63	39	43	48	33	222	33	32	248	44
8	545	63	56	37	49	46	36	54	34	34	416	37
9	136	96	53	36	57	43	35	41	34	31	352	37
10	77	48	41	39	45	44	46	36	34	30	139	37
11	72	40	37	39	43	42	40	36	34	32	115	35
12	60	37	41	220	44	46	39	40	36	31	62	40
13	55	36	47	132	38	40	39	1200	34	32	42	37
14	54	37	52	81	41	38	38	1910	41	32	40	37
15	138	40	39	66	52	38	38	245	56	35	36	36
16	60	40	39	57	52	38	38	107	61	35	35	35
17	57	35	37	52	40	39	37	84	37	37	35	34
18	118	35	39	51	37	37	37	75	38	48	36	33
19	79	35	40	49	37	37	37	50	43	37	36	44
20	49	32	54	46	194	35	36	45	291	36	46	50
21	45	37	83	41	178	35	110	40	121	151	45	40
22	46	42	56	42	69	39	141	90	239	102	44	34
23	44	41	44	42	52	96	91	320	61	48	37	35
24	43	38	38	44	53	63	171	200	313	56	36	48
25	44	41	40	43	56	38	198	55	285	39	40	50
26	47	36	38	41	738	36	65	50	249	61	35	46
27	46	33	37	39	245	119	45	48	301	47	34	45
28	43	33	42	45	98	103	39	45	54	41	35	45
29	41	128	36	86	---	48	37	37	42	36	35	46
30	39	167	110	222	---	42	37	38	37	45	43	44
31	890	---	402	293	---	42	---	35	---	107	42	---
TOTAL	8346	2659	1855	2201	2589	1540	1681	5372	2719	1428	2344	1244
MEAN	269	88.6	59.8	71.0	92.5	49.7	56.0	173	90.6	46.1	75.6	41.5
MAX	3210	1070	402	293	738	119	198	1910	313	151	416	93
MIN	36	32	36	36	37	35	33	34	33	30	34	32
AC-FT	16550	5270	3680	4370	5140	3050	3330	10660	5390	2830	4650	2470
CAL YR 1981	TOTAL	51345	MEAN	141	MAX	5740	MIN	30	AC-FT	101800		
WTR YR 1982	TOTAL	33978	MEAN	93.1	MAX	3210	MIN	30	AC-FT	67400		



SAN JACINTO RIVER BASIN  
08075500 SIMS BAYOU AT HOUSTON, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 18...	1038	52	1100	7.6	13.0	15	9.3	7.8	74	4.4	3100	3300
MAR 22...	2355	90	660	8.0	19.5	20	120	6.6	7	13	29000	19000
23...	0305	79	1010	8.0	19.0	30	32	5.5	59	14	62000	17000
23...	1430	121	1060	8.0	18.0	30	100	6.3	66	15	28000	13000
24...	1415	51	720	7.8	21.0	35	68	5.3	60	12	13000	7000
JUN 21...	1215	58	736	7.6	26.5	50	41	3.3	40	7.0	49000	15000

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 CACO3)	SULFATE DIS- SOLVED AS (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED AS (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED AS (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
MAR 22...	140	0	41	8.7	86	3.2	6.2	150	34	84	.6	11
23...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 21...	110	0	31	6.8	100	4.5	4.4	110	35	140	.4	-8.8

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDEDED (MG/L)	SOLIDS, VOLATILE, SUS- PENDEDED (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 18...	--	12	8	4.1	.210	4.3	1.90	.60	2.50	2.60	6.8
MAR 22...	362	222	27	2.6	.370	3.0	.910	1.2	2.10	2.10	22
23...	--	71	21	3.5	.560	4.1	1.20	1.5	2.70	2.90	15
23...	--	166	22	3.0	.390	3.4	2.10	1.5	3.60	2.70	16
24...	--	86	11	2.7	.320	3.0	2.10	2.1	4.20	2.30	13
JUN 21...	393	60	14	1.9	.240	2.1	.700	1.7	2.40	1.80	14

SAN JACINTO RIVER BASIN

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08075500 SIMS BAYOU AT HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
JUN 21...	1215	21	100	<1	<10	4	31

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)
JUN 21...	5	15	.1	<1	<1	21

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
JUN 21...	1215	<.10	<.10	.20	<.10	<.10	<2.0	3.6

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)
JUN 21...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

## SAN JACINTO RIVER BASIN

08075730 VINCE BAYOU AT PASADENA, TX

LOCATION.--Lat 29°41'40", long 95°12'58", Harris County, Hydrologic Unit 12040104, on right bank of concrete lined channel at end of West Ellaine Avenue in Pasadena and 2.4 mi (3.9 km) upstream from mouth.

DRAINAGE AREA.--7.32 mi<sup>2</sup> (18.96 km<sup>2</sup>). Prior to Jan. 1, 1978, 8.21 mi<sup>2</sup> (21.26 km<sup>2</sup>). Jan. 1 to Sept. 30, 1978, 7.61 mi<sup>2</sup> (19.71 km<sup>2</sup>). Drainage area revisions due to drainage ditch changes.

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2.54 ft (0.774 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence (levels by Corps of Engineers).

REMARKS.--Records fair. Low flow is sustained by sewage effluent.

AVERAGE DISCHARGE.--11 years, 16.8 ft<sup>3</sup>/s (0.476 m<sup>3</sup>/s), 12,170 acre-ft/yr (15.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,720 ft<sup>3</sup>/s (134 m<sup>3</sup>/s) May 3, 1981, gage height, 18.30 ft (5.578 m); no flow Aug. 5, 6, 18, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,400 ft<sup>3</sup>/s (68.0 m<sup>3</sup>/s) May 13 at 1730 hours, gage height, 15.05 ft (4.587 m); no other peak above base of 1,400 ft<sup>3</sup>/s (39.6 m<sup>3</sup>/s); minimum daily, 0.10 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) June 7, 8, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	34	6.1	6.6	.83	1.7	.59	1.1	.60	.32	11	2.7
2	.13	4.1	2.0	3.0	4.0	1.2	.54	1.6	.35	.30	3.3	.58
3	.35	1.4	1.2	2.2	1.7	.68	.45	.93	.25	.34	.52	.59
4	1.1	.72	.56	1.3	.56	.68	.34	.69	.15	.29	.46	.66
5	94	.89	.44	1.7	3.3	.68	.47	1.3	.17	1.0	.62	.63
6	30	.79	1.2	1.2	2.2	1.5	.32	61	.13	.62	.27	.64
7	158	.81	25	1.5	.56	1.0	.31	52	.10	.27	74	.62
8	30	96	2.4	1.0	2.2	.56	.31	4.8	.10	.54	7.0	.86
9	1.4	23	1.2	.83	2.2	.56	.50	2.2	.11	.35	159	.96
10	.40	2.5	.83	.83	.83	.44	13	.91	.10	.43	12	1.1
11	5.1	1.1	.83	1.2	.44	.56	1.3	.89	.40	.40	7.3	1.1
12	3.1	.40	.56	60	.83	.68	.40	2.9	.14	.30	1.7	3.9
13	2.1	.35	3.0	12	.35	.56	.28	368	.17	.26	.53	.68
14	.71	.35	1.0	4.0	2.0	.44	.29	66	.14	.51	.43	.85
15	.31	.35	.56	2.0	3.7	.44	.44	7.5	.14	.28	.32	1.3
16	5.3	.36	1.0	1.3	2.7	.56	.35	2.4	36	2.1	.38	1.2
17	1.1	.36	1.0	1.0	.83	.60	6.6	13	1.0	.21	.52	.67
18	21	.53	.68	.83	.68	.48	.83	8.6	.76	.22	5.1	.36
19	1.9	.89	.56	.83	.56	.43	.56	1.9	.94	.19	3.0	.87
20	.56	.48	22	.83	58	.51	.56	1.2	8.3	.25	1.3	4.0
21	.41	1.0	8.8	.44	10	.42	120	.73	.68	.22	.93	1.9
22	.55	.31	1.7	.44	2.9	7.5	123	64	135	22	.57	.35
23	.59	.37	1.0	.44	1.5	31	11	75	2.3	5.6	.55	.37
24	.39	.49	.68	.35	1.2	2.8	97	18	49	1.1	1.3	.19
25	2.3	.59	.56	.35	5.6	.65	23	16	17	3.2	.55	.27
26	1.8	.44	.56	.44	168	.65	4.7	4.5	128	.54	.63	.42
27	.48	.83	.56	.35	11	76	2.2	1.6	35	.20	.71	.43
28	.38	.68	.44	6.6	3.0	7.2	1.2	1.4	2.5	.44	.99	.49
29	.70	57	.44	2.0	---	1.6	.91	1.2	.94	.27	.57	1.2
30	.30	66	133	25	---	1.0	.80	1.1	.75	7.5	.53	1.4
31	217	---	100	4.4	---	.81	---	.84	---	1.3	8.0	---
TOTAL	581.63	297.09	319.86	144.96	291.67	143.89	412.25	783.29	421.22	51.55	304.08	31.29
MEAN	18.8	9.90	10.3	4.68	10.4	4.64	13.7	25.3	14.0	1.66	9.81	1.04
MAX	217	96	133	60	168	76	123	368	135	22	159	4.0
MIN	.13	.31	.44	.35	.35	.42	.28	.69	.10	.19	.27	.19
AC-FT	1150	589	634	288	579	285	818	1550	835	102	603	62
CAL YR 1981	TOTAL	6978.97	MEAN	19.1	MAX	1230	MIN	.08	AC-FT	13840		
WTR YR 1982	TOTAL	3782.78	MEAN	10.4	MAX	368	MIN	.10	AC-FT	7500		

## SAN JACINTO RIVER BASIN

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08075760 HUNTING BAYOU AT FALLS STREET, HOUSTON, TX  
(Flood-hydrograph partial-record station)

LOCATION.--Lat 29°48'22", long 95°19'50", Harris County, Hydrologic Unit 12040104, at downstream side of bridge on Falls Street in northeast Houston.

DRAINAGE AREA.--2.57 mi<sup>2</sup> (6.66 km<sup>2</sup>). Oct. 1, 1973, to Sept. 30, 1978, 2.75 mi<sup>2</sup> (7.12 km<sup>2</sup>). Prior to Oct. 1, 1973, 3.50 mi<sup>2</sup> (9.07 km<sup>2</sup>). Drainage area changes due to changes in storm sewers.

## WATER-DISCHARGE RECORDS

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

GAGE.--Flood-hydrograph and rainfall recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Additional storm rainfall-runoff data for this site can be obtained from the report "Hydrologic Data for Urban Studies in the Houston, Texas Metropolitan Area, 1981."

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 778 ft<sup>3</sup>/s (22.0 m<sup>3</sup>/s) June 13, 1973, elevation, 46.70 ft (14.234 m); maximum elevation, 47.35 ft (14.432 m) Sept. 1, 1979.EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft<sup>3</sup>/s (7.08 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Elevation (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Elevation (ft) (m)
Oct. 5	1900	297 8.41	42.19 12.860	May 17	1900	*500 14.2	45.05 13.731
May 13	1730	420 11.9	43.50 13.259	July 25	2015	262 7.42	41.78 12.735

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical, biochemical, and pesticide analyses: October 1970 to current year. Water temperatures: April 1964 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 16...	1105	.75	1480	8.0	25.5	45	1.7	.6	7	56	830000	520000	
JAN 18...	1250	1.3	980	7.6	16.0	--	--	5.4	55	5.3	36000	34000	
APR 20...	1630	.95	4500	6.7	25.0	100	12	.1	2	147	540000	200000	
21...	1155	4.5	360	7.5	19.0	50	15	5.6	60	16	200000	360000	
MAY 13...	1310	1.0	920	7.4	23.5	65	6.7	.5	6	>95	1000000	500000	
13...	1510	356	142	8.3	20.0	40	170	7.6	84	46	220000	93000	
13...	1730	420	240	8.1	20.5	55	50	7.3	81	17	180000	460000	
13...	2315	115	200	7.6	20.0	40	19	5.4	60	9.3	--	--	
18...	1235	30	410	7.6	22.0	50	13	3.1	36	9.3	680000	420000	
JUL 13...	1030	1.4	840	7.8	27.5	30	3.6	.7	9	13	160000	35000	
AUG 04...	1050	.80	907	8.2	28.0	35	2.2	2.7	34	19	120000	2700	
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)	SILICA, DIS- SOLVED (MG/L AS SiO2)
OCT 16...	250	0	72	18	160	4.6	10	510	65	160	.8	22	
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--	
APR 20...	270	0	79	18	810	21	8.3	300	53	1300	.8	18	
21...	--	--	--	--	--	--	--	--	--	--	--	--	
MAY 13...	240	0	71	15	110	3.3	8.1	250	39	92	.7	18	
13...	54	5	19	1.5	7.4	.5	2.5	49	11	7.8	.2	3.8	
13...	54	11	19	1.7	24	1.5	3.1	43	15	36	.1	4.3	
13...	75	0	25	3.1	12	.6	4.5	80	7.0	11	.2	6.6	
18...	140	10	45	6.6	25	1.0	4.8	130	36	22	.3	11	
JUL 13...	--	--	--	--	--	--	--	--	--	--	--	--	
AUG 04...	140	0	38	9.8	160	6.4	3.8	310	26	91	.8	19	

## SAN JACINTO RIVER BASIN

08075760 HUNTING BAYOU AT FALLS STREET, HOUSTON TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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, NITRITE DIS- SOLVED (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 16...	815	25	20	--	<.020	<.020	<.09	1.20	29	30.0	6.60	33
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
APR 20...	2470	17	2	--	.020	--	<.10	.600	16	17.0	2.30	110
APR 21...	--	39	39	1.1	.080	--	1.2	2.20	5.1	7.30	1.10	19
MAY 13...	504	14	12	--	.040	--	<.10	3.90	--	--	1.20	140
MAY 13...	83	462	48	.16	.060	--	.22	.630	.77	1.40	.960	37
MAY 13...	129	129	33	.47	.060	--	.53	.640	.66	1.30	.700	18
MAY 13...	117	36	16	.80	.070	--	.87	.190	2.5	2.70	.870	15
MAY 18...	229	11	7	.61	.100	--	.71	.810	2.4	3.20	2.00	14
JUL 13...	--	9	6	--	.040	--	<.10	.370	2.4	2.80	2.50	14
AUG 04...	535	9	8	--	<.020	--	<.10	.600	2.4	3.00	.040	20

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 16...	1105	6	81	<1	0	0	57
MAY 13...	1510	2	36	<3	<10	3	140
JUL 13...	1030	4	130	<1	<10	<1	62
AUG 04...	1050	51	170	<1	<10	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)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 16...	1	260	.0	1	0	4
MAY 13...	3	69	<.1	<1	<1	17
JUL 13...	<1	68	<.1	<1	<1	11
AUG 04...	<1	99	<.1	<1	<1	14

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
OCT 16...	1105	.00	.00	.00	.00	.00	.0	.9
APR 20...	1630	<.10	<.10	<.10	<.10	<.10	<2.0	<.1
APR 21...	1155	<.10	<.10	.30	<.10	<.10	--	1.1
MAY 13...	1510	<.10	<.10	6.0	<.10	<.10	<2.0	3.6
JUL 13...	1030	<.10	<.10	<.10	<.10	<.10	<2.0	.2
AUG 04...	1050	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0

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)
OCT 16...	.0	.00	.0	.00	.00	.00	.0
APR 20...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
APR 21...	<.1	<.10	--	--	.20	<.10	<.1
MAY 13...	<.1	2.1	<2.0	<2.0	.40	<.10	<.1
JUL 13...	<.1	1.3	<2.0	<2.0	<.10	<.10	<.1
AUG 04...	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	<1.0



08075770 HUNTING BAYOU AT INTERSTATE HIGHWAY 610, HOUSTON, TX

LOCATION.--Lat 29°47'35", long 95°16'04", Harris County, Hydrologic Unit 12040104, on left bank at downstream side of downstream service road bridge of Interstate Highway 610 in northeast Houston and 8.8 mi (14.2 km) upstream from mouth.

DRAINAGE AREA.--15.8 mi<sup>2</sup> (40.9 km<sup>2</sup>). Prior to Oct. 1, 1973, 16.8 mi<sup>2</sup> (43.5 km<sup>2</sup>). Oct. 1, 1973, to Sept. 30, 1978, 14.7 mi<sup>2</sup> (38.1 km<sup>2</sup>). Changes due to storm sewer relocations.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1964 to current year. Prior to October 1973, published as "U.S. Highway 90-A, Houston".

REVISED RECORDS.--WRD TX-74-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929, 1959 adjustment; unadjusted for land-surface subsidence. Prior to Oct. 1, 1972, water-stage recorder at site 1,800 ft (549 m) upstream at same datum.

REMARKS.--Water-discharge records good except those for periods of no gage-height record, which are poor. Low flow is largely maintained by sewage and industrial effluent. Recording rain gage at station.

AVERAGE DISCHARGE.--18 years, 23.2 ft<sup>3</sup>/s (0.657 m<sup>3</sup>/s), 16,810 acre-ft/yr (20.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,380 ft<sup>3</sup>/s (95.7 m<sup>3</sup>/s) June 13, 1973, elevation, 38.11 ft (11.616 m); maximum gage height, 39.28 ft (11.973 m) June 15, 1976; minimum daily, 0.88 ft<sup>3</sup>/s (0.025 m<sup>3</sup>/s) Aug. 24, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft<sup>3</sup>/s (19.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Elevation (ft)	(m)
Oct. 5	2100	1,320	37.4	33.47	10.202
May 13	1930	1,410	39.9	33.46	10.199
May 17	2100	*2,500	70.8	37.04	11.290

Minimum daily discharge, 2.5 ft<sup>3</sup>/s (0.071 m<sup>3</sup>/s) on July 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	60	60	10	17	9.2	7.5	7.0	7.4	3.7	5.7	8.0
2	3.0	17	24	7.3	11	8.4	7.2	6.3	6.3	3.5	6.5	4.8
3	12	10	14	7.2	11	7.6	6.4	5.8	5.8	3.2	4.2	10
4	5.8	8.2	10	7.1	9.5	7.5	5.9	5.4	5.7	3.1	4.0	20
5	369	7.2	5.5	7.1	8.0	7.0	5.8	5.2	5.4	3.9	3.6	8.0
6	404	6.5	9.0	7.0	9.0	8.6	5.4	62	5.0	3.4	3.6	4.1
7	202	6.1	13	7.1	7.7	7.3	5.4	88	4.8	3.9	161	4.8
8	174	38	9.0	6.9	8.7	10	5.4	12	4.6	3.4	58	4.6
9	27	41	6.2	6.6	10	6.1	5.4	7.8	4.7	2.9	98	4.8
10	15	12	6.2	6.5	7.4	6.2	31	6.8	4.7	2.9	32	4.7
11	29	8.7	4.6	6.5	7.2	6.3	9.6	6.6	4.4	2.8	11	4.4
12	34	7.7	6.7	51	6.8	6.3	6.5	110	4.4	2.5	7.2	7.0
13	13	7.6	5.4	19	6.5	5.8	6.3	433	4.6	7.0	5.8	5.4
14	11	10	7.8	14	6.8	5.7	5.7	299	5.0	7.4	5.2	5.0
15	8.6	6.1	7.8	12	8.0	5.5	5.5	34	4.6	32	4.7	4.9
16	34	5.8	7.3	10	8.0	5.4	5.8	17	4.3	6.9	4.3	5.2
17	23	5.5	6.2	10	6.8	5.4	6.8	652	5.2	39	4.0	5.2
18	26	5.2	5.4	9.8	6.5	5.0	6.0	640	4.4	24	4.5	5.0
19	9.0	5.0	5.2	9.3	6.4	4.6	6.1	63	5.0	7.1	5.0	5.6
20	7.7	4.6	9.0	9.1	25	4.6	6.7	21	4.9	4.8	5.0	6.2
21	6.9	4.6	15	8.7	12	4.5	33	15	4.0	4.3	5.1	5.5
22	6.6	4.7	11	8.5	7.8	10	36	27	69	17	4.9	4.9
23	6.6	4.4	5.4	8.1	6.9	52	15	125	12	23	7.0	4.9
24	5.8	4.7	6.2	7.7	6.3	15	50	85	5.8	41	4.9	5.0
25	12	4.7	5.6	7.6	11	7.4	22	22	5.2	85	4.6	4.6
26	24	4.6	4.9	7.3	132	6.4	12	18	9.1	175	4.8	4.6
27	7.6	4.5	4.8	6.8	23	49	8.2	12	13	13	4.5	5.2
28	6.6	4.4	4.8	7.1	12	21	7.3	11	6.6	8.0	4.5	5.0
29	6.2	170	4.8	12	---	9.8	6.4	9.6	5.2	6.2	4.8	5.1
30	5.8	260	8.0	104	---	9.0	6.0	8.5	4.0	5.6	5.3	5.1
31	113	---	26	69	---	9.4	---	8.1	---	8.0	12	---
TOTAL	1611.2	738.8	318.8	470.3	398.3	326.0	346.3	2823.1	235.1	620.1	495.7	177.6
MEAN	52.0	24.6	10.3	15.2	14.2	10.5	11.5	91.1	7.84	20.0	16.0	5.92
MAX	404	260	60	104	132	52	50	652	69	175	161	20
MIN	3.0	4.4	4.6	6.5	6.3	4.5	5.4	5.2	4.0	2.5	3.6	4.1
AC-FT	3200	1470	632	933	790	647	687	5600	466	1230	983	352

CAL YR 1981 TOTAL 11511.6 MEAN 31.5 MAX 1260 MIN 2.8 AC-FT 22830  
WTR YR 1982 TOTAL 8561.3 MEAN 23.5 MAX 652 MIN 2.5 AC-FT 16980

NOTE.--No gage-height record Nov. 25 to Jan. 4 and Aug. 18 to Sept. 30.

## SAN JACINTO RIVER BASIN

08075770 HUNTING BAYOU AT INTERSTATE HIGHWAY 610, HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

		STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 18...	1338	9.8	800	7.7	15.0	10	8.0	7.2	71	6.0	2100	2100
APR 20...	1700	5.6	1000	7.4	24.5	20	27	.7	9	16	13000	11000
21...	1330	53	530	7.6	19.0	30	36	3.8	41	22	170000	72000
MAY 13...	1355	148	278	7.8	20.0	40	200	7.6	84	13	25000	51000
13...	1755	1280	171	8.2	20.0	60	200	8.2	90	16	160000	72000
13...	2325	966	160	7.7	19.5	60	58	5.8	63	9.6	--	--
18...	1320	376	210	7.0	22.0	50	32	4.5	52	4.9	160000	65000
JUL 13...	0920	2.5	888	7.8	28.0	30	6.2	1.9	24	12	2600	600
AUG 04...	1158	3.7	870	7.6	30.0	30	3.9	7.3	96	5.7	7000	620
	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)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
APR 20...	200	0	59	13	140	4.5	5.9	250	55	130	.9	17
21...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 13...	91	11	30	4.0	16	.7	3.7	80	26	15	.4	4.4
13...	65	6	22	2.5	10	.6	3.1	59	20	6.8	.2	5.1
13...	60	8	20	2.4	9.9	.6	3.7	52	21	10	.2	5.7
18...	76	10	25	3.2	10	.5	3.6	66	22	8.7	.2	6.7
JUL 13...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 04...	190	0	55	12	100	3.4	5.7	260	47	86	.9	15
	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDE (MG/L)	SOLIDS, VOLATILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	
JAN 18...	--	13	13	.51	.180	.69	6.60	.00	6.60	1.30	9.7	
APR 20...	571	51	51	--	.020	<.10	3.10	3.0	6.10	2.40	17	
21...	--	79	79	.98	.120	1.1	1.90	2.6	4.50	1.00	19	
MAY 13...	148	536	41	.56	.140	.70	1.20	.40	1.60	2.00	28	
13...	105	464	40	.40	.090	.49	.550	1.5	2.00	.790	23	
13...	104	104	23	.50	.060	.56	.770	.83	1.60	.570	14	
18...	119	43	7	.60	.080	.68	.520	1.8	2.30	.400	9.9	
JUL 13...	--	6	4	--	.020	<.10	7.10	5.9	13.0	2.90	17	
AUG 04...	478	13	4	.05	.060	.11	6.40	1.4	7.80	5.50	12	

## SAN JACINTO RIVER BASIN

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08075770 HUNTING BAYOU AT INTERSTATE HIGHWAY 610, HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY 13...	1355	4	37	<3	<10	3	51
JUL 13...	0920	8	79	<1	<10	2	110
AUG 04...	1158	31	78	<1	<10	1	23

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)
MAY 13...		4	<3	<.1	<1	<1	<12
JUL 13...		2	210	.1	<1	1	29
AUG 04...		<1	3	<.1	<1	<1	9

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
APR 20...	1700	<.10	<.10	.20	<.10	<.10	<2.0	.4
21...	1330	<.10	<.10	.60	<.10	<.10	--	.6
MAY 13...	1355	<.10	<.10	.30	<.10	<.10	<2.0	.2
JUL 13...	0920	<.10	<.10	<.10	<.10	<.10	<2.0	<.1
AUG 04...	1158	<.10	<.10	.10	<.10	<.10	<2.0	.2

DATE	TIME	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)
APR 20...		<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
21...		<.1	<.10	--	--	<.10	<.10	<.1
MAY 13...		<.1	.20	<2.0	<2.0	<.10	<.10	<.1
JUL 13...		<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
AUG 04...		<.1	<.10	<2.0	<2.0	.10	<.10	<.1

## SAN JACINTO RIVER BASIN

08075900 GREENS BAYOU AT U.S. HIGHWAY 75 NEAR HOUSTON, TX

LOCATION.--Lat 29°57'24", long 95°25'04", Harris County, Hydrologic Unit 12040104, on left bank at downstream side of U.S. Highway 75 bridge, 9.0 mi (14.5 km) upstream from station 08076000, and 21 mi (34 km) upstream from Halls Bayou.

DRAINAGE AREA.--36.1 mi<sup>2</sup> (93.5 km<sup>2</sup>). Prior to October 1973, 34.8 mi<sup>2</sup> (90.1 km<sup>2</sup>).

PERIOD OF RECORD.--August 1965 to current year (discharge measurements and supplemental peak discharges only, Oct. 1, 1980, to Mar. 26, 1981).

REVISED RECORDS.--WDR TX-76-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is National Geodetic Datum of 1929, 1959 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Records fair. Channel was rectified (widened and bed lowered about 2 ft) in 1980-81. Records furnished by Houston Lighting and Power Co. show that about 1,080 acre-ft (1.33 hm<sup>3</sup>) of ground water used for cooling purposes was released to bayou about 8 mi (13 km) upstream from gage during the current year. No know diversion above station. Recording rain gage at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (water years 1966-80, 1982), 31.3 ft<sup>3</sup>/s (0.886 m<sup>3</sup>/s), 22,680 acre-ft/yr (28.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,570 ft<sup>3</sup>/s (101 m<sup>3</sup>/s) Aug. 31, 1981, elevation, 83.37 ft (25.411 m); maximum elevation, 91.09 ft (27.764 m) Feb. 21, 1969, occurred prior to 1980-81 channel rectification; minimum daily discharge, 0.16 ft<sup>3</sup>/s (0.004 m<sup>3</sup>/s) Oct. 21, 22, 1969.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft<sup>3</sup>/s (34.0 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Nov. 29	1930	2,340	66.3	81.02	24.695
May 13	1800	*2,940	83.3	32.20	25.055

Minimum daily discharge, 5.8 ft<sup>3</sup>/s (0.16 m<sup>3</sup>/s) Oct. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	94	149	12	24	15	12	9.8	13	9.5	20	14
2	6.9	26	52	12	19	12	10	9.6	13	8.0	13	14
3	6.9	12	27	13	19	9.6	9.1	9.3	12	6.7	11	20
4	7.8	9.1	17	9.8	13	9.1	9.6	9.2	13	6.5	9.9	31
5	15	8.3	13	8.1	11	9.3	9.8	9.0	14	9.2	14	17
6	153	7.6	12	8.2	11	21	8.3	149	13	8.2	16	13
7	236	6.7	16	7.8	11	12	8.9	116	14	13	14	14
8	105	125	12	7.6	12	9.6	11	25	13	9.3	204	14
9	25	150	9.2	8.1	13	8.9	8.5	13	11	7.9	128	11
10	20	38	7.8	8.5	11	8.8	11	11	12	7.8	35	11
11	13	23	7.7	8.9	9.9	8.8	21	9.3	14	8.7	24	9.5
12	12	15	7.1	80	9.6	7.9	21	289	13	10	30	13
13	13	14	10	47	8.4	11	12	1120	12	14	16	32
14	14	12	69	25	8.3	15	11	1160	15	16	12	19
15	16	12	26	17	8.8	11	10	347	18	23	11	12
16	12	11	14	13	9.0	10	9.8	88	19	16	12	10
17	11	11	10	13	8.4	9.2	10	282	17	12	11	11
18	26	12	9.4	13	8.4	9.5	10	457	16	12	11	15
19	16	11	8.3	12	8.1	11	9.5	224	19	11	16	24
20	13	10	9.1	12	20	11	83	309	16	9.3	18	19
21	8.1	11	15	11	16	12	89	76	12	11	15	15
22	6.6	12	11	11	11	13	97	50	13	34	14	14
23	6.6	13	9.2	12	9.2	21	34	170	15	23	14	14
24	6.6	13	8.1	12	9.4	17	151	140	18	15	13	13
25	6.8	12	7.6	12	27	12	94	50	59	12	18	13
26	6.7	12	7.1	12	140	10	31	24	202	19	14	12
27	6.3	12	6.9	12	48	48	17	17	134	11	13	12
28	6.0	10	7.2	11	23	37	13	14	26	10	12	11
29	5.8	689	7.0	21	---	16	10	13	19	11	13	10
30	5.9	725	11	52	---	13	11	14	13	233	13	13
31	81	---	23	64	---	13	---	14	---	63	14	---
TOTAL	875.3	2116.7	598.7	566.0	526.5	431.7	842.5	5228.2	798	660.1	778.9	450.5
MEAN	28.2	70.6	19.3	18.3	18.8	13.9	28.1	169	26.6	21.3	25.1	15.0
MAX	236	725	149	80	140	48	151	1160	202	233	204	32
MIN	5.8	6.7	6.9	7.6	8.1	7.9	8.3	9.0	11	6.5	9.9	9.5
AC-FT	1740	4200	1190	1120	1040	856	1670	10370	1580	1310	1540	894

WTR YR 1982 TOTAL 13873.1 MEAN 38.0 MAX 1160 MIN 5.8 AC-FT 27520

## SAN JACINTO RIVER BASIN

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08076000 GREENS BAYOU NEAR HOUSTON, TX

LOCATION.--Lat 29°55'05", long 95°18'24", Harris County, Hydrologic Unit 12040104, on left bank at downstream side of bridge on U.S. Highway 59, 10.5 mi (16.9 km) northeast of Houston, 12.0 mi (19.3 km) upstream from Halls Bayou, and 23.4 mi (37.7 km) upstream from mouth.

DRAINAGE AREA.--69.6 mi<sup>2</sup> (180.3 km<sup>2</sup>). Prior to Oct. 1, 1973, 72.7 mi<sup>2</sup> (188.3 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1732: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 0.66 ft (0.201 m) below National Geodetic Vertical Datum of 1929, 1957 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Water-discharge records fair except those for Oct. 26 to Dec. 4, which are poor. Channel rectified during the water years 1974-75. No known diversion above station. Low flow is sustained by Houston Light and Power Co. effluent, which is obtained from groundwater sources. Recording rain gage at station.

AVERAGE DISCHARGE.--30 years, 58.9 ft<sup>3</sup>/s (1.668 m<sup>3</sup>/s), 42,670 acre-ft/yr (52.6 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,730 ft<sup>3</sup>/s (219 m<sup>3</sup>/s) Apr. 18, 1976, gage height, 61.92 ft (18.873 m); maximum gage height, 65.75 ft (20.041 m) Sept. 12, 1961 (prior to channel rectification); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 6	2200	2,110 59.8	57.88 17.642	May 13	2100	*4,120 117	61.35 18.699
Nov. 30	about 0200	3,650 103	61.18 18.648	May 19	1900	3,810 108	60.92 18.568

Minimum daily discharge, 16 ft<sup>3</sup>/s (0.45 m<sup>3</sup>/s) Oct. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	200	640	30	77	49	33	27	31	24	37	26
2	27	100	200	27	54	40	30	26	31	23	28	22
3	25	50	80	34	60	35	28	24	27	21	23	60
4	23	30	47	25	42	31	25	25	30	21	20	94
5	74	22	38	22	36	32	26	24	31	32	22	26
6	525	20	39	21	35	57	27	245	29	30	30	20
7	838	18	47	20	33	45	26	401	29	31	49	20
8	462	200	37	20	35	33	30	67	30	30	255	21
9	68	250	31	22	38	29	28	39	26	29	155	20
10	40	150	28	27	33	28	53	29	26	28	71	20
11	31	75	26	30	29	31	53	28	29	28	40	19
12	71	50	26	170	30	32	43	341	29	29	38	20
13	43	40	26	110	29	28	35	1330	25	65	29	34
14	40	30	186	70	28	32	32	1800	28	366	22	25
15	103	27	60	45	31	32	30	482	34	57	21	27
16	62	25	36	33	31	29	28	148	37	92	21	24
17	58	25	29	30	27	28	28	352	35	40	20	26
18	104	30	26	29	28	29	28	619	31	49	31	23
19	45	25	24	29	26	31	27	1170	39	39	30	30
20	31	22	26	29	64	31	30	918	35	97	27	29
21	24	22	46	28	52	32	148	165	27	23	25	26
22	21	22	32	27	33	34	173	95	74	34	23	24
23	20	24	27	26	29	53	95	340	31	36	23	24
24	19	25	24	25	29	64	186	280	32	29	23	24
25	20	25	23	25	76	35	218	102	57	24	23	25
26	20	24	22	25	410	31	80	60	191	28	28	24
27	19	24	21	25	139	108	44	45	117	24	22	25
28	17	22	20	24	70	130	21	39	59	22	22	25
29	16	397	22	49	---	46	36	33	36	23	22	26
30	18	2160	30	299	---	34	35	33	31	116	22	25
31	150	---	60	260	---	35	---	31	---	81	24	---
TOTAL	3041	4134	1979	1636	1604	1284	1676	9318	1267	1571	1226	834
MEAN	98.1	138	63.8	52.8	57.3	41.4	55.9	301	42.2	50.7	39.5	27.8
MAX	838	2160	640	299	410	130	218	1800	191	366	255	94
MIN	16	18	20	20	26	28	21	24	25	21	20	19
AC-FT	6030	8200	3930	3250	3180	2550	3320	18480	2510	3120	2430	1650
CAL YR 1981	TOTAL	43656	MEAN	120	MAX	3750	MIN	11	AC-FT	86590		
WTR YR 1982	TOTAL	29570	MEAN	81.0	MAX	2160	MIN	16	AC-FT	58650		



## SAN JACINTO RIVER BASIN

08076000 GREENS BAYOU NEAR HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)
JAN 18...	1040	.29	858	7.7	10.5	15	9.7	9.3	82	8.7
MAY 12...	1030	509	380	7.6	24.0	40	400	5.4	64	18
12...	1545	580	250	7.7	23.5	50	210	4.7	55	14
12...	1935	497	260	7.6	24.0	40	340	4.5	53	13
13...	1110	188	320	7.6	23.0	55	200	6.0	70	10
14...	0920	1790	140	7.7	20.5	110	230	6.0	67	6.9
18...	1040	630	133	7.0	21.5	150	150	6.4	72	5.7
JUN 21...	1310	25	980	7.9	31.0	30	25	6.2	83	7.8
22...	1230	125	425	7.6	26.0	50	230	6.2	76	10

DATE	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI 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)
JAN 18...	3700	1000	--	--	--	--	--	--	--
MAY 12...	50000	74000	99	1	32	4.5	38	1.7	4.7
12...	120000	92000	78	4	26	3.2	19	1.0	4.5
12...	--	--	83	5	28	3.2	21	1.0	4.7
13...	31000	25000	93	16	31	3.9	28	1.3	4.5
14...	--	--	57	4	19	2.3	8.1	.5	2.4
18...	25000	52000	74	3	24	3.3	14	.7	3.1
JUN 21...	180000	12000	200	0	64	9.0	120	3.7	7.0
22...	180000	180000	--	--	--	--	--	--	--

DATE	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- PENDE (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDE (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)
JAN 18...	--	--	--	--	--	--	14	14	1.7
MAY 12...	98	32	33	.3	11	215	1010	27	.72
12...	74	22	17	.2	8.0	144	320	26	.35
12...	78	21	19	.2	8.9	153	474	32	.59
13...	77	32	32	.2	11	189	378	26	.40
14...	53	8.0	7.8	.1	6.4	86	336	19	.02
18...	71	20	15	.2	10	133	285	18	.15
JUN 21...	200	93	110	.5	27	550	26	12	.89
22...	--	--	--	--	--	--	244	44	.67

DATE	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 18...	.170	1.9	4.40	.10	4.50	2.8	3.10	4.90	9.2
MAY 12...	.280	1.0	1.40	2.6	4.00	--	1.60	--	22
12...	.180	.53	.980	1.5	2.50	--	.850	--	16
12...	.220	.81	.950	2.1	3.00	--	2.60	--	17
13...	.240	.64	.860	1.5	2.40	--	.940	--	13
14...	.120	.14	.370	1.1	1.50	--	.390	--	13
18...	.190	.34	.590	1.0	1.60	--	.500	--	16
JUN 21...	.510	1.4	3.50	.20	3.70	--	3.20	--	11
22...	.230	.90	1.60	2.6	4.20	--	1.80	--	13

SAN JACINTO RIVER BASIN

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08076000 GREENS BAYOU NEAR HOUSTON, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY 12...	1030	5	120	<3	<10	3	50
JUN 21...	1310	12	290	<1	<10	9	<3
22...	1230	5	200	<1	<10	4	70

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
MAY 12...	<1	35	<.1	<1	1	<12
JUN 21...	1	110	<.1	1	<1	13
22...	<1	40	<.1	<1	<1	10

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
MAY 12...	1545	<.10	<.10	1.0	<.10	<.10	<2.0	.6
JUN 21...	1310	<.10	<.10	.30	<.10	<.10	<2.0	<.1
22...	1230	<.10	<.10	.30	<.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)
MAY 12...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUN 21...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
22...	<.1	<.10	<2.0	<2.0	<.10	<.10	<.1

## SAN JACINTO RIVER BASIN

08076500 HALLS BAYOU AT HOUSTON, TX

LOCATION.--Lat 29°51'42", long 95°20'05", Harris County, Hydrologic Unit 12040104, on right bank at downstream side of bridge on Jensen Drive in northeast section of Houston and 11.0 mi (17.7 km) upstream from mouth.

DRAINAGE AREA.--27.6 mi<sup>2</sup> (71.5 km<sup>2</sup>). Oct. 1, 1973, to Sept. 30, 1977, 28.3 mi<sup>2</sup> (73.3 km<sup>2</sup>). Prior to Oct. 1, 1973, 24.7 mi<sup>2</sup> (64.0 km<sup>2</sup>). Changes were result of drainage ditch extensions or relocations.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1732: Drainage area. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 0.66 ft (0.201 m) below National Geodetic Vertical Datum of 1929, 1957 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Water-discharge records fair except those for Oct. 22 to Nov. 22 and those below 20 ft<sup>3</sup>/s (0.57 m<sup>3</sup>/s), which are poor. No known diversion above station. Low flow is sustained by sewage effluent from Houston suburbs.

AVERAGE DISCHARGE.--30 years, 27.9 ft<sup>3</sup>/s (0.790 m<sup>3</sup>/s), 20,210 acre-ft/yr (24.9 hm<sup>3</sup>).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,780 ft<sup>3</sup>/s (107 m<sup>3</sup>/s) Mar. 21, 1972, gage height, 60.70 ft (18.501 m); maximum gage height, 60.75 ft (18.517 m) June 13, 1973; no flow at times prior to 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft<sup>3</sup>/s (34.0 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 6	2300	1,280 36.2	56.56 17.239	May 13	2000	*2,300 65.1	58.93 17.962
Nov. 29	2230	1,390 39.4	56.50 17.221	May 19	2030	2,120 60.0	58.52 17.837

Minimum daily discharge, 6.6 ft<sup>3</sup>/s (0.19 m<sup>3</sup>/s) June 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	200	107	15	26	16	15	17	11	9.5	14	12
2	8.9	50	43	12	17	12	14	23	10	9.7	11	8.6
3	8.6	20	26	18	23	12	13	14	9.9	9.0	8.6	11
4	9.7	15	18	17	15	12	12	13	9.9	8.6	8.9	34
5	39	12	9.8	13	13	12	12	11	9.9	13	9.5	8.6
6	263	11	16	12	13	12	11	129	9.4	14	9.2	7.3
7	394	11	23	12	14	22	9.9	175	9.4	11	23	8.5
8	165	80	16	11	18	15	11	32	9.4	12	107	8.3
9	27	60	11	11	18	14	11	15	9.0	12	60	8.5
10	14	20	11	11	14	13	36	15	9.0	11	40	8.4
11	22	13	8.3	9.4	13	16	22	15	9.0	8.8	9.9	7.8
12	34	13	12	70	14	12	13	382	8.5	8.9	8.4	8.8
13	20	12	9.7	49	12	12	13	774	8.5	19	8.4	9.7
14	14	12	14	34	12	12	12	586	8.0	88	8.9	9.0
15	12	12	14	26	13	12	13	107	8.0	29	9.2	8.8
16	33	12	13	19	14	12	13	44	8.0	45	10	9.2
17	20	11	11	19	13	12	16	313	7.5	19	9.7	9.2
18	30	11	9.6	19	13	12	12	232	7.5	19	12	9.0
19	16	11	9.2	19	14	12	12	568	7.0	32	15	10
20	11	11	16	16	36	12	12	397	6.8	41	9.0	11
21	9.9	10	27	16	30	12	38	40	6.6	11	9.1	9.9
22	9.9	10	19	16	14	11	83	46	18	13	8.7	8.7
23	9.5	10	9.7	13	12	33	20	106	7.7	10	9.0	8.7
24	9.5	9.2	11	27	12	34	91	112	7.3	10	8.8	8.9
25	25	9.7	10	22	30	16	74	31	7.3	12	8.2	8.2
26	17	9.9	8.7	14	212	14	32	17	40	17	8.5	8.3
27	13	9.0	8.6	14	74	86	19	14	47	11	8.0	9.2
28	11	8.9	8.6	14	27	64	16	13	13	10	8.0	8.9
29	10	312	8.6	33	---	18	14	12	11	9.4	8.5	9.1
30	10	461	8.6	151	---	16	13	11	10	15	9.4	9.1
31	150	---	47	110	---	17	---	11	---	74	16	---
TOTAL	1424.9	1446.7	564.4	842.4	736	585	682.9	4275	343.6	611.9	493.9	296.7
MEAN	46.0	48.2	18.2	27.2	26.3	18.9	22.8	138	11.5	19.7	15.9	9.89
MAX	394	461	107	151	212	86	91	774	47	88	107	34
MIN	8.6	8.9	8.3	9.4	12	11	9.9	11	6.6	8.6	8.0	7.3
AC-FT	2830	2870	1120	1670	1460	1160	1350	8480	682	1210	980	589

CAL YR 1981 TOTAL 14982.6 MEAN 41.0 MAX 1380 MIN 6.4 AC-FT 29720  
WTR YR 1982 TOTAL 12303.4 MEAN 33.7 MAX 774 MIN 6.6 AC-FT 24400

NOTE.--No gage-height record Oct. 22 to Nov. 22.

## SAN JACINTO RIVER BASIN

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08076500 HALLS BAYOU AT HOUSTON, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN 18...	1120	13	858	7.7	12.5	15	4.7	8.9	82	7.8	160000	12000
MAY 12...	0922	543	304	7.7	22.0	50	140	5.4	62	18	150000	89000
12...	1345	769	150	7.8	23.5	90	130	4.5	53	11	160000	100000
12...	1818	486	200	7.8	24.5	60	84	3.8	44	9.0	--	--
13...	0930	81	390	7.7	23.0	50	80	3.5	41	12	9700	7200
14...	0750	650	185	7.5	20.5	90	68	4.6	52	7.5	--	--
18...	1045	192	370	7.1	22.0	50	46	4.2	48	6.6	140000	35000
JUN 21...	1400	6.6	924	8.6	34.0	40	3.5	15.0	211	11	120000	6700
22...	1045	30	690	7.7	26.0	50	16	3.3	40	22	300000	240000
22...	1155	28	442	7.7	27.0	50	24	4.5	56	23	200000	200000
23...	1000	8.1	800	7.0	29.5	40	2.6	4.6	60	16	200000	50000
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)	SILICA, DIS- SOLVED (MG/L AS SiO2)
JAN 18...	--	--	--	--	--	--	--	--	--	--	--	--
MAY 12...	81	0	26	3.8	24	1.2	3.9	90	16	24	.2	8.5
12...	54	3	18	2.2	11	.7	3.3	51	13	10	.1	4.9
12...	67	2	22	2.9	13	.7	3.5	65	16	13	.2	6.5
13...	110	1	35	5.7	31	1.3	4.5	110	22	35	.2	12
14...	65	4	21	3.1	11	.6	3.3	61	11	10	.1	8.1
18...	120	3	39	6.2	24	1.0	3.9	120	23	26	.2	14
JUN 21...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
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, 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)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
JAN 18...	--	4	0	.45	.270	.72	10.0	.00	10.0	4.20	4.90	11
MAY 12...	161	117	20	.37	.120	.49	2.90	2.2	5.10	2.00	--	21
12...	93	258	18	.30	.090	.39	.980	1.2	2.20	.760	--	16
12...	116	155	30	.31	.080	.39	.930	1.3	2.20	.780	--	13
13...	212	110	19	.21	.120	.33	1.90	1.3	3.20	1.80	--	16
14...	104	124	11	.14	.060	.20	.450	1.2	1.60	.630	--	11
18...	208	71	12	.18	.080	.26	1.20	1.9	3.10	.960	--	16
JUN 21...	--	15	14	.08	.230	.31	9.90	.00	4.40	3.20	--	17
22...	--	16	13	.47	.070	.54	8.30	4.7	13.0	4.00	--	24
22...	--	42	13	.51	.070	.58	4.00	5.1	9.10	2.00	--	14
23...	--	10	8	--	.040	<.10	8.80	.90	9.70	4.30	--	17

## SAN JACINTO RIVER BASIN

08076500 HALLS BAYOU AT HOUSTON TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
MAY							
12...	0922	8	85	<3	<10	2	80
JUN							
21...	1400	6	300	<1	<10	6	80
22...	1045	12	200	<1	<10	4	110
22...	1155	39	200	<1	<10	3	110
23...	1000	7	300	<1	<10	1	90

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)
MAY							
12...		1	56	<.1	<1	<1	<12
JUN							
21...		3	200	<.1	<1	<1	10
22...		2	320	<.1	<1	<1	10
22...		3	150	<.1	<1	<1	10
23...		<1	390	<.1	<1	<1	10

DATE	TIME	AME- TRYNE TOTAL (UG/L)	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)
MAY								
12...	1345	<.10	<.10	<.10	<.10	<.10	<2.0	.1
JUN								
21...	1400	<.10	<.10	<.10	<.10	<.10	<2.0	<.1
22...	1045	<.10	<.10	.10	<.10	<.10	<2.0	1.7
22...	1155	<.10	<.10	<.10	<.10	<.10	<2.0	<.1
23...	1000	<.10	<.10	<.10	<.10	<.10	<2.0	<.1

DATE	TIME	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)
MAY								
12...		<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
JUN								
21...		<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
22...		<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
22...		<.1	<.10	<2.0	<2.0	<.10	<.10	<.1
23...		<.1	<.10	<2.0	<2.0	<.10	<.10	<.1



SAN JACINTO RIVER BASIN

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08076700 GREENS BAYOU AT LEY ROAD, HOUSTON, TX

LOCATION.--Lat 29°50'13", long 95°13'59", Harris County, Hydrologic Unit 12040104, on right bank at downstream side of Ley Road Bridge in northeast Houston and 300 ft (91 m) downstream from mouth of Halls Bayou.

DRAINAGE AREA.--182 mi<sup>2</sup> (471 km<sup>2</sup>).

PERIOD OF RECORD.--November 1962 to December 1964, May to September 1971 (discharge measurements only), October 1971 to current year.

Water-quality records: Chemical, biochemical, and pesticide analyses: October 1970 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 2.13 ft (0.649 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment.

REMARKS.--Records fair except those below 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s), which are poor. Discharge is computed for all storms that produce peak discharges over 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s). Tidal influences on the stage-discharge relationship affect discharge below about 500 ft<sup>3</sup>/s (14.2 m<sup>3</sup>/s). Discharge below 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) is estimated following designated storm periods only.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,700 ft<sup>3</sup>/s (473 m<sup>3</sup>/s) June 13, 1973, gage height, 34.27 ft (10.445 m); minimum not determined (affected by tides).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,200 ft<sup>3</sup>/s (119 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 7	unknown	4,560 129	20.51 6.251	May 17	2200	4,830 137	21.15 6.447
Nov. 30	0500	4,860 138	21.20 6.462	May 20	0200	4,800 136	21.10 6.431
May 14	0300	*7,140 202	24.90 7.590				

Minimum discharge not determined.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1020	---	170			---				
2	---	---	290	---	---			---				
3	---	---	80	---	---			---				
4	---	---	---	---	---			---				
5	---	---	---	---	---			---				
6	1800	---	---	---	---			---				
7	2600	---	---	---	---			---				
8	1500	---	---	---	---			---				
9	300	---	---	---	---			---				
10	---	---	---	---	---			---				
11	---	---	---	---	---			---				
12	---	---	---	---	---			1080				
13	---	---	---	---	---			2460				
14	---	---	---	---	---			4880				
15	---	---	---	---	---			1120				
16	---	---	---	---	---			350				
17	---	---	---	---	---			1870				
18	---	---	---	---	---			2330				
19	---	---	---	---	---			1410				
20	---	---	---	---	---			2790				
21	---	---	---	---	---			430				
22	---	---	---	---	---			120				
23	---	---	---	---	---			---				
24	---	---	---	---	---			---				
25	---	---	---	---	---			---				
26	---	---	---	---	---			---				
27	---	---	---	---	---			---				
28	---	---	---	---	---			---				
29	---	760	---	---	---			---				
30	---	3590	---	530	---			---				
31	---	---	---	1090	---			---				
TOTAL	---	---	---	---	---			---				
MEAN	---	---	---	---	---			---				
MAX	---	---	---	---	---			---				
MIN	---	---	---	---	---			---				
AC-FT	---	---	---	---	---			---				

## CLEAR CREEK BASIN

08077000 CLEAR CREEK NEAR PEARLAND, TX

LOCATION.--Lat 29°35'50", long 95°17'11", Harris-Brazoria County line, Hydrologic Unit 12040204, at downstream side of bridge on State Highway 35, 0.7 mi (1.1 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.2 mi (1.9 km) upstream from Hickory Slough, 2.3 mi (3.7 km) north of Pearland, and about 30 mi (48 km) upstream from head of Clear Lake.

DRAINAGE AREA.--38.8 mi<sup>2</sup> (100.5 km<sup>2</sup>).

PERIOD OF RECORD.--July to October 1944, March to October 1946, April 1947 to December 1959, March 1963 to current year. Discharge for some high-water periods in 1944 and 1946 published in WSP 1392.

REVISED RECORDS.--WSP 1392: 1947(M).

GAGE.--Water-stage recorder. Datum of gage is 26.58 ft (8.102 m) National Geodetic Vertical Datum of 1929, 1973 adjustment; prior records unadjusted for land-surface subsidence. Prior to June 9, 1948, nonrecording gage, and June 9, 1948, to Apr. 22, 1952, water-stage recorder at same site and datum 5.80 ft (1.768 m) higher.

REMARKS.--Records poor. Large area of riceland above station is irrigated with water from the Brazos River. Low flow from April to October is largely drainage from irrigated lands. Many diversions for irrigation above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--31 years (water years 1948-59, 1964-82), 36.6 ft<sup>3</sup>/s (1.037 m<sup>3</sup>/s), 26,520 acre-ft/yr (32.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,170 ft<sup>3</sup>/s (61.5 m<sup>3</sup>/s) Mar. 18, 1957; maximum gage height, 18.57 ft (5.660 m) July 26, 1979; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 26, 1960 (stage and discharge unknown), may have exceeded that of Mar. 18, 1957. Channel was rectified in 1933, 1952, 1968, and 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft<sup>3</sup>/s (17.0 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Oct. 6	0600	981	27.8	13.86	4.225
Nov. 1	0600	808	22.9	12.03	3.667
May 14	0400	*1,230	34.8	15.59	4.752

Minimum daily discharge, 0.15 ft<sup>3</sup>/s (0.004 m<sup>3</sup>/s) for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	699	41	361	56	41	12	2.7	6.8	8.4	9.0	.65
2	1.7	301	15	129	30	23	9.5	2.3	6.2	7.7	13	.48
3	7.3	126	8.7	64	24	15	7.9	1.9	5.7	6.6	12	.34
4	4.0	50	6.6	44	16	12	5.9	1.8	5.7	8.7	15	.27
5	139	24	5.0	14	12	9.3	5.3	1.7	5.5	8.3	16	.15
6	909	15	4.3	11	11	7.5	4.3	6.8	4.8	6.1	11	.15
7	655	10	4.5	8.2	8.8	5.9	3.8	45	4.5	7.6	18	.15
8	478	37	8.4	6.5	8.2	5.0	3.8	11	4.3	15	49	.15
9	173	55	15	5.6	9.5	4.4	3.8	4.6	4.7	12	80	.21
10	69	24	11	5.1	8.8	4.3	4.0	2.7	4.6	9.6	119	.15
11	46	11	8.8	4.8	8.1	4.1	4.4	3.1	6.6	12	73	1.4
12	35	8.1	7.0	33	6.1	4.3	3.8	2.3	7.2	15	52	3.6
13	24	6.8	5.5	52	5.1	4.1	3.6	257	6.2	14	39	3.6
14	13	5.4	4.9	44	4.9	4.1	3.6	1100	4.9	13	20	5.3
15	25	7.2	4.4	32	5.1	4.0	3.5	484	5.0	14	13	4.8
16	25	4.7	4.1	24	6.8	3.8	12	118	11	11	8.6	1.7
17	15	4.0	3.6	16	6.5	3.8	9.8	43	9.4	8.9	6.1	.56
18	23	3.8	3.6	12	4.9	3.6	6.5	20	9.2	8.0	8.8	.21
19	40	3.8	3.6	10	4.4	3.6	5.1	12	11	11	9.1	3.2
20	22	3.4	5.5	9.8	65	3.5	4.3	6.6	9.5	12	5.6	2.9
21	20	3.3	17	9.1	133	3.5	13	4.4	8.9	12	4.5	.92
22	7.9	3.3	11	8.4	60	3.4	82	7.9	14	12	6.1	.74
23	5.6	3.2	7.4	7.6	30	16	48	85	7.7	12	5.4	.65
24	4.5	3.1	5.5	6.2	18	11	87	123	17	10	5.3	.65
25	9.1	3.0	4.6	5.6	13	6.3	156	47	21	11	5.1	.83
26	4.6	2.9	4.1	5.1	345	4.8	58	22	39	11	3.6	.65
27	3.6	2.9	3.8	5.0	292	80	20	11	49	12	2.4	.56
28	2.8	2.9	3.6	5.0	99	95	8.6	9.7	9.5	14	2.1	.48
29	2.4	19	3.6	7.3	---	40	4.6	10	7.5	13	1.8	.41
30	2.5	52	16	30	---	22	3.2	8.5	7.9	10	1.2	.28
31	139	---	357	103	---	17	---	7.3	---	10	.92	---
TOTAL	2907.7	1494.8	604.1	1078.3	1291.2	465.3	597.3	2462.3	314.3	335.9	615.62	36.14
MEAN	93.8	49.8	19.5	34.8	46.1	15.0	19.9	79.4	10.5	10.8	19.9	1.20
MAX	909	699	357	361	345	95	156	1100	49	15	119	5.3
MIN	1.7	2.9	3.6	4.8	4.4	3.4	3.2	1.7	4.3	6.1	.92	.15
AC-FT	5770	2960	1200	2140	2560	923	1180	4880	623	666	1220	72
CAL YR 1981	TOTAL	18558.19	MEAN	50.8	MAX	1560	MIN	.00	AC-FT	36810		
WTR YR 1982	TOTAL	12202.96	MEAN	33.4	MAX	1100	MIN	.15	AC-FT	24200		

## 08077650 MOSES LAKE-GALVESTON BAY NEAR TEXAS CITY, TX

LOCATION.--Lat 29°26'50", long 94°55'12", Galveston County, Hydrologic Unit 12040204, on right side of gate abutment of Texas City Flood Control Dike, one orifice located upstream and one downstream, at mouth of Moses Lake, and 4.5 mi (7.2 km) north of Texas City.

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

GAGE.--Duplex water-stage recorder and crest-stage gages. Datum of gage is 0.49 ft (0.149 m) below (corrected) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers), 1973 adjustment. Prior records unadjusted for land-surface subsidence.

REMARKS.--The purpose of this station is to record gage heights of high tides in Galveston Bay and the corresponding gage heights of the water surface in Moses Lake. Moses Lake is connected to Galveston Bay by gated opening through levee. No gage heights are shown for Moses Lake until they reach 3.0 ft (0.91 m) on either side.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (Moses Lake), 4.4 ft (1.34 m) Sept. 20, 1979; minimum, -2.6 ft (-0.79 m) Mar. 12, 13, 1968. Maximum gage height (Galveston Bay), 4.8 ft (1.46 m) Aug. 9, 1980; minimum not recorded but probably occurred Mar. 12 or 13, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum gage height (Moses Lake), 2.8 ft (0.85 m) Sept. 30; minimum not determined. Maximum gage height (Galveston Bay), 4.6 ft (1.40 m) May 13; minimum, -0.9 ft (-0.27 m) Jan. 14.

MAXIMUM DAILY ELEVATION, IN FEET, GALVESTON BAY AND MOSES LAKE  
WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP	
	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake	Galv. Bay	Moses Lake
1	-	-	-	-	-	1.3	-	1.7	-	2.3	-	1.4	-	1.9	-	2.1	-	1.6	-	1.6	-	1.4	-	1.9
2	-	-	-	-	-	1.2	-	1.7	-	2.5	-	1.5	-	2.2	-	1.6	-	1.9	-	1.4	-	1.5	-	1.8
3	-	-	-	-	-	1.8	-	1.5	-	1.6	-	1.7	-	2.1	-	1.3	-	1.9	-	1.3	-	1.4	-	1.9
4	-	-	-	-	-	1.8	-	.9	-	2.1	-	1.9	-	2.2	-	1.4	-	1.9	-	1.4	-	1.6	-	1.7
5	-	-	-	-	-	1.4	-	1.8	-	2.1	-	2.0	-	2.3	-	1.6	-	1.6	-	1.4	-	1.4	-	1.9
6	-	-	-	-	-	1.9	-	1.8	-	1.0	-	2.1	-	2.0	-	2.2	-	1.8	-	1.5	-	1.6	-	1.9
7	-	-	-	-	-	2.2	-	1.8	-	1.4	-	.8	-	2.4	-	1.4	-	1.8	-	1.3	-	2.1	-	1.8
8	-	-	-	-	-	1.5	-	.9	-	1.8	-	1.3	-	2.4	-	1.5	-	1.7	-	1.3	-	1.7	-	2.1
9	-	-	-	-	-	1.5	-	1.3	-	1.9	-	1.5	-	2.1	-	2.0	-	1.8	-	1.4	-	1.5	-	2.7
10	-	-	-	-	-	1.6	-	1.5	-	1.1	-	1.7	-	2.7	-	2.3	-	1.8	-	1.4	-	1.4	-	2.8
11	-	-	-	-	-	2.1	-	1.2	-	1.3	-	1.5	-	1.9	-	2.3	-	1.8	-	1.3	-	1.6	-	2.6
12	-	-	-	-	-	2.0	-	1.8	-	1.4	-	1.6	-	1.9	-	2.8	-	1.7	-	1.4	-	1.7	-	2.2
13	-	-	-	-	-	1.3	-	1.5	-	1.0	-	1.6	-	1.7	-	2.3	4.6	1.6	-	1.5	-	1.7	-	2.2
14	-	2.6	-	-	-	1.8	-	.0	-	1.7	-	1.7	-	1.8	-	2.4	3.5	1.8	-	1.5	-	1.7	-	2.3
15	-	2.5	-	-	-	1.0	-	.8	-	1.9	-	1.7	-	2.0	-	2.6	-	2.2	-	1.6	-	1.6	-	2.0
16	-	2.6	-	-	-	1.4	-	1.2	-	1.6	-	1.8	-	2.3	-	2.3	-	2.0	-	1.9	-	1.6	-	1.9
17	-	2.6	-	-	-	1.6	-	1.2	-	1.7	-	1.8	-	1.6	-	2.4	-	2.0	-	1.8	-	1.7	-	1.7
18	-	2.3	-	-	-	.9	-	1.5	-	1.7	-	1.8	-	1.9	-	1.9	-	2.0	-	1.8	-	2.0	-	1.6
19	-	1.3	-	-	-	2.0	-	1.5	-	1.6	-	2.0	-	1.8	-	1.9	-	2.0	-	1.7	-	2.0	-	1.7
20	-	2.1	-	-	-	2.8	-	1.5	-	1.5	-	1.9	-	2.2	-	2.0	-	2.0	-	1.7	-	2.1	-	1.8
21	-	2.2	-	-	-	2.8	-	1.5	-	1.5	-	2.0	-	1.7	-	2.1	-	2.1	-	1.8	-	1.7	-	1.8
22	-	2.3	-	-	-	1.8	-	1.7	-	1.3	-	1.9	-	1.7	-	2.1	-	2.1	-	1.7	-	1.6	-	2.1
23	-	1.4	-	-	-	1.6	-	1.8	-	1.5	-	2.3	-	2.1	-	2.3	-	1.9	-	1.4	-	1.5	-	2.1
24	-	2.2	-	-	-	1.7	-	1.8	-	1.5	-	2.4	-	2.2	-	2.2	-	2.0	-	1.2	-	1.2	-	2.2
25	-	2.7	-	-	-	1.8	-	1.8	-	1.6	-	1.9	-	2.1	-	2.0	-	1.8	-	1.2	-	1.1	-	2.2
26	-	2.1	-	-	-	1.7	-	1.5	-	1.6	-	1.9	-	1.9	-	2.0	-	1.8	-	1.2	-	1.1	-	1.9
27	-	1.8	-	-	-	2.1	-	1.8	-	.6	-	2.8	-	1.9	-	2.0	-	1.4	-	1.2	-	1.2	-	2.1
28	-	1.9	-	-	-	1.8	-	1.6	-	1.3	-	2.8	-	2.1	-	2.0	-	1.2	-	1.2	-	1.3	-	2.1
29	-	2.0	-	-	-	2.2	-	1.8	-	-----	-	2.5	3.2	2.0	-	1.9	-	1.4	-	1.3	-	1.4	-	2.5
30	-	-	-	-	-	2.5	-	2.3	-	-----	-	2.7	-	1.8	-	1.8	-	1.3	-	1.3	-	1.5	-	2.8
31	-	-	-----	-	-	2.4	-	1.4	-	-----	-	2.2	-	-----	-	1.7	-	-----	-	1.2	-	1.6	-	-----

## HIGHLAND BAYOU BASIN

08077700 HIGHLAND BAYOU AT HITCHCOCK, TX

LOCATION.--Lat 29°21'12", long 95°01'49", Galveston County, Hydrologic Unit 12040204, at downstream side of bridge on Farm Road 2004, 0.6 mi (1.0 km) west of Hitchcock, and 7 mi (11 km) from mouth and Jones Bay.

DRAINAGE AREA (revised).--Basin runoff was diverted to new channel in April 1981. Prior to April 1981, 15.6 mi<sup>2</sup> (40.4 km<sup>2</sup>).

PERIOD OF RECORD.--August 1963 to June 7, 1982 (elevations only prior to 1973, beginning 1973 gage heights only), discontinued.

GAGE.--Water-stage recorder. Datum of gage is 0.80 ft (0.244 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence.

REMARKS.--Only stages above 1.8 ft (0.55 m) are recorded.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 14.33 ft (4.368 m) Sept. 20, 1979; minimum not determined.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation since at least 1930, 14.6 ft (4.45 m) July 25, 1959, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum gage height during period Oct. 1 to June 7, 4.46 ft (1.359 m) May 13 at 1700 hours; minimum not determined.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.42	2.91	2.32	2.06	2.51	1.86	2.26	2.27	1.92			
2	2.34	2.37	---	2.23	2.75	1.88	2.57	2.06	2.42			
3	2.63	2.42	1.97	2.03	2.29	2.13	2.32	1.87	2.26			
4	2.88	2.38	---	---	2.22	2.14	2.56	1.87	2.17			
5	2.71	2.43	1.90	2.12	2.37	2.19	2.68	2.12	1.94			
6	2.54	2.03	2.30	2.15	---	2.11	2.21	2.53	2.18			
7	2.37	2.32	2.57	2.23	---	---	2.96	2.32	2.10			
8	2.06	2.69	1.86	---	2.22	---	2.81	2.06	---			
9	2.22	2.30	1.86	---	2.17	---	2.52	2.51	---			
10	2.04	---	2.22	1.83	---	2.01	2.92	2.73	---			
11	2.31	1.89	2.37	---	---	1.88	2.37	2.66	---			
12	2.23	2.10	2.35	2.27	1.86	1.94	2.37	3.25	---			
13	2.96	2.15	1.96	---	---	2.01	2.06	4.46	---			
14	2.93	2.02	2.12	---	2.18	2.01	2.07	3.92	---			
15	2.78	2.35	---	---	2.22	2.03	2.43	3.10	---			
16	2.84	2.51	---	---	1.85	2.13	2.67	2.78	---			
17	2.75	2.15	1.87	---	2.01	2.12	2.26	2.75	---			
18	2.34	2.28	---	1.87	1.90	2.13	2.26	2.34	---			
19	1.90	2.47	2.34	1.88	---	2.25	2.22	2.31	---			
20	2.35	---	3.23	1.87	2.01	2.16	2.17	2.41	---			
21	2.47	2.00	3.21	1.87	2.01	2.08	2.23	2.42	---			
22	2.58	2.27	2.18	2.06	---	2.22	2.09	2.42	---			
23	1.83	2.50	1.85	1.92	1.82	2.64	2.50	2.79	---			
24	2.70	2.06	2.02	1.90	1.87	2.73	2.52	2.53	---			
25	3.26	2.42	2.02	2.12	1.86	2.36	2.55	2.39	---			
26	2.54	2.71	2.05	1.86	1.94	2.42	2.16	2.39	---			
27	1.98	2.32	2.32	2.07	---	3.07	2.23	2.34	---			
28	2.17	2.16	2.35	1.87	---	3.28	2.48	2.44	---			
29	2.44	2.28	2.32	2.14	---	3.57	2.36	2.32	---			
30	2.62	2.56	2.82	2.92	---	3.11	2.19	2.17	---			
31	2.73	---	2.81	2.23	---	2.55	---	2.18	---			
MAX	3.26	---	---	---	---	---	2.96	4.46	---			
MIN	1.83	---	---	---	---	---	2.06	1.87	---			

08078000 CHOCOLATE BAYOU NEAR ALVIN, TX  
(National stream-quality accounting network)

LOCATION.--Lat 29°22'09", long 95°19'14", Brazoria County, Hydrologic Unit 12040204, on right bank 800 ft (240 m) downstream from bridge on Farm Road 1462, 5.9 mi (9.5 km) southwest of Alvin, and 6.9 mi (11.1 km) upstream from State Highway 35.

DRAINAGE AREA.--87.7 mi<sup>2</sup> (227.1 km<sup>2</sup>). During extreme flooding, overflow from about 11 mi<sup>2</sup> (28 km<sup>2</sup>) of the Mustang Bayou drainage basin enters the Chocolate Bayou basin upstream from gage.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to October 1944 and March to December 1946 (low-water records during irrigation season), January 1947 to February 1958, March 1958 to February 1959 (discharge measurements only), March 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 10.31 ft (3.142 m) National Geodetic Vertical Datum of 1929. Prior to May 3, 1959, nonrecording gage or water-stage recorders located at various sites from 900 to 1,400 ft (270 to 427 m) upstream and at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge records good except those for period of no gage-height record, which are poor. Large area of riceland above station is irrigated with water from Brazos River. Low flow from April to October is largely drainage from irrigated lands. Diversions for irrigation above station.

AVERAGE DISCHARGE.--33 years (water years 1948-57, 1960-82), 110 ft<sup>3</sup>/s (3.115 m<sup>3</sup>/s), 79,700 acre-ft/yr (98.3 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,500 ft<sup>3</sup>/s (609 m<sup>3</sup>/s) July 26, 1979, gage height, 23.88 ft (7.279 m); no flow at times. Maximum stage is that of July 26, 1979. Flood of Oct. 8, 1949, reached a stage of 21.80 ft (6.645 m), present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 14, 1939, reached a stage of 22.9 ft (6.98 m), former site and present datum, adjusted from floodmark 1,700 ft (518 m) to right and 550 ft (168 m) upstream from present gage, on basis of slope of flood of Oct. 8, 1949, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft<sup>3</sup>/s (34.0 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Dec. 31	1600	1,220 34.6	13.06 3.981
May 15	0300	*1,670 47.3	15.70 4.785

Minimum daily discharge, 4.5 ft<sup>3</sup>/s (0.13 m<sup>3</sup>/s) Oct. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	553	175	737	95	90	19	20	38	89	89	22
2	19	452	71	262	61	55	17	18	38	79	71	21
3	20	158	37	156	61	40	15	18	43	74	80	18
4	20	78	24	88	42	30	13	19	49	77	62	18
5	17	46	16	47	30	25	13	20	48	70	46	18
6	59	29	13	32	28	22	11	47	47	67	38	20
7	111	19	16	25	24	25	10	136	53	67	43	20
8	118	23	18	20	21	25	12	83	41	83	123	19
9	86	228	17	16	24	20	12	32	45	83	184	17
10	47	145	14	13	20	17	12	21	47	80	179	15
11	31	65	12	11	17	14	13	20	51	85	130	13
12	26	35	11	42	15	12	12	18	51	83	100	12
13	17	25	10	119	13	11	12	241	48	88	97	11
14	14	19	11	117	12	10	13	1500	53	93	86	11
15	13	16	11	90	13	9.5	12	1570	58	97	52	10
16	12	14	11	68	16	9.0	16	662	62	93	37	10
17	11	13	10	43	15	8.8	20	116	67	148	32	9.5
18	37	12	8.8	30	13	8.7	17	62	71	136	28	8.9
19	100	10	8.5	26	12	8.6	25	83	132	129	90	8.5
20	47	9.7	11	23	150	8.5	29	40	135	119	60	8.4
21	29	9.0	84	21	300	10	31	23	123	107	44	8.2
22	19	8.7	77	19	150	9.0	402	23	101	98	32	7.6
23	15	8.4	45	18	70	15	515	33	107	122	26	8.1
24	11	8.0	26	16	40	16	365	47	95	121	21	11
25	9.5	7.5	17	15	30	12	860	59	109	106	19	13
26	8.0	7.2	14	13	550	10	359	45	161	115	25	13
27	6.7	6.2	14	12	500	80	111	36	198	313	23	13
28	5.5	6.3	13	12	200	50	54	32	159	217	23	13
29	5.5	61	11	16	---	35	33	25	123	150	26	14
30	4.5	179	46	32	---	27	24	31	101	115	24	15
31	28	---	1060	177	---	23	---	37	---	108	22	---
TOTAL	966.7	2251.0	1912.3	2316	2522	736.1	3057	5117	2454	3412	1912	406.2
MEAN	31.2	75.0	61.7	74.7	90.1	23.7	102	165	81.8	110	61.7	13.5
MAX	118	553	1060	737	550	90	860	1570	198	313	184	22
MIN	4.5	6.2	8.5	11	12	8.5	10	18	38	67	19	7.6
AC-FT	1920	4460	3790	4590	5000	1460	6060	10150	4870	6770	3790	806

CAL YR 1981 TOTAL 45081.76 MEAN 124 MAX 2870 MIN .71 AC-FT 89420  
WTR YR 1982 TOTAL 27062.30 MEAN 74.1 MAX 1570 MIN 4.5 AC-FT 53680

NOTE.--No gage-height record Feb. 18 to Mar. 29.



## CHOCOLATE BAYOU BASIN

08078000 CHOCOLATE BAYOU NEAR ALVIN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: May 1971 to current year. Pesticide analyses: May 1971 to September 1981.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1978 to September 1981.

WATER TEMPERATURES: February 1978 to September 1981

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,620 micromhos Apr. 18, 1981; minimum daily, 100 micromhos July 26, 1979.

WATER TEMPERATURES: Maximum daily, 32.0°C July 8, 1978; minimum, 4.0°C Jan. 2, Feb. 11, 1979.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (FTU)	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 CACO3)
NOV 16...	1320	14	800	8.0	17.0	20	9.8	101	1.7	340	4100	240
DEC 30...	1015	9.9	1110	8.0	14.0	9.5	7.6	73	2.9	210	1000	330
MAR 30...	1115	27	720	7.8	17.5	40	8.3	86	3.0	2700	2900	210
MAY 06...	1010	35	806	7.8	22.5	26	9.2	106	1.9	300	1200	240
JUL 27...	1215	325	840	7.6	26.0	50	6.8	84	2.4	170	3600	190
SEP 07...	1325	20	1120	8.5	27.0	19	8.2	103	1.7	92	240	270

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...	28	69	16	69	2.1	3.5	190	50	110	.3	15
DEC 30...	44	96	23	110	2.8	3.0	290	31	170	.4	14
MAR 30...	37	58	15	67	2.2	2.8	170	40	110	.2	10
MAY 06...	60	68	17	77	2.3	3.9	180	60	120	.6	11
JUL 27...	95	54	14	95	3.2	3.9	98	70	160	.3	12
SEP 07...	92	74	21	130	3.7	6.2	180	110	190	.3	27

DATE	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)	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
NOV 16...	463	447	<.09	.110	.80	.060	.300	.270	31	1.2	94
DEC 30...	634	622	<.09	<.070	.86	.090	.590	.570	26	.69	97
MAR 30...	412	405	.16	.100	1.00	.050	.020	.040	48	3.5	94
MAY 06...	475	466	2.4	.260	1.20	.100	.040	.050	37	3.5	99
JUL 27...	510	468	.16	.110	1.00	.130	.070	.040	60	53	100
SEP 07...	808	666	<.10	.090	1.20	.050	.060	.030	27	1.5	85

## CHOCOLATE RIVER BASIN

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08078000 CHOCOLATE BAYOU NEAR ALVIN, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
NOV 16...	1320	2	0	2	200	20	180	3	0	3
MAR 30...	1115	4	0	4	100	0	150	2	--	<3
JUL 27...	1215	2	0	2	200	70	130	<1	--	<1
SEP 07...	1325	3	0	3	200	20	180	<1	--	11

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 16...	10	<10	1	<3	15	14	1	1100	1100	29
MAR 30...	10	<10	1	<1	15	--	<1	2100	2100	32
JUL 27...	<10	<10	1	<1	3	1	2	2000	2000	26
SEP 07...	<10	<10	<1	<1	3	0	4	630	610	16

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
NOV 16...	50	20	30	80	70	15	.1	.0	.1	10
MAR 30...	10	9	1	80	70	6	.2	.1	.1	3
JUL 27...	2	1	1	160	150	12	.2	.1	.1	2
SEP 07...	<1	--	3	70	60	11	.1	.0	.1	6

DATE	NICKEL, SUS- PENDE RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 16...	9	1	<1	<1	1	<1	50	40	12
MAR 30...	--	<1	<1	<1	1	<1	60	--	<12
JUL 27...	--	<1	<1	<1	<1	<1	20	10	10
SEP 07...	4	2	<1	<1	<1	<1	20	3	17

## COASTAL BASIN

08079120 OLD BRAZOS RIVER NEAR FREEPORT, TX

LOCATION.--Lat 28°57'03", long 95°20'19", Brazoria County, Hydrologic Unit 12040205, in room at left gate abutment of Freeport levee guillotine gate structure, one orifice located upstream and one downstream side of gate, and 6,000 ft (1,829 m) downstream from river diversion channel near Freeport.

PERIOD OF RECORD.--August 1978 to September 1982 (discontinued).

GAGE.--Duplex water-stage recorder and crest-stage gages. Datum of gage is 0.11 ft (0.034 m) below National Geodetic Vertical Datum of 1929, 1973 adjustment; unadjusted for land-surface subsidence.

REMARKS.--The purpose of this station is to record gage heights of high tides at the downstream side of the levee and the corresponding elevation of the water surface at the upstream side. No gage heights are shown for the upstream side until they reach 3.0 ft (0.91 m) on either side. The levee is an earthen structure with a maximum elevation of 22 ft (6.7 m) NGVD. Gravity drainage structures, guillotine gate, and pumps to remove floodwaters from the downstream side are located along the levee.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height (upstream side), 4.1 ft (1.25 m) May 19, 1980; minimum not determined. Maximum gage height (downstream side), 5.5 ft (1.68 m) Aug. 9, 1980; minimum not determined.

EXTREMES FOR CURRENT YEAR.--Maximum gage height (upstream side), 3.2 ft (0.98 m) May 13; minimum not determined. Maximum gage height (downstream side), 3.2 ft (0.98 m) May 13; minimum not determined.

MAXIMUM DAILY GAGE HEIGHT, IN FEET, UPSTREAM AND DOWNSTREAM SIDES OF LEVEE  
WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT
	up down	up down	up down	up down	up down	up down	up down	up down	up down	up down	up down	up down
1	- 1.8	- 2.3	- -	- -	- -	- -	- -	- -	- -	- 1.3	- 1.3	- 2.0
2	- 1.8	- 2.0	- -	- -	- -	- -	- -	- -	- -	- 1.2	- 1.5	- 1.7
3	- 2.2	- 2.0	- -	- -	- -	- -	- -	- 1.2	- -	- 1.2	- 1.4	- 1.6
4	- 2.1	- 2.0	- -	- -	- -	- -	- -	- 1.1	- -	- 1.3	- 1.5	- 1.6
5	- 1.9	- 2.2	- -	- -	- -	- -	- -	- 1.2	- -	- 1.5	- 1.3	- 1.9
6	- 1.9	- 1.7	- -	- -	- -	- -	- -	- 2.1	- -	- 1.5	- 1.4	- 1.7
7	- 1.8	- 1.9	- -	- -	- -	- -	- -	- 1.6	- -	- 1.4	- 1.9	- 1.6
8	- 1.6	- 2.1	- -	- -	- -	- -	- -	- 1.4	- -	- 1.3	- 1.8	- 2.2
9	- 1.8	- 1.7	- -	- -	- -	- -	- -	- 2.0	- -	- 1.2	- 1.4	- 2.7
10	- 1.6	- 1.3	- -	- -	- -	- -	- -	- 2.2	- 1.6	- 1.3	- 1.2	- 2.7
11	- 1.5	- 1.8	- -	- -	- -	- -	- -	- 2.2	- 1.8	- 1.2	- 1.6	- 2.7
12	- 1.6	- 2.2	- -	- -	- -	- -	- -	- 2.5	- 1.7	- 1.1	- 1.5	- 2.3
13	- 2.2	- 2.0	- -	- -	- -	- -	- -	- 3.2	- 3.2	- 1.4	- 1.1	- 2.3
14	- 2.5	- 2.0	- -	- -	- -	- -	- -	- 2.9	- 1.4	- 1.3	- 1.5	- 2.3
15	- 2.4	- 2.3	- -	- -	- -	- -	- -	- 2.0	- 1.6	- 1.2	- 1.6	- 2.2
16	- 2.3	- 2.2	- -	- -	- -	- -	- -	- 2.0	- 1.4	- 1.6	- 1.9	- 1.9
17	- 1.9	- -	- -	- -	- -	- -	- -	- 2.1	- 1.7	- 1.8	- 1.8	- 1.7
18	- 1.7	- -	- -	- -	- -	- -	- -	- -	- 1.9	- 1.9	- 1.9	- 1.5
19	- 2.1	- -	- -	- -	- -	- -	- -	- -	- 2.0	- 1.8	- 2.2	- 1.9
20	- 2.1	- -	- -	- -	- -	- -	- -	- -	- 2.1	- 1.8	- 2.0	- 2.2
21	- 2.2	- -	- -	- -	- -	- -	- -	- -	- 2.3	- 1.8	- 1.7	- 2.0
22	- 2.2	- -	- -	- -	- -	- -	- -	- -	- 2.0	- 1.8	- 1.4	- 2.0
23	- 1.7	- -	- -	- -	- -	- -	- -	- -	- 2.2	- 1.4	- 1.0	- 2.0
24	- 2.3	- -	- -	- -	- -	- -	- -	- -	- 2.0	- 1.3	- .9	- 2.0
25	- 2.6	- -	- -	- -	- -	- -	- -	- -	- 1.9	- .9	- .9	- 2.1
26	- 1.3	- -	- -	- -	- -	- -	- -	- -	- 1.6	- .9	- 1.0	- 1.8
27	- 1.8	- -	- -	- -	- -	- -	- -	- -	- 1.3	- .8	- 1.2	- 2.0
28	- 1.8	- -	- -	- -	- -	- -	- -	- -	- 1.2	- .8	- 1.2	- 2.0
29	- 2.1	- -	- -	- -	- -	- -	- -	- -	- .9	- 1.0	- 1.3	- 2.3
30	- 2.2	- -	- -	- -	- -	- -	- -	- -	- .9	- 1.1	- 1.5	- 2.4
31	- 2.4	- -	- -	- -	- -	- -	- -	- -	- -	- 1.1	- 1.6	- -

## 08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX

LOCATION.--Lat 33°02'18", long 101°11'50", Garza County, Hydrologic Unit 12050004, on right bank at downstream side of bridge on U.S. Highway 84 at Justiceburg, 250 ft (76 m) downstream from Panhandle and Santa Fe Railroad, and at mile 143.4 (230.7 km) measured from confluence with Salt Fork Brazos River at mile 923.2 (1,485.4 km) on the Brazos River.

DRAINAGE AREA.--1,466 mi<sup>2</sup> (3,797 km<sup>2</sup>), of which 1,222 mi<sup>2</sup> (3,165 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1961 to current year. Prior to October 1963, published as Sand Creek or South Fork Double Mountain Fork Brazos River at Justiceburg.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,222.47 ft (677.409 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records poor. No known diversion above station.

AVERAGE DISCHARGE.--20 years (water years 1963-82), 28.7 ft<sup>3</sup>/s (0.813 m<sup>3</sup>/s), 1.60 in/yr (41 mm/yr), 20,790 acre-ft/yr (25.6 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,600 ft<sup>3</sup>/s (1,400 m<sup>3</sup>/s) May 6, 1969, gage height, 19.8 ft (6.04 m), from floodmarks; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stages since at least 1895, 25.8 ft (7.89 m) in 1914 and 22.2 ft (6.77 m) in September 1955, from information by local resident. Flood in July 1961 reached a stage of 18.2 ft (5.55 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,100 ft<sup>3</sup>/s (59.5 m<sup>3</sup>/s) (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 11	1700	*29,500 835	15.64 4.767	June 11	1900	7,110 201	10.07 3.069
May 12	0800	8,940 253	10.65 3.246	June 18	2200	4,940 140	9.20 2.804
May 17	0400	5,600 159	9.48 2.890	June 19	0300	12,300 348	11.65 3.551

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	2.4	.30	.18	.14	.03	.14	31	.86	.86	14	.00		
2	.00	1.8	.30	.18	.14	.03	.14	2.4	.63	.63	1.3	.00		
3	.00	1.8	.30	.18	.14	.03	.14	.63	.24	.37	.00	.00		
4	.00	1.6	.24	.18	.14	.02	.13	4.4	.24	.24	.00	.00		
5	.00	1.6	.24	.18	.14	.02	.12	606	.24	.18	.00	.00		
6	439	1.3	.24	.18	.14	.02	.12	274	.18	.14	.00	.00		
7	686	1.3	.24	.30	.14	.02	.06	12	.10	.07	19	.00		
8	58	1.1	.24	.30	.14	.02	.00	3.4	.05	.07	33	.00		
9	25	.99	.24	.30	.14	.02	.00	1.3	.00	.02	2.4	.00		
10	15	.86	.24	.30	.14	.02	.00	1.1	.00	.01	.24	.00		
11	5700	.86	.24	.24	.10	.02	.00	.86	1420	143	.10	.00		
12	682	.63	.30	.24	.10	.02	.00	582	384	319	.02	.00		
13	134	.63	.30	.24	.10	.02	.00	14	29	18	.00	.00		
14	44	.53	.30	.24	.10	.25	.00	2.0	8.8	3.2	.00	.00		
15	33	.53	.30	.24	.10	2.7	.00	.74	4.1	1.1	.00	.00		
16	53	.44	.30	.24	.10	.44	.00	.18	2.4	.63	.00	.00		
17	24	.37	.24	.24	.10	.24	.00	904	2.0	.44	.00	.00		
18	16	.24	.24	.24	.10	.18	.00	19	402	.30	31	.00		
19	14	.24	.18	.24	.10	.18	.00	3.8	3590	.18	2.3	.00		
20	12	.24	.18	.24	.10	.18	.00	1.4	102	.18	.44	.00		
21	10	.24	.18	.24	.07	.18	.00	.86	18	.18	.03	.00		
22	13	.24	.18	.18	.07	.18	.00	.86	8.3	.18	.00	.00		
23	10	.24	.18	.18	.07	.18	.00	79	16	19	.00	.00		
24	7.3	.24	.18	.18	.03	.18	.00	287	225	18	.00	.00		
25	5.9	.24	.18	.18	.03	.14	.00	39	467	.24	.00	.00		
26	5.2	.24	.18	.18	.03	.14	.00	64	77	.03	.00	.00		
27	4.1	.24	.18	.18	.03	.14	.00	18	47	.00	.00	.00		
28	3.8	.24	.18	.18	.03	.10	.00	5.5	22	.00	.00	.00		
29	3.5	.24	.18	.18	---	.14	.00	1.8	4.7	.00	.00	.00		
30	3.5	.37	.18	.18	---	.14	59	1.3	2.1	.00	.00	.00		
31	2.9	---	.18	.18	---	.14	---	.86	---	.00	.00	---		
TOTAL	8004.20	21.99	7.14	6.72	2.76	30.87	59.85	2962.39	6833.94	526.25	187.83	.00		
MEAN	258	.73	.23	.22	.099	1.00	2.00	95.6	228	17.0	6.06	.000		
MAX	5700	2.4	.30	.30	.14	.25	.59	904	3590	319	84	.00		
MIN	.00	.24	.18	.18	.03	.02	.00	.18	.00	.00	.00	.00		
CFSM	1.06	.003	.001	.001	.000	.004	.008	.39	.93	.07	.03	.000		
IN.	1.22	.00	.00	.00	.00	.00	.01	.45	1.04	.08	.03	.00		
AC-FT	15880	44	14	13	5.5	61	119	5880	13560	1040	373	.00		
CAL YR 1981	TOTAL	10304.65	MEAN	28.2	MAX	5700	MIN	.00	CFSM	.12	IN	1.57	AC-FT	20440
WTR YR 1982	TOTAL	18643.94	MEAN	51.1	MAX	5700	MIN	.00	CFSM	.21	IN	2.84	AC-FT	36980

## BRAZOS RIVER BASIN

08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1975 to current year. Sediment records: October 1976 to September 1982 (discontinued).

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1975 to current year.

WATER TEMPERATURES: October 1975 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, 26,800 micromhos Mar. 5, 1982; minimum daily, 375 micromhos Sept. 27, 1980.

WATER TEMPERATURES: Minimum daily, 32.5°C July 4, 1978; minimum daily, 0.0°C on several days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 26,800 micromhos Mar. 5; minimum daily, 421 micromhos Oct. 11.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 15...	1000	27	2830	26.5	310	160	77	29	460	11
NOV 18...	1055	.22	16500	13.0	1100	870	260	110	3400	45
JAN 06...	1145	.19	18600	7.5	1400	1200	320	150	3800	44
FEB 24...	1156	.08	27700	13.5	2600	2400	560	300	6000	51
APR 06...	1051	.12	20000	7.0	1600	1400	380	170	4100	44
MAY 18...	1240	15	1700	20.0	130	13	37	9.9	310	12
JUN 19...	2030	481	--	--	--	--	--	--	--	--
AUG 10...	1015	.32	11900	22.0	860	660	220	76	2500	37

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)
OCT 15...	9.6	150	230	720	1.7	11	1630	175	13
NOV 18...	11	230	650	5400	1.2	11	9980	--	--
JAN 06...	13	230	820	6500	1.3	11	11800	--	--
FEB 24...	19	250	1800	9500	.9	6.2	18300	--	--
APR 06...	13	200	850	7000	1.2	11	12600	--	--
MAY 18...	4.3	120	130	390	1.2	9.3	964	1840	75
JUN 19...	--	--	--	--	--	--	--	9190	11900
AUG 10...	9.5	200	490	4000	1.1	11	7430	--	--



08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	8004.20	587	322	6970	170	3760	14	297	28
NOV.	1981	21.99	12500	7440	442	4000	239	470	28	*
DEC.	1981	7.14	17500	10800	208	5800	112	750	14	*
JAN.	1982	6.72	18500	11600	210	6200	113	850	15	*
FEB.	1982	2.76	21600	13600	102	7400	55	1000	7.8	*
MAR.	1982	30.87	4310	2520	210	1400	114	150	12	270
APR.	1982	59.85	2800	1580	255	850	137	77	12	150
MAY	1982	2962.39	1510	836	6680	450	3600	38	301	75
JUNE	1982	6833.94	903	498	9190	270	4950	22	401	44
JULY	1982	526.25	1200	661	940	360	507	29	42	59
AUG.	1982	187.83	1430	795	403	430	217	36	18	72
SEPT	1982	0.00	*	*	0.00	*	0.00	*	0.00	*
TOTAL		18643.94	**	**	25600	**	13800	**	1150	**
WTD. AVG.		51	918	509	**	270	**	23	**	46

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	9230	16900	18800	15300	24300	19300	1370	13000	4680	1600	
2	---	9700	17000	18600	15900	23700	21200	5410	11600	5740	8550	
3	---	10100	16700	18700	16400	23100	20000	12600	14500	7510	---	
4	---	10600	17100	18900	17400	25000	20800	10500	15300	9600	---	
5	---	10900	17300	19000	18200	26800	21200	1220	14300	11100	---	
6	650	11400	17200	18600	19600	26300	20400	767	16000	12300	---	
7	580	11600	17300	12500	21000	25900	19500	2000	16300	13200	2050	
8	1270	12000	17500	9820	21800	25300	---	4030	16700	13800	1500	
9	3340	12600	17600	7290	21900	25000	---	6680	---	14000	9300	
10	3800	13100	17400	9750	22100	24600	---	9250	---	14100	12000	
11	421	13600	17700	12200	22400	24800	---	12100	1050	1800	16000	
12	680	13900	16800	14500	24800	23600	---	2500	686	750	18500	
13	1260	14500	16900	16900	23900	26600	---	1350	1520	1700	---	
14	2130	14800	17100	19300	24300	2500	---	5060	3870	3500	---	
15	2790	15300	17000	21500	24600	4110	---	8520	6750	6500	---	
16	1540	15800	17200	21600	24900	11500	---	12800	9210	9900	---	
17	2810	16100	17500	21800	22900	17700	---	889	10900	10100	1050	
18	2880	16500	17600	21900	25500	19700	---	1490	3500	11900	710	
19	2950	16800	18000	22500	24800	19800	---	4700	495	12000	2320	
20	3050	17000	17800	21600	24200	19200	---	8750	730	12800	8190	
21	3200	17400	17900	22300	23700	19000	---	11400	2080	11500	12100	
22	3400	17200	18100	23600	24400	18900	---	11800	3290	12300	---	
23	3800	17500	18200	24000	25900	19200	---	5500	4420	1250	---	
24	4000	17700	18300	24500	25300	20000	---	919	1010	895	---	
25	4100	18100	18100	25000	24600	19300	---	2070	860	7590	---	
26	4800	17800	18200	22500	24900	18700	---	865	850	12900	---	
27	5400	18000	18500	24200	22400	19500	---	3030	1920	---	---	
28	5800	18200	18300	23100	22300	20000	---	5970	1560	---	---	
29	6200	18300	18600	21500	---	21000	---	8880	2330	---	---	
30	7000	16800	18500	19700	---	20500	2550	10900	3210	---	---	
31	9000	---	18700	17500	---	19500	---	12900	---	---	---	
MEAN	3340	14800	17600	19200	22300	20500	18100	6010	6360	8590	7220	

## BRAZOS RIVER BASIN

08079600 DOUBLE MOUNTAIN FORK BRAZOS RIVER AT JUSTICEBURG, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

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

## BRAZOS RIVER BASIN

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08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX  
(National stream-quality accounting network)

LOCATION.--Lat 33°00'29", long 100°10'49", Stonewall County, Hydrologic Unit 12050004, on right bank at downstream side of bridge on U.S. Highway 83, 0.3 mi (0.5 km) downstream from Hitson Creek, 10 mi (16 km) south of Aspermont, and at mile 34.5 (55.5 km) measured from confluence with Salt Fork Brazos River which is at mile 923.2 (1,485.4 km) on the Brazos River.

DRAINAGE AREA.--8,796 mi<sup>2</sup> (22,782 km<sup>2</sup>), of which 6,932 mi<sup>2</sup> (17,954 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1923 to September 1934, June 1939 to current year.

REVISED RECORDS.--WSP 733: 1927(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,624.79 ft (495.236 m) National Geodetic Vertical Datum of 1929. Dec. 3, 1923, to Sept. 30, 1934, nonrecording gage at site 90 ft (27 m) downstream at datum 2.0 ft (0.61 m) higher, and June 8, 1939, to Aug. 12, 1972, water-stage recorder at present site and datum 2.0 ft (0.61 m) higher.

REMARKS.--Water-discharge records fair. Small diversions above station for oilfield operation.

AVERAGE DISCHARGE.--53 years (water years 1925-34, 1940-82), 162 ft<sup>3</sup>/s (4.588 m<sup>3</sup>/s), 1.18 in/yr (30 mm/yr), 117,400 acre-ft/yr (145 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 91,400 ft<sup>3</sup>/s (2,590 m<sup>3</sup>/s) Sept. 26, 1955, gage height, 29.5 ft (8.99 m), present datum; no flow at times most years.  
Maximum stage since at least 1899, that of Sept. 26, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,800 ft<sup>3</sup>/s (249 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Oct. 13	1600	10,600	300	11.50	3.505
May 17	1730	14,200	402	13.23	4.033

Minimum daily discharge, 0.11 ft<sup>3</sup>/s (0.003 m<sup>3</sup>/s) Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	11	83	30	25	38	16	12	1.7	575	396	39	1.8		
2	9.6	77	28	25	36	15	13	2.4	365	273	522	1.0		
3	8.4	73	28	24	31	15	9.6	2.4	245	206	250	1.0		
4	7.3	71	28	23	27	14	8.4	3.6	196	179	126	.56		
5	5.9	68	28	20	34	14	6.9	107	168	166	58	.44		
6	5.0	65	29	19	33	14	5.9	1510	135	114	34	.44		
7	21	62	30	19	32	13	5.6	1200	112	95	24	.38		
8	560	61	31	21	29	13	5.0	385	98	91	56	.38		
9	305	55	31	21	27	11	4.1	207	86	97	53	.38		
10	183	49	31	22	26	11	4.1	128	77	152	20	.33		
11	154	48	30	24	24	11	4.4	87	74	107	14	.28		
12	254	49	30	27	23	12	3.8	117	2000	86	11	.38		
13	4810	49	31	29	23	13	3.0	115	1370	80	9.3	.28		
14	1550	49	32	21	23	29	2.6	113	567	131	7.9	.28		
15	798	46	32	16	23	29	2.0	209	315	230	6.5	.20		
16	577	43	31	15	22	24	1.0	187	194	138	5.3	.24		
17	415	42	31	18	20	61	.90	6370	130	90	4.6	.20		
18	340	39	30	20	19	64	.80	2410	92	70	4.1	.11		
19	300	36	29	19	18	48	1.0	743	2600	59	3.5	1.9		
20	252	33	30	18	17	35	.80	312	3930	50	2.7	11		
21	235	31	31	23	16	30	.64	205	1100	43	2.4	3.9		
22	213	29	30	27	16	27	1.2	742	664	37	2.4	2.1		
23	184	29	30	27	15	21	1.7	2090	558	33	2.0	1.2		
24	154	28	30	25	14	18	1.5	4190	585	29	1.4	1.0		
25	140	27	30	20	14	16	1.5	4120	1280	27	1.1	1.1		
26	126	27	29	20	14	15	1.2	2410	1430	24	1.0	1.1		
27	116	27	28	18	15	16	1.0	1300	2870	167	.80	1.1		
28	110	27	27	16	16	15	1.0	2460	929	211	20	1.1		
29	104	27	26	16	---	15	1.7	1230	554	94	34	1.0		
30	98	27	26	32	---	15	1.7	1170	527	60	7.4	.99		
31	88	---	25	36	---	13	---	814	---	45	3.6	---		
TOTAL	12134.2	1377	912	686	645	663	108.04	34941.1	23826	3580	1327.00	36.17		
MEAN	391	45.9	29.4	22.1	23.0	21.4	3.60	1127	794	115	42.8	1.21		
MAX	4810	83	32	36	38	64	13	6370	3930	396	522	11		
MIN	5.0	27	25	15	14	11	.64	1.7	74	24	.80	.11		
CFSM	.21	.03	.02	.01	.01	.01	.002	.61	.43	.06	.02	.001		
IN.	.24	.03	.02	.01	.01	.01	.00	.70	.48	.07	.03	.00		
AC-FT	24070	2730	1810	1360	1280	1320	214	69310	47260	7100	2630	72		
CAL YR 1981	TOTAL	39681.61	MEAN	109	MAX	4810	MIN	.20	CFSM	.06	IN	.79	AC-FT	78710
WTR YR 1982	TOTAL	80235.51	MEAN	220	MAX	6370	MIN	.11	CFSM	.12	IN	1.60	AC-FT	159100

## BRAZOS RIVER BASIN

08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1948 to November 1951, October 1956 to September 1977. Chemical and biochemical analyses: October 1977 to September 1978. Sediment records: November 1949 to November 1951.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1948 to November 1951, October 1956 to current year.

WATER TEMPERATURES: November 1949 to November 1951, October 1956 to current year.

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

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 13,100 micromhos July 29, 1980; minimum daily, 735 micromhos Oct. 24.

WATER TEMPERATURES (1945-51, 1956-82): Maximum daily, 38.0°C July 18, 1966; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 8,960 micromhos Apr. 17; minimum daily, 1,010 micromhos Oct. 14.

WATER TEMPERATURES: Maximum daily, 28.0°C June 29; minimum daily, 0.0°C on several days during January and February.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT 21...	1200	79	2710	8.1	18.0	250	10.3	116	3.1	160	84	540
DEC 16...	0900	30	5580	7.9	6.0	.80	12.9	113	2.7	48	40	1300
FEB 10...	1300	45	5770	8.0	1.0	1.8	11.8	90	1.4	K8	41	1300
APR 14...	1145	3.6	8440	7.9	25.0	1.4	9.1	121	2.1	76	68	2100
JUN 23...	1230	530	1210	7.8	26.5	3300	9.8	127	5.0	K1200	6700	310
AUG 18...	1230	6.2	7060	7.9	29.7	17	9.3	131	3.7	96	180	2100

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 21...	400	140	45	370	7.0	12	140	460	520	1.4	8.6
DEC 16...	1100	360	94	700	8.5	12	140	1100	1200	1.3	11
FEB 10...	1100	350	95	840	10	11	150	1200	1300	1.3	8.7
APR 14...	2000	590	150	1200	11	15	120	1600	2200	1.0	8.9
JUN 23...	220	88	23	150	3.9	6.2	95	260	190	1.2	8.9
AUG 18...	2000	660	120	890	8.4	12	98	1700	1600	.6	12

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 21...	1690	1640	<.09	.100	.94	.060	.030	<.010	543	116	90
DEC 16...	3660	3560	<.10	<.070	.59	.040	.020	<.010	60	4.9	97
FEB 10...	3960	3900	<.10	<.060	.83	.310	.030	<.010	49	6.0	100
APR 14...	6240	5840	<.10	.150	.33	.060	<.010	.060	17	.17	85
JUN 23...	795	784	.33	<.060	2.80	2.00	.060	.050	5470	7830	91
AUG 18...	5020	5050	<.10	.150	1.20	.050	.070	.040	47	.79	87

## BRAZOS RIVER BASIN

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08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, SUS- PENDE RECOV. (UG/L AS CR)
OCT 21...	1200	8	3	5	400	200	200	<1	1	10	10
FEB 10...	1300	3	0	3	100	0	100	<1	<1	10	0
JUN 23...	1230	10	4	6	1400	1200	210	<1	<1	80	--
AUG 18...	1230	3	0	3	<100	--	100	<1	<1	<10	--

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 21...	0	3	3	0	43	40	3	5800	5800	50	8
FEB 10...	10	<1	--	<1	4	--	<1	340	300	40	5
JUN 23...	<10	26	--	<1	80	76	4	51000	51000	23	17
AUG 18...	<10	1	--	<1	<1	--	1	330	250	80	<1

DATE	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV. (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDE RECOV- ERABLE (UG/L AS NI)
OCT 21...	6	2	200	190	10	.2	.2	.0	9	8
FEB 10...	--	<1	90	20	70	.3	--	<.1	3	1
JUN 23...	12	5	2400	--	<1	.4	--	<.1	57	--
AUG 18...	--	2	330	30	300	<.1	--	.1	5	4

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDE RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 21...	1	1	0	1	2	2	0	60	40	20
FEB 10...	2	1	0	1	<1	--	<1	20	10	10
JUN 23...	<1	1	--	<1	<1	--	<1	190	--	<3
AUG 18...	1	<1	--	1	1	0	1	20	0	60



## BRAZOS RIVER BASIN

08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	12134.2	1580	1020	33400	270	8940	360	11700	360
NOV.	1981	1377	4770	3140	11700	960	3560	1000	3810	1100
DEC.	1981	912	5420	3580	8830	1100	2750	1200	2830	1300
JAN.	1982	686	5940	3950	7310	1300	2340	1200	2310	1400
FEB.	1982	645	5690	3770	6570	1200	2080	1200	2090	1400
MAR.	1982	663	5320	3530	6310	1100	1990	1100	2010	1300
APR.	1982	108.04	7570	5100	1490	1700	507	1500	448	1900
MAY	1982	34941.1	1630	1050	98900	280	26100	370	34900	370
JUNE	1982	23826	1530	987	63500	260	16800	350	22500	340
JULY	1982	3580	3040	1980	19100	560	5460	670	6480	700
AUG.	1982	1327.00	2980	1950	6970	560	2000	660	2350	690
SEPT	1982	36.17	5870	3910	382	1300	123	1200	120	1400
TOTAL		80235.51	**	**	264000	**	72700	**	91600	**
WTD. AVG.		220	1890	1220	**	340	**	420	**	430

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8070	4010	5720	5750	5260	6500	6820	8340	1760	1840	4780	6210
2	6820	4130	5730	5760	5720	6560	5340	8080	2260	2200	2500	6760
3	5600	4200	5670	5880	5330	6580	7090	8050	2710	2570	1830	6570
4	5830	4280	5790	6040	4940	6660	7460	8750	3050	2930	2190	6940
5	6340	4360	5860	6070	5450	6730	7680	7930	3540	3300	2950	7220
6	6560	4390	5630	6130	5600	6810	7830	3300	3940	3660	3240	7430
7	5210	4470	5590	6280	5580	6800	7960	1570	4330	4050	3910	7540
8	2170	4510	5550	6270	5010	6850	8000	1560	4630	4330	4640	7680
9	1380	4630	5480	6330	5430	6970	8140	1540	4980	4410	3670	7770
10	1250	4740	5350	6750	5710	6990	8170	1670	5270	2500	5080	7790
11	1300	4790	5330	7190	5790	7070	8090	2000	5560	2860	6000	8010
12	1250	4870	5300	6840	5760	7160	8330	2580	1400	3260	6390	7440
13	1030	4930	5190	6660	5810	7450	8620	2690	1340	3730	6910	7900
14	1010	4990	5230	6840	5820	6790	8530	2780	1280	3520	6970	7780
15	1310	4760	5270	6850	5830	3640	8610	2570	1320	2840	6960	7810
16	1650	4790	5290	7140	5470	6470	8830	2110	1550	2050	6940	7750
17	1800	4920	5320	7150	5620	5250	8960	1620	1960	2640	6900	7820
18	2170	5020	5280	6360	5820	3460	8930	1550	2520	3280	6870	7990
19	2400	5100	5200	6180	5920	2620	8770	1630	1810	3980	6860	5950
20	2880	5200	5120	6160	6000	4100	8930	1770	1230	4500	6860	4390
21	2610	5260	5080	6130	6050	4210	8900	1990	1110	5070	6890	4120
22	2720	5350	5180	5050	6140	4530	8490	1710	1180	5560	6920	5320
23	2790	5440	5260	4750	6220	4850	8380	1540	1200	6000	6990	6390
24	3000	5520	5270	4650	6440	5130	8450	1370	2220	6400	7050	7210
25	3190	5550	5290	4760	6450	5510	8520	1350	1420	6650	7190	7600
26	3380	5660	5300	5030	6130	5850	8790	1500	1220	6950	7160	7750
27	3480	5720	5360	5290	6260	5940	8880	1630	1200	3500	7250	8000
28	3610	5710	5460	5490	6430	6060	8950	1410	1440	2190	5500	7630
29	3740	5720	5630	5650	---	6230	8410	1360	1560	1870	3150	7550
30	3870	5650	5690	5000	---	6410	8470	1390	1640	2920	4000	7570
31	3970	---	5720	5220	---	6640	---	1760	---	3920	5440	---
MEAN	3300	4960	5420	5990	5790	5900	8240	2870	2350	3730	5480	7130

## BRAZOS RIVER BASIN

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08080500 DOUBLE MOUNTAIN FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	11.0	7.0	4.0	5.0	9.0	14.0	15.0	20.0	25.0	25.0	23.0
2	19.0	11.0	5.0	7.0	6.0	11.0	20.0	17.0	22.0	---	25.0	24.0
3	22.0	13.0	7.0	7.0	1.0	13.0	11.0	18.0	23.0	---	25.0	23.0
4	22.0	12.0	6.0	2.0	.0	9.0	15.0	17.0	20.0	---	26.0	21.0
5	22.0	---	6.0	4.0	.0	5.0	13.0	20.0	22.0	---	25.0	19.0
6	21.0	---	13.0	8.0	.0	2.0	9.0	16.0	24.0	25.0	24.0	20.0
7	17.0	14.0	8.0	.0	.0	4.0	12.0	14.0	25.0	25.0	25.0	19.0
8	15.0	15.0	9.0	1.0	4.0	7.0	13.0	16.0	25.0	25.0	25.0	20.0
9	16.0	8.0	8.0	2.0	.0	10.0	12.0	18.0	24.0	25.0	25.0	20.0
10	19.0	5.0	9.0	.0	1.0	12.0	11.0	19.0	22.0	26.0	25.0	20.0
11	---	8.0	10.0	.0	3.0	14.0	9.0	21.0	23.0	27.0	27.0	22.0
12	20.0	8.0	10.0	1.0	5.0	16.0	16.0	20.0	20.0	25.0	26.0	22.0
13	20.0	10.0	9.0	.0	3.0	12.0	17.0	20.0	21.0	23.0	25.0	21.0
14	21.0	13.0	8.0	.0	---	12.0	19.0	18.0	24.0	25.0	25.0	21.0
15	23.0	14.0	5.0	2.0	10.0	15.0	19.0	20.0	24.0	25.0	26.0	22.0
16	21.0	12.0	7.0	.0	9.0	13.0	15.0	21.0	22.0	25.0	25.0	21.0
17	22.0	12.0	3.0	.0	10.0	16.0	14.0	25.0	23.0	25.0	25.0	21.0
18	17.0	14.0	1.0	5.0	8.0	19.0	14.0	18.0	23.0	25.0	24.0	20.0
19	15.0	10.0	---	5.0	10.0	19.0	18.0	22.0	20.0	26.0	26.0	19.0
20	15.0	7.0	---	10.0	12.0	14.0	10.0	22.0	20.0	25.0	23.0	21.0
21	18.0	8.0	8.0	10.0	10.0	11.0	9.0	25.0	22.0	24.0	25.0	17.0
22	13.0	8.0	8.0	11.0	12.0	10.0	10.0	20.0	26.0	25.0	24.0	16.0
23	10.0	9.0	3.0	4.0	14.0	12.0	12.0	---	25.0	25.0	---	16.0
24	10.0	9.0	3.0	4.0	11.0	14.0	13.0	16.0	24.0	25.0	---	19.0
25	13.0	11.0	3.0	5.0	7.0	9.0	14.0	21.0	25.0	26.0	22.0	17.0
26	9.0	11.0	3.0	4.0	4.0	9.0	14.0	21.0	26.0	26.0	24.0	17.0
27	12.0	10.0	7.0	7.0	4.0	9.0	16.0	24.0	21.0	24.0	24.0	19.0
28	14.0	10.0	5.0	7.0	6.0	7.0	16.0	25.0	25.0	25.0	24.0	20.0
29	15.0	12.0	2.0	12.0	---	11.0	15.0	22.0	28.0	25.0	24.0	21.0
30	17.0	10.0	5.0	10.0	---	14.0	19.0	24.0	27.0	25.0	24.0	21.0
31	16.0	---	7.0	3.0	---	12.0	---	24.0	---	26.0	24.0	---
MEAN	17.0	10.5	6.5	4.5	5.5	11.5	14.0	20.0	23.0	25.0	24.5	20.0

## BRAZOS RIVER BASIN

08080950 DUCK CREEK NEAR GIRARD, TX

LOCATION.--Lat 33°21'22", long 100°42'17", Kent County, Hydrologic Unit 12050007, near right bank on downstream side of bridge on Farm Road 643, 2.5 mi (4.0 km) west of Girard, and 10.7 mi (17.2 km) upstream from mouth.

DRAINAGE AREA.--431 mi<sup>2</sup> (1,116 km<sup>2</sup>), of which 152 mi<sup>2</sup> (394 km<sup>2</sup>) probably is noncontributing.

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

REVISED RECORDS.--WRD TX-72-1: 1971. WDR TX-76-2: Drainage area.

GAGE.--water-stage recorder. Datum of gage is 2,006.08 ft (611.453 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several small diversions upstream from gage. Flow is affected at times by discharge from flood-detention pools of 12 floodwater-retarding structures with combined detention capacity of 24,710 acre-ft (30.5 hm<sup>3</sup>). These structures control runoff from 108 mi<sup>2</sup> (280 km<sup>2</sup>). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--18 years, 6.48 ft<sup>3</sup>/s (0.184 m<sup>3</sup>/s), 4,690 acre-ft/yr (5.78 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,000 ft<sup>3</sup>/s (142 m<sup>3</sup>/s) June 4, 1974, gage height, 15.22 ft (4.639 m); no flow at times in 1966, 1969, 1971, 1974, 1980-82.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1902 occurred in March or April 1918 (stage and discharge unknown); the second highest stage, 19.8 ft (6.04 m) in September 1955, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,310 ft<sup>3</sup>/s (65.4 m<sup>3</sup>/s) May 28 at 1230 hours, gage height, 14.20 ft (4.328 m), from rating curve extended above 1,700 ft<sup>3</sup>/s (48.1 m<sup>3</sup>/s); no flow July 22 to Aug. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	.93	1.0	.99	1.4	.98	1.5	1.0	33	42	.00	.78
2	.07	.91	.96	1.1	1.3	1.0	1.6	1.0	34	35	17	.86
3	.09	.98	1.0	1.0	1.3	1.0	1.6	1.0	20	30	3.2	.89
4	.08	1.1	.99	.96	1.4	1.0	1.6	2.0	14	26	1.9	.91
5	.08	1.0	.99	.99	1.4	.99	1.7	5.0	9.9	18	1.6	.93
6	.16	.93	1.1	.96	1.3	.96	1.6	4.0	7.5	7.5	1.5	.93
7	.16	.89	1.1	.83	1.3	.95	1.5	3.0	5.9	3.5	1.4	.92
8	.13	.83	1.0	.87	1.4	.99	1.6	2.5	4.9	2.2	1.3	1.0
9	.13	.71	.99	.90	1.3	1.0	1.6	2.2	11	1.6	1.4	1.0
10	.13	.82	.99	.88	1.0	1.2	1.6	2.0	5.9	1.2	1.4	1.0
11	322	.84	.99	.91	.85	1.2	1.3	1.8	121	.84	1.3	1.0
12	480	.89	.99	1.0	.88	1.2	1.3	1.6	81	.62	1.2	.99
13	91	.87	1.3	1.1	.80	1.2	1.3	1.4	52	.49	1.1	.96
14	40	.88	1.4	1.1	.80	33	1.3	1.3	19	.40	.97	.99
15	32	.85	1.3	1.2	.80	2.5	1.3	1.3	11	.32	.88	233
16	23	.96	1.3	1.1	.80	1.9	1.2	1.2	6.9	.21	.84	685
17	9.9	.95	1.2	1.0	.80	1.8	1.2	1.2	4.9	.16	.92	95
18	3.4	.92	1.2	.94	.78	1.7	1.2	1.2	3.5	.09	.90	44
19	2.1	.83	1.2	.89	.75	1.6	1.2	1.2	524	.05	.73	105
20	1.5	.85	1.2	.86	.90	1.5	1.2	1.1	94	.04	.69	175
21	1.3	.89	1.1	.80	.89	1.4	1.2	.97	54	.02	.69	47
22	1.3	.96	.99	.86	.89	1.4	1.2	.93	40	.00	.81	36
23	1.3	1.0	1.0	.75	.89	1.4	1.2	6.0	159	.00	.83	30
24	1.2	.99	.99	.71	.94	1.5	1.2	6.2	240	.00	.98	27
25	1.2	.99	1.0	.71	.94	1.4	1.1	5.2	762	.00	.85	25
26	1.1	.93	1.0	.71	1.0	1.4	1.1	19	411	.00	1.0	24
27	.99	.93	1.0	.80	1.1	1.4	1.1	45	485	.00	.99	20
28	1.0	.89	.99	.84	1.0	1.5	1.1	843	199	.00	1.1	9.0
29	1.1	.93	.99	.94	---	1.6	1.0	130	93	.00	.93	5.1
30	1.1	1.2	.99	1.2	---	1.6	1.0	70	59	.00	.83	3.7
31	1.1	---	.99	1.5	---	1.5	---	52	---	.00	.79	---
TOTAL	1018.69	27.65	33.24	29.40	28.91	73.77	39.6	1215.30	3565.4	170.24	50.03	1576.96
MEAN	32.9	.92	1.07	.95	1.03	2.38	1.32	39.2	119	5.49	1.61	52.6
MAX	480	1.2	1.4	1.5	1.4	33	1.7	843	762	42	17	685
MIN	.07	.71	.96	.71	.75	.95	1.0	.93	3.5	.00	.00	.78
AC-FT	2020	55	66	58	57	146	79	2410	7070	338	99	3130

CAL YR 1981 TOTAL 1900.23 MEAN 5.21 MAX 480 MIN .00 AC-FT 3770  
WTR YR 1982 TOTAL 7829.19 MEAN 21.4 MAX 843 MIN .00 AC-FT 15530

NOTE.--No gage-height record Apr. 11 to May 18.

## BRAZOS RIVER BASIN

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## 08081000 SALT FORK BRAZOS RIVER NEAR PEACOCK, TX

LOCATION.--Lat 33°12'43", long 100°25'53", Stonewall County, Hydrologic Unit 12050007, on right bank at downstream side of bridge on U.S. Highway 380, 2.9 mi (4.7 km) northwest of Peacock, 6.2 mi (10.0 km) upstream from Croton Creek, 13.0 mi (20.9 km) northwest of Aspermont, and at mile 54.3 (87.4 km) measured from confluence with Double Mountain Fork Brazos River which is at mile 923.2 (1,485.4 km) on the Brazos River.

DRAINAGE AREA.--4,619 mi<sup>2</sup> (11,963 km<sup>2</sup>), of which 2,634 mi<sup>2</sup> (6,822 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1949 to September 1951, September 1964 to current year.

REVISED RECORD.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,724.32 ft (525.573 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 19, 1964, nonrecording gage at site 2.9 mi (4.7 km) upstream at datum 19.39 ft (5.910 m) higher.

REMARKS.--Water-discharge records fair. Some regulation by White River Reservoir, capacity 44,900 acre-ft (55.4 hm<sup>3</sup>), 79 mi (127 km) upstream. Several small diversions above station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08080950.

AVERAGE DISCHARGE.--19 years (water years 1951, 1965-82), 37.5 ft<sup>3</sup>/s (1.062 m<sup>3</sup>/s), 27,170 acre-ft/yr (33.5 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft<sup>3</sup>/s (538 m<sup>3</sup>/s) Aug. 13, 1972, gage height, 13.75 ft (4.191 m); no flow at times most years.  
Maximum stage since at least 1939, that of Aug. 13, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,280 ft<sup>3</sup>/s (263 m<sup>3</sup>/s) Oct. 12 at 2200 hours, gage height, 10.70 ft (3.261 m), from floodmark, no other peak above base of 5,000 ft<sup>3</sup>/s (142 m<sup>3</sup>/s); minimum daily, 0.02 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Sept. 8-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	27	8.7	5.2	12	6.0	4.3	1.8	33	251	4.9	.23
2	.23	24	7.8	5.2	9.6	5.4	4.0	1.9	30	256	4.6	.10
3	.18	22	7.4	5.2	8.2	5.0	3.7	4.3	53	136	4.0	.09
4	.17	19	7.0	5.2	7.8	4.8	3.5	4.3	53	110	3.7	.09
5	.42	18	6.6	4.9	38	4.9	3.2	307	44	90	3.2	.09
6	1.7	20	6.6	4.6	13	4.8	3.1	217	42	67	3.2	.09
7	3.2	22	6.6	4.6	6.6	4.4	2.7	228	33	58	2.7	.07
8	28	26	6.6	4.3	6.6	4.4	2.7	130	30	44	2.7	.02
9	35	18	6.6	4.3	6.6	4.4	2.3	98	23	39	2.7	.02
10	16	18	6.6	4.3	6.6	4.4	2.5	75	20	47	3.2	.02
11	127	17	6.6	4.3	6.6	4.2	2.2	60	27	34	3.2	.02
12	5640	16	6.6	4.3	7.0	4.0	2.1	79	69	40	2.3	.02
13	2800	16	30	4.3	7.4	3.7	1.8	40	323	42	1.1	.02
14	632	16	8.2	4.3	7.8	8.3	1.8	84	180	42	.72	.02
15	375	15	8.2	4.0	7.0	19	1.8	46	116	34	.64	58
16	349	15	8.7	4.3	5.9	28	1.8	34	65	29	.50	15
17	260	14	8.7	4.6	5.2	21	1.8	136	51	27	.39	60
18	153	14	8.2	4.6	5.1	12	1.8	136	48	20	.23	44
19	104	13	7.4	4.9	4.9	9.4	1.8	32	842	16	.35	113
20	76	12	7.0	5.2	4.9	8.2	1.8	24	1700	15	.30	142
21	72	12	6.6	22	4.8	8.2	1.8	56	325	12	.26	136
22	88	11	6.2	6.6	4.6	8.1	3.5	211	195	12	.20	47
23	63	11	6.2	5.9	4.6	7.8	3.5	219	173	11	.20	27
24	52	11	6.2	5.9	4.0	7.4	2.6	130	375	9.2	.12	27
25	46	11	5.9	8.3	7.8	7.0	2.2	52	960	7.8	.12	25
26	42	10	5.5	5.9	8.8	7.0	1.9	220	2630	5.9	.12	24
27	39	11	5.2	4.6	7.8	6.6	2.0	1250	1750	5.9	.12	23
28	37	11	5.2	4.3	6.7	6.6	6.4	1420	659	5.5	1.6	22
29	34	11	5.2	28	---	6.3	2.1	1830	477	5.2	.50	17
30	31	26	5.2	36	---	5.0	1.9	242	358	4.9	.39	16
31	30	---	5.2	12	---	4.6	---	81	---	4.9	.35	---
TOTAL	11135.11	487	232.7	232.1	225.9	240.9	78.6	7449.3	11684	1481.3	48.61	796.90
MEAN	359	16.2	7.51	7.49	8.07	7.77	2.62	240	389	47.8	1.57	26.6
MAX	5640	27	30	36	38	28	6.4	1830	2630	256	4.9	142
MIN	.17	10	5.2	4.0	4.0	3.7	1.8	1.8	20	4.9	.12	.02
CFSM	.18	.008	.004	.004	.004	.004	.001	.12	.20	.02	.001	.01
IN.	.21	.01	.00	.00	.00	.00	.00	.14	.22	.03	.00	.01
AC-FT	22090	966	462	460	448	478	156	14780	23180	2940	96	1580
CAL YR 1981	TOTAL	15752.74	MEAN	43.2	MAX	5640	MIN	.00	CFSM	.02	IN	.30
WTR YR 1982	TOTAL	34092.42	MEAN	93.4	MAX	5640	MIN	.02	CFSM	.05	IN	.64
									AC-FT	31250		
									AC-FT	67620		

## BRAZOS RIVER BASIN

08081000 SALT FORK BRAZOS RIVER NEAR PEACOCK, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: December 1949 to September 1951, October 1964 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1949 to September 1951, October 1964 to current year.

WATER TEMPERATURES: December 1949 to September 1951, October 1964 to current year.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 61,100 micromhos July 31, 1966; minimum daily, 900 micromhos Aug. 31, 1966.

WATER TEMPERATURES (1964-82): Maximum daily, 39.0°C June 25, 1968, July 30, 1978; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 48,900 micromhos Apr. 20; minimum daily, 1,340 micromhos June 26.

WATER TEMPERATURES: Maximum daily, 34.0°C Aug. 11; minimum daily, 0.0°C on several days during December and January.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 07...	1440	1.3	35900	17.0	3300	3100	880	260	7600
FEB 17...	1600	5.1	45800	18.0	3200	3100	800	300	11000
MAY 06...	1550	75	11300	15.0	1000	940	310	57	2200
JUN 10...	0900	19	26900	21.0	2200	2100	570	190	5700
JUL 08...	1350	45	14200	33.0	1200	1100	330	100	2800
AUG 10...	1325	3.2	33700	35.5	2700	2700	690	250	7500

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 07...	58	23	140	2700	14000	.4	9.2	25600
FEB 17...	84	27	120	3200	18000	.5	4.4	33400
MAY 06...	30	7.5	72	900	3500	.2	6.4	7020
JUN 10...	53	17	130	1800	9600	.7	14	18000
JUL 08...	35	13	140	980	4600	.7	14	8920
AUG 10...	62	20	98	2100	12000	.5	8.5	22600



## BRAZOS RIVER BASIN

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08081000 SALT FORK BRAZOS RIVER NEAR PEACOCK, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	11135.11	5230	3290	98800	1600	48300	430	12900	520
NOV.	1981	487	38400	25400	33400	13400	17600	2500	3330	*
DEC.	1981	232.7	40700	27100	17000	14300	8990	2600	1650	*
JAN.	1982	232.1	35800	23700	14800	12400	7770	2400	1490	*
FEB.	1982	225.9	42300	28300	17300	15000	9160	2700	1630	*
MAR.	1982	240.9	32000	21100	13700	11000	7180	2200	1400	*
APR.	1982	78.6	46600	31400	6670	16800	3570	2800	601	*
MAY	1982	7449.3	6290	3950	79500	1900	38800	520	10400	620
JUNE	1982	11684	3050	1890	59700	910	28700	260	8240	310
JULY	1982	1481.3	10500	6650	26600	3300	13100	840	3370	*
AUG.	1982	48.61	37000	24500	3210	12800	1680	2500	324	*
SEPT	1982	796.90	7700	4840	10400	2400	5100	630	1350	760
TOTAL		34092.42	**	**	381000	**	190000	**	46800	**
WTD. AVG.		93	6500	4140	**	2100	**	510	**	610

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35500	33700	39800	42300	45100	44500	42000	42900	20500	4190	39400	36200
2	35600	34600	40100	42200	47500	45400	43100	42700	35200	4300	39500	35900
3	35800	35500	40600	42500	45600	45600	44200	43500	9440	5770	39700	35000
4	36000	35400	40800	42600	45000	45700	47700	40200	11400	8550	40900	34700
5	36200	35900	41500	42800	34100	45400	47500	11900	14600	8440	37500	33600
6	36400	36300	41800	42900	37500	45500	46500	16000	17600	9630	35700	35000
7	35800	35300	42000	43100	40700	44900	46300	6900	19600	13600	37200	31700
8	15500	37000	41900	43300	42600	45200	46400	7770	21600	14200	37500	33200
9	7980	37900	41500	43200	43200	45100	46800	12900	24800	15700	35900	32900
10	9330	38200	41700	40500	43900	45800	46600	17300	26900	12900	35700	34000
11	8250	38400	43000	40600	44100	45500	46300	21600	25400	13100	40100	32700
12	2240	38200	43700	40900	43800	45300	48800	14800	22200	14500	39000	32200
13	3130	38800	35600	39800	44100	45500	47600	29200	6410	11500	35700	29800
14	4990	38300	41000	39900	44000	42500	47400	22500	3050	9230	35800	30200
15	7070	39700	41100	40000	44800	20900	47200	13500	3590	14500	35400	18800
16	10600	39900	40200	39800	45100	11700	47700	26500	6050	18700	33000	24600
17	13800	39700	41600	39500	45400	17500	48100	7960	8990	21400	32500	17500
18	18800	40000	41500	39700	45200	22600	46600	7140	12100	21500	30400	22500
19	19000	41100	41400	39800	45300	27800	48500	25900	4060	26700	26600	6400
20	23200	41600	41200	40000	45000	32600	48900	32400	2410	28600	25900	2390
21	23100	41400	41100	39800	44700	33300	47300	25400	2030	30300	23900	2470
22	23800	41500	41700	39200	44800	34200	47500	6850	2970	31500	22400	2560
23	26100	41400	41800	41500	44500	34800	47800	5840	3930	32000	36400	2820
24	27000	41300	40500	40500	44800	35600	46400	5990	3560	33900	38200	3880
25	28200	42500	41400	40000	44500	36200	47600	25500	2400	34400	38500	5090
26	29200	42700	44500	42100	43800	37000	47900	18600	1340	36500	38100	6170
27	30100	42400	42200	42500	43700	37300	47300	5060	1410	36300	38400	7680
28	34200	41700	42600	42700	43800	38100	46500	2300	1570	36100	18000	7720
29	34000	41600	41500	25600	---	39200	47000	1480	1880	36700	28500	8490
30	34100	39400	38200	21000	---	39900	47400	2110	3640	37300	39200	8510
31	34000	---	41900	35400	---	41000	---	2820	---	38000	38900	---
MEAN	23200	39000	41300	39900	43800	37800	46900	17600	10700	21300	34600	20500

## BRAZOS RIVER BASIN

08081000 SALT FORK BRAZOS RIVER NEAR PEACOCK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	15.0	15.0	4.0	8.0	16.0	---	15.0	17.0	23.0	---	23.0
2	---	---	7.0	4.0	---	15.0	---	23.0	18.0	24.0	23.0	23.0
3	17.0	22.0	9.0	14.0	---	15.0	15.0	15.0	20.0	24.0	---	21.0
4	31.0	15.0	7.0	5.0	4.0	11.0	21.0	17.0	18.0	24.0	23.0	26.0
5	24.0	13.0	7.0	7.0	---	12.0	21.0	21.0	22.0	23.0	24.0	27.0
6	16.0	13.0	19.0	15.0	---	12.0	19.0	14.0	22.0	24.0	23.0	23.0
7	16.0	13.0	8.0	8.0	---	---	24.0	20.0	23.0	24.0	23.0	20.0
8	16.0	17.0	9.0	6.0	---	---	17.5	25.0	22.0	24.0	23.0	21.0
9	17.0	11.0	10.0	7.0	4.0	---	18.0	19.0	---	23.0	---	20.0
10	22.0	8.0	9.0	4.0	---	19.0	20.0	18.0	20.0	23.0	---	20.0
11	22.0	9.0	10.0	.0	7.0	19.0	24.5	20.0	21.0	23.0	34.0	26.0
12	20.0	8.0	10.0	.0	7.0	19.0	25.0	20.0	18.0	23.0	28.0	21.0
13	21.0	9.0	12.0	.0	8.0	20.0	26.0	18.0	22.0	24.0	24.0	22.0
14	21.0	9.0	9.0	.0	5.0	20.0	27.0	16.0	22.0	24.0	24.0	22.0
15	23.0	19.0	16.0	10.0	6.0	21.0	26.5	16.0	22.0	23.0	24.0	---
16	22.0	10.0	9.0	.0	5.0	17.0	26.0	18.0	19.0	23.0	25.0	---
17	23.0	11.0	.0	.0	5.0	---	20.0	18.0	21.0	22.0	25.0	---
18	18.0	13.0	9.0	4.0	4.0	---	14.0	17.0	21.0	22.0	24.0	28.0
19	15.0	11.0	.0	8.0	5.0	---	---	22.0	19.0	23.0	23.0	---
20	18.0	9.0	8.0	10.0	7.0	---	---	21.0	20.0	26.0	23.0	21.0
21	18.0	7.0	9.0	10.0	11.0	---	---	22.0	22.0	23.0	24.0	21.0
22	14.0	14.0	9.0	12.0	7.0	---	---	20.0	22.0	24.0	24.0	18.0
23	9.0	12.0	1.0	12.0	7.0	---	---	18.0	22.0	24.0	22.0	17.0
24	12.0	8.0	1.0	14.0	7.0	---	---	18.0	21.0	22.0	22.0	17.0
25	12.0	8.0	2.0	8.0	6.0	---	---	22.0	26.0	24.0	20.0	19.0
26	9.0	11.0	6.0	15.0	---	---	---	18.0	23.0	24.0	24.0	18.0
27	11.0	9.0	6.0	9.0	---	---	---	23.0	21.0	24.0	24.0	19.0
28	---	9.0	4.0	17.0	18.0	---	---	20.0	23.0	24.0	29.0	19.0
29	11.0	15.0	4.0	17.0	---	---	13.0	20.0	26.0	25.0	25.0	19.0
30	12.0	9.0	6.0	10.0	---	18.5	13.0	23.0	29.0	24.0	24.0	19.0
31	---	---	9.0	---	---	---	---	20.0	---	23.0	22.0	---
MEAN	17.5	11.5	7.5	7.5	7.0	17.0	20.5	19.5	21.5	23.5	24.0	21.0

## BRAZOS RIVER BASIN

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08081050 SHORT CROTON CREEK AT MOUTH NEAR JAYTON, TX  
(Low-flow partial-record station)

LOCATION.--Lat 33°18'27", long 100°31'57", Kent County, Hydrologic Unit 12050007, at mouth, 0.2 mi (0.3 km) upstream from county road crossing on Croton Creek, and 4.7 mi (7.6 km) northeast of Jayton.

PERIOD OF RECORD.--Chemical analyses: October 1960 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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 20...	1446	.06	68600	7.8	21.5	5300	5200	1600	320	15000
JAN 06...	0746	.09	46000	--	7.5	4000	3900	1200	250	10000
JUN 29...	0705	.12	59500	--	--	5100	5000	1500	340	15000

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)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)
OCT 20...	90	38	70	4200	25000	.3	7.1	46200	--
JAN 06...	69	26	120	3600	18000	.4	4.4	33200	2.40
JUN 29...	91	37	120	3900	25000	.2	8.5	45900	--

## BRAZOS RIVER BASIN

08081100 CROTON CREEK BELOW SHORT CROTON CREEK NEAR JAYTON, TX  
(Low-flow partial-record station)

LOCATION.--Lat 33°18'23", long 100°31'55", Kent County, Hydrologic Unit 12050007, at county road crossing and 4.7 mi (7.6 km) northeast of Jayton.

PERIOD OF RECORD.--Periodic discharge measurements: August 1959 to current year. Periodic water-quality data: October 1960 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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 20...	1420	6.8	18000	7.7	21.0	3000	2900	960	140	3300
NOV 18...	0727	.59	34300	--	12.0	4100	4000	1200	270	7600
JAN 06...	0726	1.8	42600	--	8.0	4300	4200	1200	320	9300
FEB 24...	0731	.30	44900	--	12.0	4500	4400	1200	370	10000
APR 06...	0700	.17	49400	--	10.0	5200	5100	1400	410	12000
JUN 29...	0718	70	7650	--	24.0	2200	2100	740	78	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 CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)
OCT 20...	26	14	76	2600	5400	.2	7.9	12500	--
NOV 18...	52	22	120	3600	12000	.8	3.6	24800	--
JAN 06...	62	24	140	3700	16000	.2	4.1	30600	1.80
FEB 24...	65	27	110	3900	17000	.2	1.9	32600	--
APR 06...	73	30	120	4300	19000	.2	3.3	37200	--
JUN 29...	9.3	8.1	82	2000	1700	.3	11	5590	--

## 08081200 CROTON CREEK NEAR JAYTON, TX

LOCATION.--Lat 33°17'18", long 100°25'52", Stonewall County, Hydrologic Unit 12050007, on left bank 220 ft (67 m) downstream from county road, 0.9 mi (1.4 km) upstream from mouth, and 8.5 mi (13.7 km) northeast of Jayton.

DRAINAGE AREA.--290 mi<sup>2</sup> (751 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.-- Water-stage recorder and crest-stage gage. Datum of gage is 1,694.45 ft (516.468 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 11, 1976, at site 680 ft (207 m) upstream at same datum.

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

AVERAGE DISCHARGE.--23 years, 14.2 ft<sup>3</sup>/s (0.402 m<sup>3</sup>/s), 0.66 in/yr (17 mm/yr), 10,290 acre-ft/yr (12.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft<sup>3</sup>/s (300 m<sup>3</sup>/s) Oct. 18, 1960, gage height, 12.40 ft (3.780 m), from rating curve extended above 3,100 ft<sup>3</sup>/s (87.8 m<sup>3</sup>/s); maximum gage height, 12.52 ft (3.816 m) May 20, 1977, from floodmark; no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1935, 13.5 ft (4.11 m) in 1941 or 1942, present datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft<sup>3</sup>/s (45.3 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Oct. 11	2200	3,390	96.0	9.84	2.999
Mar. 28	0900	3,280	92.9	a9.74	2.969
Sept. 15	1800	*4,110	116	a10.38	3.164

a From floodmark.

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.36	2.5	1.3	.05	4.9	.68	6.0	.27	24	12	36	.03		
2	.30	2.0	1.0	.07	3.8	.59	2.8	.95	15	10	98	.02		
3	.24	1.8	.89	.07	3.1	.43	1.1	4.0	9.7	8.4	20	.00		
4	.24	1.8	.68	.05	1.8	.30	.83	10	8.2	7.2	6.8	.00		
5	.99	1.8	.68	.03	1.3	.24	.51	52	8.1	6.2	3.6	.00		
6	.24	1.8	.68	.03	1.4	.24	.50	50	6.1	4.9	1.5	.00		
7	5.2	1.6	.59	.01	1.4	.24	.39	3.2	4.7	8.6	.81	.00		
8	2.8	1.4	.50	.00	1.3	.24	.30	1.0	4.5	18	.48	.00		
9	1.3	1.1	.59	.00	1.1	.19	.30	.45	8.0	7.9	.2	.00		
10	1.0	1.1	.50	.00	1.1	.14	.30	.21	5.6	4.6	.6	.00		
11	842	1.1	.50	.00	1.1	.08	.32	.09	64	3.2	.06	.00		
12	815	1.1	.43	.00	1.0	.08	.26	.06	172	2.7	.03	.00		
13	203	1.0	.59	.05	.89	.03	.21	1.4	165	2.5	.03	.00		
14	77	1.0	1.0	.05	.89	36	.23	5.3	45	1.9	.03	.00		
15	42	1.1	.78	.07	.89	26	.21	1.6	16	1.6	.02	937		
16	29	1.7	.68	.07	.68	14	.14	.65	8.8	1.2	.00	268		
17	20	1.3	.59	.05	.59	9.0	.11	.53	5.8	.98	.58	35		
18	15	1.0	.50	.07	.59	6.8	.12	.34	4.5	.80	.16	7.6		
19	13	.78	.43	.10	.50	5.3	.20	13	258	.69	.05	189		
20	12	.78	.43	.10	.50	4.0	.11	121	92	.53	.02	97		
21	10	.78	.43	.10	.43	2.8	.08	15	27	.39	.07	10		
22	9.0	.78	.30	.14	.36	2.2	.20	184	23	.48	.08	3.9		
23	9.6	.78	.24	.14	.30	1.8	.14	122	76	.42	.02	2.6		
24	9.6	.68	.24	.14	.24	1.6	.25	21	117	.39	.00	2.2		
25	9.0	.78	.19	.14	.30	1.0	.14	9.8	430	.35	.00	2.1		
26	9.0	.68	.14	.10	.78	.92	.07	409	234	.32	.00	1.6		
27	7.8	.68	.14	.07	1.0	1.1	.18	124	281	.32	.00	1.8		
28	5.3	.78	.10	.05	.78	1.2	.38	1040	156	.30	2.0	1.4		
29	4.1	.68	.07	18	---	1.9	.30	82	53	.34	1.0	1.1		
30	3.1	.89	.07	11	---	1.9	.24	34	20	.29	.21	1.3		
31	2.8	---	.03	6.9	---	1.9	---	39	---	.24	.05	---		
TOTAL	2159.97	35.27	15.29	37.65	33.02	122.90	16.92	2345.85	2342.0	107.74	171.92	1561.65		
MEAN	69.7	1.18	.49	1.21	1.18	3.96	.56	75.7	78.1	3.48	5.55	52.1		
MAX	842	2.5	1.3	18	4.9	36	6.0	1040	430	18	98	937		
MIN	.24	.68	.03	.00	.24	.03	.07	.06	4.5	.24	.00	.00		
CFSM	.24	.004	.002	.004	.004	.01	.002	.26	.27	.01	.02	.18		
IN.	.28	.00	.00	.00	.00	.02	.00	.30	.30	.01	.02	.20		
AC-FT	4280	70	30	75	65	244	34	4650	4650	214	341	3100		
CAL YR 1981	TOTAL	4181.70	MEAN	11.5	MAX	842	MIN	.00	CFSM	.04	IN	.54	AC-FT	8290
WTR YR 1982	TOTAL	8950.18	MEAN	24.5	MAX	1040	MIN	.00	CFSM	.08	IN	1.15	AC-FT	17750



## BRAZOS RIVER BASIN

08081200 CROTON CREEK NEAR JAYTON, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1961 to current year.

WATER TEMPERATURES: October 1961 to September 1973.

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

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 60,700 micromhos Feb. 15, 1967; minimum daily, 1,570 micromhos Aug. 3, 1976.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 47,100 micromhos Mar. 13; minimum daily, 1,710 micromhos Oct. 11.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 07...	1220	6.5	20800	15.0	2900	2800	910	150	4000
JAN 13...	1155	.04	42500	1.5	4600	4400	1300	320	9000
FEB 17...	1230	.61	41600	14.5	4600	4500	1300	340	9200
MAY 06...	0840	42	10900	14.0	1600	1600	550	62	1900
JUN 09...	1410	13	17700	32.0	2900	2800	970	110	3100
JUL 07...	1430	4.1	25100	33.0	3500	3400	1100	190	5100
AUG 10...	1115	.12	31200	28.5	4000	3900	1200	250	6500

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 CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)
OCT 07...	32	14	80	2300	7200	.2	5.6	14600	--
JAN 13...	58	22	130	3700	16000	.2	4.1	30400	2.20
FEB 17...	59	24	120	3700	16000	.2	3.9	30600	--
MAY 06...	20	8.4	72	1500	3000	.2	5.4	7070	--
JUN 09...	26	15	89	2600	5500	.2	7.7	12400	--
JUL 07...	37	17	94	3200	8100	.2	9.5	17800	--
AUG 10...	45	20	110	3400	11000	.2	8.9	22400	--

## BRAZOS RIVER BASIN

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08081200 CROTON CREEK NEAR JAYTON, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	2159.97	3130	2180	12700	870	5060	530	3090	600
NOV.	1981	35.27	30200	20500	1950	9800	938	3100	293	*
DEC.	1981	15.29	37100	25100	1040	12400	512	3400	141	*
JAN.	1982	37.65	34300	23200	2360	11300	1150	3300	334	*
FEB.	1982	33.02	38200	25900	2310	12800	1140	3500	310	*
MAR.	1982	122.90	26800	18200	6050	8600	2860	2900	961	*
APR.	1982	16.92	36800	24900	1140	12300	561	3400	156	*
MAY	1982	2345.85	4480	3140	19900	1200	7680	800	5070	910
JUNE	1982	2342.0	6920	4860	30700	1800	11600	1300	8210	1500
JULY	1982	107.74	22000	15100	4380	6900	2010	2600	765	*
AUG.	1982	171.92	17300	11900	5520	5200	2410	2400	1100	*
SEPT	1982	1561.65	4950	3480	14700	1300	5470	950	3990	1100
TOTAL		8950.18	**	**	103000	**	41400	**	24400	**
WTD. AVG.		25	6110	4250	**	1700	**	1000	**	1200

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18500	26800	33400	42600	35400	41500	32600	43600	5970	12200	24500	42000
2	20000	27200	33600	42800	36000	41900	33800	42900	7420	14000	13700	42800
3	22600	27500	34200	43200	36200	42400	35300	40500	8900	16500	15600	---
4	24700	27800	34900	43300	36500	43200	36700	37200	10400	18600	17700	---
5	22200	28000	35600	43700	37000	43600	38300	12500	11700	20900	20100	---
6	25500	28400	36200	43900	36800	44300	39800	10900	13300	23400	22400	---
7	20800	28600	36700	44300	37200	44900	41200	20000	14900	25100	24500	---
8	21500	29100	37300	---	37800	45100	42000	23400	16200	22200	26900	---
9	22100	29200	37800	---	38500	45500	42300	26900	17700	23900	29200	---
10	23000	29600	38800	---	38900	45600	42700	30500	19400	25100	31200	---
11	1710	30100	39100	---	39400	46000	42500	29800	11500	27300	32400	---
12	1950	30400	39400	---	39700	46300	43100	30700	9820	28600	34000	---
13	2500	30700	38900	42500	40000	47100	43400	27000	7500	30000	35700	---
14	3400	31100	37400	42900	40400	27700	43100	22400	9750	31400	36300	---
15	4900	31400	37600	42700	40700	18900	43300	27700	11700	31700	37800	3860
16	5200	30700	37800	43000	41300	23800	43900	28300	15200	32300	---	5150
17	6000	31000	38100	43500	41600	26900	44200	30300	18000	34100	34600	8690
18	8500	31400	38500	43200	44700	28800	44100	34700	20200	36300	36000	12000
19	10100	32100	38600	42800	43900	29300	43300	32100	6200	36800	38100	6360
20	14100	32400	38800	43000	43200	30000	43700	5220	8950	37500	39400	7750
21	16400	32600	39200	43300	42500	30600	44100	7780	12000	38200	39000	9520
22	19500	33000	39600	42900	42700	31300	43500	2950	15100	38000	38900	11100
23	20700	33300	40000	43100	42400	32200	44000	3500	10600	38400	39600	12500
24	23700	33500	40200	43500	42800	33500	43400	6250	8350	38800	---	14300
25	23900	33800	40500	43900	42200	33900	43900	9000	4150	39500	---	15800
26	24200	34100	40800	44200	41600	34600	44600	3490	5000	40200	---	17400
27	24600	34500	41000	44400	40900	34400	44200	6500	4430	40700	---	19000
28	25200	34300	41300	44800	41100	34300	43300	3010	5750	41000	38700	20500
29	25700	34700	41700	32900	---	33800	43500	3750	7840	41600	39000	22000
30	25900	34100	42000	34600	---	34000	43800	4960	10000	42000	40600	23800
31	26300	---	42200	35000	---	34500	---	4500	---	42300	41300	---
MEAN	17300	31000	38400	42300	40100	36400	41900	19800	10900	31200	31800	16400

## BRAZOS RIVER BASIN

08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX  
(National stream-quality accounting network)

LOCATION.--Lat 33°20'02", long 100°14'16", Stonewall County, Hydrologic Unit 12050007, on left bank at downstream side of bridge on U.S. Highway 83, 5.5 mi (8.8 km) downstream from Salt Croton Creek, 13.2 mi (21.2 km) north of Aspermont, and at mile 27.3 (43.9 km) measured from confluence with Double Mountain Fork Brazos River which is at mile 923.2 (1,485.4 km) on the Brazos River.

DRAINAGE AREA.--5,130 mi<sup>2</sup> (13,287 km<sup>2</sup>), of which 2,634 mi<sup>2</sup> (6,822 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1923 to August 1925, June 1939 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,588.70 ft (484.236 m) National Geodetic Vertical Datum of 1929. Dec. 5, 1923, to Aug. 29, 1925, nonrecording gage at site 6.7 mi (10.8 km) downstream at different datum. June 15, 1939, to July 13, 1972, water-stage recorder at present site. July 14, 1972, to July 14, 1975, at site 0.1 mi (0.2 km) upstream at same datum.

REMARKS.--Water-discharge records poor. No large diversion above station. Some regulation by White River Reservoir, capacity 44,900 acre-ft (55.4 hm<sup>3</sup>), 106 mi (171 km) upstream.

AVERAGE DISCHARGE.--43 years (water years 1940-82), 110 ft<sup>3</sup>/s (3.115 m<sup>3</sup>/s), 79,700 acre-ft/yr (98.3 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,200 ft<sup>3</sup>/s (1,480 m<sup>3</sup>/s) Sept. 25, 1955, gage height, 14.92 ft (4.548 m), from rating curve extended above 29,000 ft<sup>3</sup>/s (821 m<sup>3</sup>/s); no flow at times most years. Maximum stage since at least 1900, that of Sept. 25, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached a stage of 14.4 ft (4.39 m), and flood in November 1934 reached a stage of 13.7 ft (4.18 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,340 ft<sup>3</sup>/s (208 m<sup>3</sup>/s) Oct. 13 at 0700 hours, gage height, 7.18 ft (2.188 m), from floodmark, no peak above base of 12,000 ft<sup>3</sup>/s (340 m<sup>3</sup>/s); minimum daily, 0.13 ft<sup>3</sup>/s (0.004 m<sup>3</sup>/s) Aug. 20-25, Sept. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	48	14	6.5	57	12	14	4.9	206	351	173	.30
2	1.3	41	13	6.5	35	10	40	5.8	158	228	141	.41
3	.98	32	11	6.5	24	9.9	10	6.3	116	195	84	.30
4	.86	32	10	6.5	22	7.7	6.5	7.8	75	143	31	.21
5	1.0	30	9.2	6.4	19	6.5	4.5	210	67	120	12	.18
6	1.1	28	9.2	5.9	10	6.4	3.3	558	53	104	5.4	.18
7	10	28	9.2	5.4	15	5.4	3.5	234	45	92	3.6	.15
8	6.9	25	9.2	5.4	15	5.4	3.4	176	42	74	2.6	.13
9	11	20	9.2	5.4	13	5.4	2.6	115	36	63	2.0	.13
10	23	20	9.2	5.2	11	5.4	2.6	83	35	50	1.6	.15
11	588	19	9.2	5.2	11	5.4	2.9	57	34	50	1.4	.15
12	3740	19	9.2	5.9	11	5.6	3.2	50	203	53	.89	.21
13	4130	19	13	5.9	8.5	4.9	2.6	57	341	51	.48	.21
14	745	18	14	6.3	8.5	60	2.5	27	347	60	.30	.15
15	462	17	14	6.4	8.5	60	2.3	44	173	52	.21	182
16	355	16	14	7.1	8.5	38	2.2	35	101	43	.18	541
17	282	16	12	7.0	7.6	42	1.6	33	78	40	.18	504
18	222	15	11	6.3	7.1	28	1.4	122	80	36	.18	256
19	185	13	9.2	7.1	6.7	24	1.4	70	1270	31	.15	444
20	163	11	10	7.1	6.5	17	1.4	92	1650	18	.13	418
21	139	11	10	7.8	7.0	13	1.3	83	539	16	.13	278
22	130	11	9.8	8.5	6.5	10	1.5	264	320	12	.13	183
23	118	11	7.8	7.9	6.5	9.1	1.9	524	355	11	.13	103
24	106	11	7.8	7.8	6.0	8.1	2.3	203	581	10	.13	78
25	93	11	7.8	7.5	12	6.7	2.6	187	1740	8.5	.13	58
26	80	11	7.6	6.5	15	5.9	2.0	799	2030	7.1	.15	52
27	73	10	6.2	6.5	17	7.2	1.7	1010	1830	7.1	.18	42
28	66	10	6.5	5.5	15	7.8	2.9	1540	1410	1.2	31	32
29	61	10	6.5	21	---	8.8	4.4	1520	638	15	2.3	27
30	57	14	6.5	191	---	8.7	4.9	461	532	10	2.0	23
31	52	---	6.5	85	---	7.1	---	328	---	5.4	1.0	---
TOTAL	11904.84	577	301.8	479.0	389.9	451.4	137.4	8906.8	15085	1957.3	497.58	3223.86
MEAN	384	19.2	9.74	15.5	13.9	14.6	4.58	287	503	63.1	16.1	107
MAX	4130	48	14	191	57	60	40	1540	2030	351	173	541
MIN	.86	10	6.2	5.2	6.0	4.9	1.3	4.9	34	1.2	.13	.13
CFSM	.15	.008	.004	.006	.006	.006	.002	.12	.20	.03	.006	.04
IN.	.18	.01	.00	.01	.01	.01	.00	.13	.22	.03	.01	.05
AC-FT	23610	1140	599	950	773	895	273	17670	29920	3880	987	6390
CAL YR 1981	TOTAL	20610.12	MEAN	56.5	MAX	4130	MIN	.05	CFSM	.02	IN	.31
WTR YR 1982	TOTAL	43911.88	MEAN	120	MAX	4130	MIN	.13	CFSM	.05	IN	.65
									AC-FT	40880		
									AC-FT	87100		

## 08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1948 to September 1951, October 1956 to September 1974. Chemical and biochemical analyses: October 1974 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1948 to September 1951, October 1956 to current year.

WATER TEMPERATURES: October 1948 to September 1951, October 1956 to current year.

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

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, 173,000 micromhos Apr. 12, 1974; minimum daily, 1,690 micromhos July 8, 1960.

WATER TEMPERATURES: Maximum daily, 38.0°C Aug. 2, 1973; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 120,000 micromhos Mar. 14; minimum daily, 2,090 micromhos June 27.

WATER TEMPERATURES: Maximum daily, 35.0°C July 10, 21, 24, 25, Aug. 4, 6; minimum daily, 0.0°C Jan. 11, 16, 17, Feb. 5.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

		STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 21...	0900	146	19000	8.0	17.4	120	9.9	118	2.4	520	280
DEC 16...	1500	15	56200	7.9	12.5	.80	8.5	106	1.4	K3	K16
FEB 10...	0900	11	50000	7.9	.0	1.3	8.5	76	2.1	K5	47
APR 14...	1500	2.6	66500	8.1	29.0	1.8	10.6	189	3.0	<1	40
JUN 23...	0900	270	4150	7.8	23.5	2200	9.9	124	4.0	3800	6200
AUG 18...	0830	.41	64900	7.4	23.9	2.4	6.2	100	2.6	K98	7700
	HARDNESS (MG/L AS CAC03)	HARDNESS, NONCARBONATE (MG/L CAC03)	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 CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)
OCT 21...	1800	1600	480	140	4000	41	14	140	1400	6400	.6
DEC 16...	3600	3500	960	300	13000	94	37	130	2800	19000	.4
FEB 10...	3600	3500	960	300	12000	87	32	150	2800	20000	.4
APR 14...	4300	4200	1100	380	16000	106	48	85	3200	27000	.4
JUN 23...	630	540	200	31	690	12	7.4	85	580	1100	.7
AUG 18...	5000	4900	1400	370	16000	98	47	110	3700	27000	.4
	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 21...	9.6	12700	12500	.13	.120	1.10	.080	.030	298	117	93
DEC 16...	6.9	42100	36200	.24	.350	1.00	.040	.010	128	5.2	99
FEB 10...	9.1	35200	36200	.30	.200	1.00	.190	.020	14	.42	74
APR 14...	1.1	46300	47800	<.10	.140	2.20	<.010	<.010	75	.53	99
JUN 23...	12	2710	2670	.26	.080	4.40	.270	.030	3380	2460	87
AUG 18...	9.9	40000	48600	<.10	.380	1.00	.030	.020	30	.03	89

## BRAZOS RIVER BASIN

08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, SUS- PENDE RECOV. (UG/L AS CR)
OCT 21...	0900	5	1	4	300	100	200	<1	1	30	10
FEB 10...	0900	2	0	2	200	0	200	<1	<1	40	0
JUN 23...	0900	7	3	4	1000	800	200	1	<1	70	60
AUG 18...	0830	5	1	4	100	--	<100	<1	<1	10	0

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 21...	20	1	1	0	11	10	1	2700	2600	130
FEB 10...	50	<1	--	<1	5	--	<1	340	170	170
JUN 23...	10	22	--	<1	60	58	2	43000	43000	20
AUG 18...	10	1	0	6	3	--	<1	590	320	270

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV. (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
OCT 21...	4	2	2	110	80	30	.2	.2	.0	4
FEB 10...	<1	--	<1	250	20	230	.5	.4	.1	2
JUN 23...	14	9	5	1500	1500	10	.7	--	<.1	50
AUG 18...	<1	--	3	490	70	420	.4	.3	.1	3

DATE	NICKEL, SUS- PENDE RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 21...	3	1	1	0	1	<1	0	40	0	40
FEB 10...	1	1	4	0	4	<1	<1	50	.10	40
JUN 23...	--	<1	1	--	<1	<1	<1	150	140	10
AUG 18...	1	2	1	0	2	<1	<1	50	0	50



## BRAZOS RIVER BASIN

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08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	11904.84	7570	4780	154000	2400	78400	540	17400	690
NOV.	1981	577	38900	25700	40000	13600	21200	2300	3620	*
DEC.	1981	301.8	55400	37600	30600	20400	16700	2900	2350	*
JAN.	1982	479.0	42300	28300	36700	15300	19700	2300	3030	*
FEB.	1982	389.9	48400	32500	34200	17500	18500	2700	2790	*
MAR.	1982	451.4	50300	34800	42500	19300	23500	2300	2790	*
APR.	1982	137.4	52400	35900	13300	19700	7320	2600	950	*
MAY	1982	8906.8	8770	5590	134000	2900	69100	610	14600	780
JUNE	1982	15085	5310	3320	135000	1700	68100	400	16100	500
JULY	1982	1957.3	11800	7490	39600	3800	20200	840	4440	*
AUG.	1982	497.58	27100	17600	23700	9200	12400	1700	2310	*
SEPT	1982	3223.86	7670	4810	41900	2400	21200	560	4890	720
TOTAL		43911.88	**	**	726000	**	376000	**	75300	**
WTD. AVG.		120	9520	6120	**	3200	**	630	**	820

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36100	33800	55200	56000	37000	62100	63100	94000	5610	5140	37700	75600
2	45200	32800	56400	58800	40400	62600	26400	80600	6980	6290	22000	71700
3	51300	32500	50200	59400	40500	61100	35500	94100	9280	6320	12500	74600
4	53300	33000	49000	65700	43200	62600	44900	99800	12500	8410	17100	77400
5	57000	34600	49100	61300	44900	63900	48700	43200	14500	10800	24200	76000
6	58800	35600	48900	57300	46000	62600	50300	20700	15800	11200	30000	76400
7	40400	35800	50000	55600	42500	63800	54800	13500	18100	12800	34300	77500
8	45000	37000	52800	56100	43800	66900	55600	10700	20200	13800	34800	78800
9	65200	41300	54400	58000	47000	63300	55700	9560	25900	15000	38500	77900
10	44000	39300	53700	56400	49400	63800	58200	14400	28300	16800	41800	78600
11	16000	37200	54100	62000	47900	66300	53600	19300	27400	17300	38200	75800
12	4210	37500	53900	62500	49800	65700	57200	23100	22300	16700	40300	80500
13	3210	39000	52500	55300	55500	65600	58000	21000	9560	17100	47000	76700
14	6070	40000	75000	61800	53300	120000	63400	23800	5280	17500	53800	76900
15	6650	41700	70900	63400	52500	33800	68100	31000	4590	13100	60100	23300
16	9380	44300	57600	62200	51700	27800	65800	22100	6470	15800	65000	6070
17	12000	42100	55700	61300	55500	21500	65400	18700	8570	18500	65900	6030
18	14800	43400	55300	62500	54700	22300	63100	35500	9600	22000	65100	3040
19	17200	42800	51400	63900	56600	25300	59600	21100	11400	25800	67100	7300
20	18600	42400	50400	66800	56100	28100	61800	24300	4720	26700	70500	9370
21	20300	41800	52200	65300	56200	30600	58900	19200	2950	27700	69500	3810
22	21900	42500	55200	67900	58300	33300	58500	11600	3510	28800	70200	4380
23	25000	45200	56900	74400	58600	35200	51500	7860	4550	29700	71900	5980
24	25600	48600	53200	68100	60000	38800	88900	6960	6140	30400	73300	7780
25	26000	46800	52400	57200	50500	42500	93000	11100	5570	31300	71900	9510
26	27800	48800	54200	61600	63400	43300	85900	7280	2670	33800	72700	11200
27	28200	46600	57100	67100	70500	39900	85200	4360	2090	33300	73700	12800
28	28800	48100	57400	65600	64900	43000	81200	2280	3080	31500	25100	14400
29	29500	48900	56600	50500	---	60000	104000	2860	2730	24000	85000	15000
30	30500	51700	54300	30900	---	62300	107000	2990	3430	37900	72300	16300
31	30900	---	56900	23200	---	68500	---	3680	---	48300	69800	---
MEAN	29000	41200	54900	59300	51800	51800	64100	25800	10100	21100	52300	41000

## BRAZOS RIVER BASIN

08082000 SALT FORK BRAZOS RIVER NEAR ASPERMONT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	15.0	10.0	3.0	11.0	16.0	20.0	18.0	25.0	27.0	27.0	30.0
2	25.0	15.0	11.0	6.0	7.0	17.0	15.0	20.0	31.0	30.0	28.0	28.0
3	26.0	15.0	11.0	7.0	6.0	18.0	---	23.0	27.0	30.0	31.0	29.0
4	27.0	17.0	12.0	8.0	1.0	13.0	21.0	23.0	27.0	31.0	35.0	28.0
5	24.0	19.0	12.0	13.0	.0	5.0	15.0	20.0	29.0	30.0	33.0	30.0
6	19.0	17.0	15.0	12.0	1.0	10.0	13.0	13.0	33.0	31.0	35.0	30.0
7	17.0	12.0	15.0	7.0	8.0	15.0	17.0	21.0	31.0	30.0	31.0	---
8	15.0	15.0	15.0	8.0	8.0	16.0	15.0	19.0	30.0	33.0	27.0	27.0
9	17.0	12.0	15.0	9.0	5.0	15.0	13.0	23.0	32.0	32.0	31.0	27.0
10	---	15.0	16.0	1.0	8.0	19.0	12.0	26.0	30.0	35.0	34.0	26.0
11	17.0	15.0	13.0	.0	10.0	19.0	22.0	27.0	25.0	27.0	32.0	25.0
12	20.0	15.0	9.0	4.0	10.0	17.0	21.0	28.0	25.0	30.0	34.0	27.0
13	22.0	10.0	10.0	2.0	9.0	14.0	22.0	18.0	27.0	33.0	34.0	27.0
14	25.0	18.0	10.0	7.0	15.0	19.0	22.0	28.0	28.0	30.0	---	29.0
15	23.0	18.0	13.0	10.0	13.0	16.0	25.0	25.0	30.0	32.0	32.0	26.0
16	---	17.0	13.0	.0	13.0	---	24.0	26.0	30.0	22.0	28.0	26.0
17	24.0	19.0	5.0	.0	15.0	24.0	19.0	26.0	29.0	---	29.0	27.0
18	19.0	17.0	7.0	---	15.0	23.0	13.0	29.0	---	---	29.0	26.0
19	20.0	18.0	9.0	11.0	10.0	24.0	22.0	28.0	21.0	30.0	30.0	22.0
20	20.0	20.0	12.0	14.0	11.0	22.0	17.0	29.0	25.0	30.0	30.0	23.0
21	15.0	25.0	15.0	11.0	19.0	16.0	10.0	21.0	28.0	35.0	29.0	24.0
22	13.0	15.0	7.0	10.0	18.0	18.0	12.0	21.0	29.0	30.0	32.0	25.0
23	15.0	15.0	7.0	9.0	15.0	19.0	19.0	21.0	30.0	30.0	32.0	26.0
24	20.0	16.0	5.0	8.0	13.0	---	22.0	29.0	30.0	35.0	33.0	24.0
25	11.0	17.0	9.0	12.0	5.0	13.0	25.0	27.0	26.0	35.0	32.0	25.0
26	16.0	15.0	8.0	11.0	8.0	10.0	25.0	23.0	24.0	28.0	31.0	26.0
27	18.0	10.0	10.0	14.0	13.0	8.0	21.0	25.0	25.0	30.0	32.0	27.0
28	19.0	9.0	8.0	13.0	16.0	7.0	17.0	20.0	30.0	33.0	30.0	26.0
29	20.0	13.0	6.0	16.0	---	15.0	18.0	21.0	32.0	32.0	31.0	26.0
30	20.0	13.0	11.0	5.0	---	19.0	16.0	28.0	31.0	32.0	34.0	25.0
31	15.0	---	9.0	5.0	---	20.0	---	21.0	---	30.0	33.0	---
MEAN	19.5	15.5	10.5	8.0	10.0	16.0	18.5	23.5	28.5	31.0	31.5	26.5

08082100 STINKING CREEK NEAR ASPERMONT, TX

LOCATION.--Lat 33°14'00", long 100°12'47", Stonewall County, Hydrologic Unit 12050007, at downstream side of bridge on Farm Road 1263, 4.9 mi (7.9 km) upstream from Salt Fork Brazos River, and 6.8 mi (10.9 km) north of Aspermont.

DRAINAGE AREA.--88.8 mi<sup>2</sup> (230.0 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,601.5 ft (488.14 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bridge plans).

REMARKS.--Water-discharge records good. No known diversion above station. Recording rain gage at station prior to May 1, 1978.

AVERAGE DISCHARGE.--17 years, 4.20 ft<sup>3</sup>/s (0.119 m<sup>3</sup>/s), 0.64 in/yr (16 mm/yr), 3,040 acre-ft/yr (3.75 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,260 ft<sup>3</sup>/s (92.3 m<sup>3</sup>/s) May 5, 1982, gage height, 12.82 ft (3.908 m); no flow for many days most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1925, 31 ft (9.4 m) in September 1955, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft<sup>3</sup>/s (8.50 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 12	0030	324 9.18	6.05 1.844	June 19	0300	546 15.5	7.20 2.195
May 5	2300	*3,260 92.3	a12.82 3.908	June 25	0330	742 21.0	7.91 2.411
May 17	0630	2,780 78.7	a12.18 3.712	June 27	0330	374 10.6	6.45 1.966
May 28	0100	606 17.2	7.43 2.265				

a From floodmark.

Minimum discharge, no flow for Oct. 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	.07	.56	1.3	1.0	.73	.80	.33	7.6	5.3	.28	.31		
2	.00	.07	.45	1.3	1.0	.71	.85	.35	5.0	3.7	.19	.28		
3	.00	.07	.47	1.3	.77	.67	.67	.36	4.0	2.9	1.3	.33		
4	.00	.07	.47	1.4	.71	.67	.64	.29	3.6	2.7	.43	.33		
5	.00	.07	.47	1.4	.66	.68	.58	710	3.1	3.6	.21	.33		
6	.00	.07	.52	1.4	.71	.68	.47	843	2.7	1.9	.21	.31		
7	.14	.07	.52	1.4	.73	.67	.47	62	2.3	1.6	.27	.28		
8	.06	.30	.52	1.4	.77	.67	.46	24	2.3	1.5	.43	.29		
9	.03	.33	.57	1.4	.75	.67	.42	8.2	2.1	1.4	.53	.30		
10	.02	.25	.57	1.2	.73	.67	.42	4.6	1.9	1.2	.46	.32		
11	6.4	.28	.62	1.2	.73	.67	.50	3.0	1.8	1.0	.42	.32		
12	61	.36	.67	1.3	.87	.70	.49	9.4	2.8	1.0	.41	.41		
13	12	.38	.85	1.3	.81	.62	.42	20	2.2	.97	.38	.43		
14	4.5	.38	.95	1.4	.77	17	.39	7.8	1.9	.91	.38	.40		
15	1.2	.36	.86	1.4	.73	4.2	.36	2.5	2.4	.86	.31	8.7		
16	.53	.26	.84	1.3	.70	2.1	.68	1.6	2.1	.72	.29	.76		
17	1.1	.18	.77	1.3	.69	1.1	.35	1260	1.7	.67	.35	.38		
18	.75	.21	.78	1.3	.67	.93	.21	185	2.6	.65	.33	.33		
19	.16	.21	.78	1.3	.66	.85	.26	28	140	.66	.33	33		
20	.08	.18	.88	1.3	.62	.76	.25	9.6	8.9	.58	.33	9.0		
21	.07	.21	.90	1.4	.62	.69	.18	5.6	4.4	.50	.32	1.1		
22	.31	.21	.97	1.5	.62	.65	.32	4.8	4.2	.47	.36	.44		
23	.22	.25	1.0	1.3	.62	.65	.38	6.4	19	.41	.33	.36		
24	.09	.29	.96	1.2	.62	.72	.37	6.4	51	.41	.31	.34		
25	.06	.45	1.0	1.2	.81	.72	.32	18	258	.35	.29	.33		
26	.06	.47	1.1	1.1	1.0	.68	.27	45	58	.31	.29	.33		
27	.06	.56	1.1	1.2	.79	.85	.25	55	249	.36	.31	.33		
28	.08	.57	1.1	1.2	.73	.90	.27	432	112	.34	.69	.31		
29	.09	.62	1.2	1.2	---	.84	.33	165	34	.32	1.1	.29		
30	.06	.62	1.2	2.0	---	.84	.33	65	9.2	.21	.55	.29		
31	.07	---	1.2	1.5	---	.75	---	27	---	.18	.39	---		
TOTAL	89.14	8.42	24.85	41.4	20.89	44.04	12.71	4010.23	999.8	37.68	12.78	60.93		
MEAN	2.88	.28	.80	1.34	.75	1.42	.42	129	33.3	1.22	.41	2.03		
MAX	61	.62	1.2	2.0	1.0	.17	.85	1260	258	5.3	1.3	.33		
MIN	.00	.07	.45	1.1	.62	.62	.18	.29	1.7	.18	.19	.28		
CFSM	.03	.003	.009	.02	.008	.02	.005	1.45	.38	.01	.005	.02		
IN.	.04	.00	.01	.02	.01	.02	.01	1.68	.42	.02	.01	.03		
AC-FT	177	17	49	82	41	87	25	7950	1980	75	25	121		
CAL YR 1981	TOTAL	913.49	MEAN	2.50	MAX	81	MIN	.00	CFSM	.03	IN	.38	AC-FT	1810
WTR YR 1982	TOTAL	5362.87	MEAN	14.7	MAX	1260	MIN	.00	CFSM	.17	IN	2.25	AC-FT	10640

## BRAZOS RIVER BASIN

08082100 STINKING CREEK NEAR ASPERMONT, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1965 to current year. Periodic sediment records: October 1976 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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 14...	0925	5.9	1950	7.3	23.0	620	540	173	46	170
NOV 17...	1548	.17	7960	--	17.0	2800	2700	650	280	940
JAN 05...	1340	1.3	8330	--	7.0	2800	2700	660	290	1100
FEB 23...	1416	.60	8490	--	18.0	3000	2900	690	310	1000
23...	1418	.60	--	--	18.0	--	--	--	--	--
APR 05...	1411	.51	8830	--	17.5	3000	2900	670	310	1100
MAY 17...	1450	1360	546	--	19.0	200	140	67	7.6	30
17...	1830	816	698	--	19.5	250	190	86	9.5	39
17...	1950	1360	--	--	19.0	--	--	--	--	--
JUN 28...	1056	115	1610	--	25.0	440	350	130	27	160
AUG 09...	1246	.57	11100	--	26.0	3500	3300	740	390	1500
SEP 20...	1645	4.3	4360	--	24.5	1300	1200	290	130	510

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 CONSTITU- ENTS, DIS- SOLVED (MG/L)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)
OCT 14...	3.2	7.2	82	470	310	.3	6.4	1230	125	2.0
NOV 17...	7.8	14	110	2300	1900	.3	1.9	6140	--	--
JAN 05...	9.0	14	160	2500	1900	.3	.6	6560	--	--
FEB 23...	7.9	14	120	2400	2000	.4	.6	6490	56	.09
APR 05...	8.8	13	98	2600	1900	.4	1.1	6650	--	--
MAY 17...	1.0	5.6	61	130	50	.2	7.0	334	--	--
17...	1.1	5.5	61	180	75	.2	6.1	438	1780	3920
17...	--	--	--	--	--	--	--	--	3250	11900
JUN 28...	3.5	8.4	89	310	290	.2	11	990	--	--
28...	--	--	--	--	--	--	--	--	539	--
AUG 09...	11	14	110	2700	2900	.4	4.0	8310	--	--
SEP 20...	6.3	8.8	80	1000	850	.3	6.4	2840	--	--

08082180 NORTH CROTON CREEK NEAR KNOX CITY, TX

LOCATION.--Lat 33°22'59", long 100°04'51", Stonewall County, Hydrologic Unit 12060101, on left bank 600 ft (180 m) downstream from Wedington Creek, 9.5 mi (15.3 km) upstream from mouth, and 15.4 mi (24.8 km) southwest of Knox City.

DRAINAGE AREA.--251 mi<sup>2</sup> (650 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-75-1: 1966-67, 1969-74.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,462.44 ft (445.752 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No diversion or regulation above station. Recording rain gage at station prior to May 1, 1978.

AVERAGE DISCHARGE.--17 years, 14.4 ft<sup>3</sup>/s (0.408 m<sup>3</sup>/s), 0.78 in/yr (20 mm/yr), 10,430 acre-ft/yr (12.9 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,100 ft<sup>3</sup>/s (909 m<sup>3</sup>/s) Aug. 30, 1966, gage height, 32.36 ft (9.863 m), from rating curve extended above 240 ft<sup>3</sup>/s (6.80 m<sup>3</sup>/s) on basis of step-backwater analysis and slope-area measurement of 2,660, 6,530, and 32,100 ft<sup>3</sup>/s (75.3, 185, and 909 m<sup>3</sup>/s); no flow at times. Maximum stage since at least 1921, that of Aug. 30, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1932 reached a stage of about 32 ft (9.8 m), from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 12	1000	699 19.8	13.22 4.029	June 11	2000	1,110 31.4	15.00 1.572
May 17	1200	651 18.4	a12.97 3.953	June 18	1700	1,610 45.6	16.72 5.096
May 26	0500	672 19.0	13.08 3.987	June 25	0900	*2,650 75.0	19.73 6.041
May 28	0600	571 16.2	12.53 3.819				

a From floodmark.

Minimum discharge, 0.20 ft<sup>3</sup>/s (0.006 m<sup>3</sup>/s) Apr. 16, 17, 21, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	1.4	2.0	1.1	2.9	.60	3.5	.55	22	38	7.4	2.1
2	4.2	1.4	1.6	1.1	2.1	.55	5.6	4.0	20	32	7.8	1.7
3	3.7	1.4	1.3	1.1	1.6	.55	1.0	1.3	17	29	5.7	1.6
4	3.4	1.4	1.3	.93	1.2	.55	.51	.45	14	26	4.8	1.3
5	3.0	1.3	1.2	1.0	1.3	.53	.39	63	13	23	4.2	1.1
6	2.8	1.3	1.3	.70	1.2	.48	.31	83	12	22	3.9	.98
7	2.5	1.2	1.3	.70	1.2	.48	.27	29	10	20	3.6	.89
8	2.1	1.4	1.3	.70	1.1	.47	.27	12	9.5	19	3.6	.89
9	1.9	1.3	1.2	.70	1.0	.42	.27	6.3	8.6	17	4.3	.89
10	1.8	1.2	1.1	.69	.79	.42	.27	3.7	7.4	15	3.9	.79
11	18	1.2	1.1	.48	.79	.42	.27	2.5	294	16	3.8	.62
12	381	1.2	1.2	.70	.79	.40	.27	2.0	243	18	3.1	.62
13	76	1.2	1.4	.74	.77	.31	.26	1.5	29	15	2.9	.66
14	28	1.2	1.9	.79	.70	21	.24	1.2	20	13	2.6	.62
15	16	1.2	1.9	.70	.69	44	.23	1.2	14	12	2.4	4.8
16	12	1.2	1.6	.78	.62	13	.20	1.1	10	11	2.1	2.9
17	8.3	1.2	1.5	.78	.62	4.6	.20	273	8.1	9.5	2.1	6.9
18	6.1	1.2	1.3	.70	.60	2.6	.22	87	835	8.7	2.1	2.7
19	4.4	1.1	1.2	.70	.55	1.8	.27	74	958	8.2	2.3	8.9
20	2.9	1.1	1.2	.70	.55	1.1	.24	28	198	7.7	1.9	5.6
21	2.3	1.1	1.2	.70	.55	.85	.20	8.2	70	7.0	1.8	2.2
22	2.6	1.2	1.2	.74	.55	.68	.22	43	47	6.5	1.6	1.6
23	2.3	1.2	1.1	.79	.51	.61	.24	122	44	6.3	1.6	1.6
24	1.9	1.1	1.1	.79	.48	.54	.24	33	60	5.9	1.4	1.3
25	1.8	1.2	1.1	.75	.56	.47	.24	41	1590	5.6	1.2	1.2
26	1.8	1.2	1.1	.68	.76	.42	.23	354	258	5.5	1.2	1.2
27	1.7	1.1	1.1	.62	.77	.42	.20	180	135	5.6	1.2	1.1
28	1.7	1.2	1.1	.62	.69	.49	.26	393	88	6.3	11	1.1
29	1.6	1.2	1.1	.62	---	.55	.47	80	68	8.2	6.7	.99
30	1.6	1.9	1.1	10	---	.53	.55	36	49	7.0	4.4	.89
31	1.5	---	1.1	5.8	---	.42	---	27	---	6.2	3.0	---
TOTAL	603.9	37.5	40.2	37.90	25.94	100.26	17.64	1992.00	5151.6	430.2	109.6	59.74
MEAN	19.5	1.25	1.30	1.22	.93	3.23	.59	64.3	172	13.9	3.54	1.99
MAX	381	1.9	2.0	10	2.9	44	5.6	393	1590	38	11	8.9
MIN	1.5	1.1	1.1	.48	.48	.31	.20	.45	7.4	5.5	1.2	.62
CFSM	.08	.005	.005	.005	.004	.01	.002	.26	.69	.06	.01	.008
IN.	.09	.01	.01	.01	.00	.01	.00	.30	.76	.06	.02	.01
AC-FT	1200	74	80	75	51	199	35	3950	10220	853	217	118
CAL YR 1981	TOTAL	4132.21	MEAN	11.3	MAX	1170	MIN	.09	CFSM	.05	IN	.61
WTR YR 1982	TOTAL	8606.48	MEAN	23.6	MAX	1590	MIN	.20	CFSM	.09	IN	1.28
									AC-FT	8200	AC-FT	17070



## BRAZOS RIVER BASIN

08082180 NORTH CROTON CREEK NEAR KNOX CITY, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1965 to current year.

WATER TEMPERATURES: October 1965 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, 48,600 micromhos May 26, 1981; minimum daily, 1,060 micromhos Aug. 30, 1966.

WATER TEMPERATURES: Maximum daily, 37.0°C June 16, 1978; minimum daily, 0.0°C on many days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 41,700 micromhos Jan. 31; minimum daily, 1,520 micromhos Oct. 12.

WATER TEMPERATURES: Maximum daily, 32.0°C Oct. 15; minimum daily, 0.0°C on many days during January and February.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 20...	1310	2.9	18200	18.0	3100	2900	860	220	3300
NOV 17...	1305	1.2	29200	16.0	3900	3700	1000	330	5900
JAN 05...	1200	1.2	32600	7.0	3900	3700	1000	340	6300
APR 05...	1235	.41	19600	17.0	3000	2900	820	230	3700
MAY 20...	1045	28	3730	21.0	1100	980	350	43	430
AUG 09...	1045	4.6	17400	25.0	3100	3000	810	270	3100
SEP 20...	1425	3.4	11900	24.5	2500	2400	670	210	2000

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 CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 20...	26	20	130	2100	6000	.3	5.6	12600
NOV 17...	41	31	150	2700	11000	.9	2.7	21100
JAN 05...	44	32	150	370	12000	.3	.4	20100
APR 05...	29	24	110	2100	6600	.3	<1.1	13500
MAY 20...	5.8	7.3	69	970	760	.3	7.3	2610
AUG 09...	24	24	120	2600	5500	.4	3.3	12400
SEP 20...	17	17	97	2000	3500	.4	3.4	8460

## BRAZOS RIVER BASIN

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08082180 NORTH CROTON CREEK NEAR KNOX CITY, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	603.9	4790	3330	5430	1400	2240	770	1250	960
NOV.	1981	37.5	28600	19300	1950	9400	956	2800	283	*
DEC.	1981	40.2	31900	21400	2320	10900	1180	2700	289	*
JAN.	1982	37.90	35000	23300	2380	12300	1250	2400	248	*
FEB.	1982	25.94	28200	19000	1330	9400	658	2700	188	*
MAR.	1982	100.26	12400	8620	2330	3700	991	1900	505	*
APR.	1982	17.64	21800	14900	709	6800	325	2700	128	*
MAY	1982	1992.00	3440	2440	13100	890	4810	680	3670	820
JUNE	1982	5151.6	2630	1870	26000	670	9300	540	7560	650
JULY	1982	430.2	11400	7940	9220	3200	3710	1900	2220	*
AUG.	1982	109.6	18900	13000	3850	5700	1690	2600	780	*
SEPT	1982	59.74	18200	12500	2020	5600	895	2500	399	*
TOTAL		8606.48	**	**	70700	**	28000	**	17500	**
WTD. AVG.		24	4340	3040	**	1200	**	750	**	930

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15200	25300	30200	32600	40400	33500	22000	25500	6070	7630	18000	17100
2	17500	25700	31200	33000	20900	34400	17000	20100	6690	7700	17700	15500
3	19400	26100	33100	33500	24200	34800	14000	22400	6880	8020	18200	15200
4	20600	26300	33700	33100	23200	34700	19000	26000	7330	7860	17900	15700
5	21000	26700	33800	30100	23600	35600	20100	7500	7620	8820	17800	15900
6	21300	27000	33300	33700	24000	35500	22300	6100	8090	9170	18000	15800
7	22100	26800	32600	34400	24300	36100	25500	6500	8210	10500	18600	16000
8	23000	27700	32500	34600	24200	36000	26000	7030	8410	10700	18700	15900
9	24000	28600	32400	33900	24100	36200	26400	12700	8280	11100	17400	16500
10	24900	28800	32200	33200	26500	36100	26500	15400	8500	11200	18700	17000
11	21600	28700	31300	36500	26000	34600	26600	17900	2650	10800	18800	17200
12	1520	28500	30600	34400	27100	34500	28100	19200	4860	10700	19200	17400
13	1810	28300	30000	34500	24500	33300	27900	20700	5530	12300	19600	18100
14	3320	28400	31200	31700	27300	15000	27800	22100	6430	12800	19900	19900
15	7260	28700	34300	36600	26700	7430	28000	24000	7270	13100	20100	24500
16	11800	29000	33000	34400	29100	9400	27600	24700	7380	13700	19400	29900
17	14600	29200	33200	35500	29500	10900	28400	2100	7650	13800	19300	28100
18	18100	29500	33300	33400	29700	13500	28600	3050	2320	14500	19200	14000
19	18000	29600	28700	33300	30900	16500	28500	3210	1540	15000	20100	13500
20	18200	29700	30500	35400	31300	17700	28300	3730	3750	16000	20000	11900
21	19500	29800	32700	34400	31200	19100	28400	7100	4570	16600	19900	13700
22	19600	29700	31400	34500	31600	19300	28300	5000	5230	16800	20400	16400
23	20700	29600	31600	35500	31900	19500	28400	2300	5970	16700	20600	16800
24	21800	29700	31100	36100	32000	19900	28300	12000	5540	17100	20800	17700
25	22100	29900	29100	36200	32700	21200	28600	4760	1750	17700	20500	19100
26	22800	30000	30300	36300	33000	22200	29200	2550	2010	18400	20300	18200
27	23400	30100	31400	36200	33300	23100	28900	3040	3350	18100	17900	18100
28	24000	30200	34000	33000	32600	25000	27300	1950	4100	17200	17200	17900
29	24800	30300	30700	34700	---	25400	26400	2910	5070	17400	21900	18100
30	25000	30400	32200	32900	---	25100	25000	5750	5920	17000	23100	18200
31	25400	---	31200	41700	---	27900	---	5460	---	17400	17000	---
MEAN	18500	28600	31800	34500	28400	25600	25900	11100	5630	13400	19200	17600

## BRAZOS RIVER BASIN

08082180 NORTH CROTON CREEK NEAR KNOX CITY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.0	25.0	7.0	5.0	8.0	10.0	---	---	---	---	---	23.0
2	29.0	28.0	7.0	5.0	4.0	10.0	---	---	19.0	27.0	---	28.0
3	30.0	---	7.0	.0	2.0	11.0	---	---	17.0	25.0	---	21.0
4	31.0	30.0	7.0	.0	.0	13.0	---	---	19.0	27.0	29.0	25.0
5	30.0	15.0	7.0	4.0	.0	10.0	18.0	---	18.0	---	29.0	25.0
6	25.0	15.0	7.0	6.0	.0	9.0	18.0	---	19.0	25.0	29.0	25.0
7	27.0	15.0	9.0	3.0	.0	---	12.0	---	21.0	28.0	30.0	25.0
8	25.0	18.0	9.0	.0	.0	12.0	---	---	25.0	---	---	20.0
9	28.0	15.0	---	.0	1.0	10.0	10.0	16.0	26.0	28.0	28.0	---
10	28.0	10.0	12.0	.0	2.0	11.0	10.0	---	26.0	---	25.0	25.0
11	26.0	5.0	8.0	.0	3.0	16.0	8.0	---	---	26.0	30.0	23.0
12	---	10.0	8.0	.0	5.0	17.0	18.0	---	19.0	28.0	27.0	25.0
13	28.0	10.0	7.0	.0	6.0	11.0	15.0	---	26.0	24.0	25.0	23.0
14	---	12.0	7.0	4.0	9.0	16.0	16.0	---	27.0	27.0	27.0	20.0
15	32.0	12.0	8.0	5.0	11.0	12.0	21.0	18.0	27.0	28.0	25.0	22.0
16	---	10.0	8.0	2.0	11.0	13.0	18.0	---	27.0	24.0	25.0	26.0
17	25.0	9.0	---	.0	11.0	15.0	21.0	---	---	28.0	28.0	24.0
18	26.0	14.0	3.0	2.0	11.0	17.0	21.0	---	17.0	22.0	28.0	20.0
19	26.0	11.0	---	5.0	12.0	18.0	16.0	---	17.0	28.0	29.0	20.0
20	27.0	9.0	---	7.0	11.0	18.0	8.0	21.0	---	22.0	28.0	---
21	27.0	9.0	---	7.0	12.0	16.0	8.0	---	27.0	27.0	27.0	18.0
22	---	8.0	3.0	9.0	---	---	12.0	---	---	28.0	---	16.0
23	27.0	11.0	3.0	4.0	17.0	---	15.0	13.0	27.0	23.0	28.0	18.0
24	27.0	12.0	2.0	7.0	18.0	---	8.0	22.0	28.0	25.0	---	16.0
25	25.0	12.0	4.0	6.0	---	---	12.0	22.0	23.0	---	---	16.0
26	26.0	7.0	5.0	7.0	---	---	13.0	16.0	---	28.0	25.0	16.0
27	26.0	7.0	3.0	9.0	9.0	8.0	16.0	---	---	22.0	21.0	16.0
28	29.0	11.0	5.0	9.0	9.0	8.0	18.0	---	27.0	22.0	23.0	22.0
29	28.0	11.0	5.0	.0	---	10.0	---	17.0	28.0	27.0	30.0	23.0
30	28.0	7.0	6.0	1.0	---	11.0	---	27.0	28.0	27.0	28.0	18.0
31	28.0	---	5.0	8.0	---	15.0	---	19.0	---	23.0	28.0	---
MEAN	27.5	12.5	6.0	3.5	7.0	12.5	14.5	19.0	23.5	25.5	27.0	21.5

## 08082500 BRAZOS RIVER AT SEYMOUR, TX

LOCATION.--Lat 33°34'51", long 99°16'02", Baylor County, Hydrologic Unit 12060101, on left bank at downstream side of bridge on U.S. Highways 277 and 283, 0.8 mi (1.3 km) upstream from Wichita Valley Railway bridge, 1.0 mi (1.6 km) southwest of courthouse in Seymour, and at mile 847.4 (1,363.5 km).

DRAINAGE AREA.--15,538 mi<sup>2</sup> (40,243 km<sup>2</sup>), approximately, of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1923 to current year.

REVISED RECORDS.--WSP 808: 1924-29. WSP 1312: 1933. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,238.97 ft (377.638 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 6, 1972, at datum 2.00 ft (0.610 m) higher.

REMARKS.--Water-discharge records fair. Small diversions above station for irrigation and oilfield operation. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08080950. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--58 years (water years 1925-82), 378 ft<sup>3</sup>/s (10.70 m<sup>3</sup>/s), 273,900 acre-ft/yr (338 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,400 ft<sup>3</sup>/s (2,700 m<sup>3</sup>/s) Oct. 16, 1926, gage height, 17.16 ft (5.230 m), from floodmarks, present datum, from rating curve extended above 48,000 ft<sup>3</sup>/s (1,360 m<sup>3</sup>/s) on basis of slope-area measurement of 95,400 ft<sup>3</sup>/s (2,700 m<sup>3</sup>/s); maximum gage height, 23.00 ft (7.010 m), present datum, Sept. 28, 1955, discharge 71,200 ft<sup>3</sup>/s (2,020 m<sup>3</sup>/s); no flow at times. Since 1906, the maximum stage was that of Sept. 28, 1955, and maximum discharge was that of Oct. 16, 1926.

EXTREMES OUTSIDE PERIOD OF RECORD.- A flood in 1906 reached about the same stage as the flood in 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 11,000 ft<sup>3</sup>/s (312 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 14	0015	17,300	490	May 28	unknown	15,900	450
May 18	2100	12,100	343	June 26	0345	*20,100	569
			10.44				10.80
			3.182				3.292
			9.72				12.29
			2.963				3.746

Minimum discharge, 5.8 ft<sup>3</sup>/s (0.16 m<sup>3</sup>/s) Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	148	80	39	92	55	39	20	2110	1650	149	54
2	27	139	79	40	144	54	38	20	1470	1370	142	47
3	23	135	77	38	111	53	35	62	996	1060	103	49
4	15	128	77	38	84	48	54	34	738	803	116	38
5	11	124	75	39	77	41	48	100	553	632	309	32
6	8.9	119	73	36	46	42	44	6510	453	501	229	30
7	55	116	73	34	59	47	33	3190	369	410	168	27
8	33	115	72	35	73	50	26	2630	307	353	115	27
9	15	113	70	36	65	50	25	1620	264	307	106	25
10	78	107	68	32	57	49	24	1020	231	264	88	24
11	270	105	66	30	51	50	24	659	241	241	121	21
12	237	103	64	32	48	49	21	542	252	227	121	20
13	9870	101	64	41	48	49	18	530	1120	335	88	19
14	8090	97	62	40	48	52	18	311	1780	259	73	22
15	3050	92	61	42	45	77	17	293	1080	212	64	28
16	1850	89	59	40	42	55	14	248	836	191	60	70
17	1450	87	59	35	40	70	11	2880	589	190	59	60
18	1050	86	57	48	38	93	14	7670	1890	246	52	220
19	736	79	55	47	41	80	17	3490	4570	184	52	216
20	561	76	55	44	42	70	17	2440	5670	144	52	220
21	477	75	54	52	41	90	14	1520	7180	128	59	254
22	381	74	49	60	41	82	14	1050	3820	116	50	264
23	341	73	49	52	46	74	11	1810	5480	119	46	207
24	319	72	47	50	43	66	11	2920	3550	118	41	162
25	277	74	48	49	43	55	10	5020	10100	105	40	119
26	237	75	45	55	50	50	9.2	3820	12200	90	36	77
27	215	75	45	56	48	55	9.8	4040	7710	93	29	68
28	202	73	41	54	49	50	15	7560	6820	87	30	60
29	192	72	41	57	---	48	17	7880	4060	89	31	53
30	179	79	42	112	---	44	18	3440	2280	84	79	45
31	168	---	42	92	---	38	---	2610	---	186	65	---
TOTAL	30458.9	2901	1849	1455	1612	1786	666.0	75939	88719	10794	2773	2558
MEAN	983	96.7	59.6	46.9	57.6	57.6	22.2	2450	2957	348	89.5	85.3
MAX	9870	148	80	112	144	93	54	7880	12200	1650	309	264
MIN	8.9	72	41	30	38	38	9.2	20	231	84	29	19
AC-FT	60420	5750	3670	2890	3200	3540	1320	150600	176000	21410	5500	5070

CAL YR 1981	TOTAL	74884.74	MEAN 205	MAX 9870	MIN .00	AC-FT 148500
WTR YR 1982	TOTAL	221510.90	MEAN 607	MAX 12200	MIN 8.9	AC-FT 439400

## BRAZOS RIVER BASIN

08082500 BRAZOS RIVER AT SEYMOUR, TX--Continued

## WATER-QUALITY RECORDS

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

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1959 to current year.

WATER TEMPERATURES: August 1959 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, 80,400 micromhos May 24, 1971; minimum daily, 559 micromhos May 22, 1979.

WATER TEMPERATURES: Maximum daily, 37.0°C Aug. 6, 1959, Sept. 3, 1963; minimum daily, 0.0°C on many days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 27,000 micromhos Feb. 4; minimum daily, 825 micromhos June 23.

WATER TEMPERATURES: Maximum daily, 35.0°C July 22; minimum daily, 0.0°C Jan. 13, 15, 22, Feb. 4.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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...	0915	754	3590	16.0	520	420	160	29	560
DEC 21...	1050	54	16700	6.0	2100	2000	580	160	3100
FEB 01...	0855	65	10100	4.0	1300	1200	350	94	1800
MAR 16...	1225	46	8920	16.5	1200	1100	340	89	1600
MAY 18...	1340	9560	1830	16.0	470	360	150	23	210
JUN 25...	1600	14000	1080	25.0	270	170	84	14	120

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 CONSTITU- ENTS, DIS- SOLVED (MG/L)
OCT 19...	11	7.3	100	410	900	.8	8.6	2140
DEC 21...	29	14	130	1600	5000	.7	7.4	10500
FEB 01...	22	11	110	1100	3000	.4	5.5	6430
MAR 16...	20	11	93	960	2600	.6	3.9	5660
MAY 18...	4.4	6.9	110	410	300	.5	12	1190
JUN 25...	3.3	5.6	94	190	180	.4	9.9	660



## BRAZOS RIVER BASIN

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08082500 BRAZOS RIVER AT SEYMOUR, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	30458.9	3740	2320	190000	950	77800	510	41700	570
NOV.	1981	2901	13300	8450	66200	3800	29800	1500	11800	*
DEC.	1981	1849	16100	10300	51500	4800	23900	1700	8480	*
JAN.	1982	1455	14500	9290	36500	4300	16800	1600	6170	*
FEB.	1982	1612	18400	11900	51800	5700	24800	1800	7740	*
MAR.	1982	1786	17100	11000	53100	5200	25000	1700	8380	*
APR.	1982	666.0	16900	10900	19500	5100	9150	1700	3110	*
MAY	1982	75939	2550	1570	321000	620	128000	360	73700	400
JUNE	1982	88719	2000	1230	295000	490	117200	280	67900	310
JULY	1982	10794	5690	3550	103000	1500	43400	740	21500	840
AUG.	1982	2773	9350	5880	44000	2500	19100	1100	8570	1300
SEPT	1982	2558	8710	5470	37800	2400	16300	1100	7440	1200
TOTAL		221510.9	**	**	1270000	**	531000	**	266000	**
WTD. AVG.		607	3410	2120	**	890	**	450	**	500

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24900	13000	13900	12500	7730	16100	15300	16900	1950	2570	6750	5960
2	24000	11100	14600	10800	11800	16300	15800	17100	1840	2830	5080	9060
3	22400	11400	14900	12600	19500	16900	16100	12800	2470	3060	8750	11700
4	22300	11700	15100	13800	27000	18600	14000	15900	3130	3850	9110	13000
5	20900	11900	15400	15000	25400	18900	13100	13300	3860	4790	12400	12500
6	18400	12100	15700	16200	23900	19200	13300	2280	4490	5320	10100	11900
7	8040	12400	16100	13600	19800	21500	13500	3620	5250	5800	8540	11400
8	3270	12600	16200	14800	23700	20400	13900	3960	5980	6630	7930	11500
9	9360	12900	16600	15700	22200	21600	16100	2590	6840	7440	7320	11700
10	6390	13000	17600	17000	18800	21400	18400	3240	7720	9320	7440	12200
11	3770	13200	17700	18200	20700	20800	20700	3730	7320	9300	9440	12600
12	2540	13100	16600	17600	19900	20500	22800	3550	7790	9270	7660	12700
13	4100	13400	15500	17300	17400	20100	22200	3300	6520	9710	6440	12800
14	2320	13500	14600	18300	17700	18600	21700	4600	4680	5950	6620	12400
15	2440	13600	14900	13200	17900	16200	20800	5050	4300	7540	7850	12000
16	2360	13700	14700	15300	17500	11500	20300	6630	5150	9350	9040	7500
17	2970	14100	14900	17400	17300	12600	20500	2060	5410	9460	10200	6840
18	3590	14200	15600	16300	17900	19400	20000	1890	2730	9520	10800	12200
19	3840	14400	16100	16500	17700	19100	19600	1440	1410	8070	11200	8420
20	4900	14200	16700	16400	18100	22900	19400	1540	1750	7900	11600	6610
21	5630	14300	17400	15900	17800	17000	18800	2660	2450	8120	12100	8100
22	6350	14400	17700	15400	17600	16600	18200	2950	1470	9240	12200	4230
23	7000	14500	19000	16600	17700	15400	18000	1790	825	10100	12300	8840
24	7550	14700	18200	16100	18300	14100	18100	2450	1000	10600	12600	10900
25	7630	14800	17800	15500	18500	12700	18400	2530	1140	11000	12000	9380
26	8340	14600	17300	16200	15700	13200	18200	1960	1390	11200	11300	7920
27	8920	14800	16800	16800	15800	12500	18400	2010	1980	11700	12100	6400
28	9920	14900	16600	17000	16300	13200	17000	3560	2040	12000	12800	7320
29	9950	15000	16300	15500	---	13900	16300	2550	2000	11600	12600	8240
30	10100	14300	16000	8500	---	14300	16400	2230	1970	12000	10200	9450
31	11100	---	15800	6410	---	14700	---	2080	---	8500	8880	---
MEAN	9200	13500	16200	15100	18600	17100	17800	4910	3560	8190	9790	9860

BRAZOS RIVER BASIN  
08082500 BRAZOS RIVER AT SEYMOUR, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.0	15.0	12.0	3.0	9.5	14.0	18.0	15.5	---	29.0	---	24.0
2	26.0	12.0	6.0	9.0	7.0	15.0	---	---	21.0	29.0	31.0	28.0
3	22.0	10.0	13.0	---	---	18.5	17.0	19.0	25.0	31.0	---	31.0
4	22.0	10.0	10.0	6.0	.0	16.0	23.0	---	25.0	31.0	33.0	21.0
5	25.0	18.0	6.0	5.5	---	---	21.5	21.0	---	29.0	30.0	---
6	21.0	17.0	---	9.0	1.0	7.0	18.0	16.0	25.0	---	---	---
7	14.0	18.0	11.0	4.0	6.0	12.0	---	15.0	---	30.0	27.0	23.0
8	15.5	---	11.0	1.0	---	17.0	19.0	16.0	26.0	30.0	---	26.0
9	22.0	13.0	15.0	---	3.5	19.0	17.0	21.0	---	31.0	31.5	22.0
10	18.5	13.0	15.0	---	5.0	---	10.0	---	30.0	32.5	32.0	30.0
11	20.0	---	15.0	1.0	7.0	24.0	---	22.0	25.0	---	32.0	26.0
12	25.0	11.0	10.0	2.0	9.0	---	25.0	22.0	26.0	25.5	32.0	---
13	20.0	10.0	---	.0	7.5	10.5	18.0	18.0	---	32.0	32.0	28.5
14	20.0	15.0	7.5	2.0	---	19.0	---	25.0	25.0	33.0	25.0	---
15	22.0	---	10.0	.0	---	22.0	21.5	---	28.0	27.0	---	28.5
16	21.5	16.0	8.5	---	12.0	---	26.0	21.0	25.0	33.0	27.0	27.0
17	---	19.0	4.5	1.0	12.0	22.0	14.0	16.0	25.0	33.0	29.0	29.0
18	20.5	15.0	---	1.5	12.0	22.0	14.0	21.0	25.0	32.0	---	22.0
19	19.0	14.5	7.0	8.0	17.0	20.5	---	21.0	---	33.0	---	---
20	17.5	8.0	5.0	10.5	18.0	20.0	12.0	22.5	---	31.0	---	23.0
21	---	14.0	---	---	---	17.0	---	25.5	24.0	28.0	---	22.0
22	14.0	9.0	7.0	.0	21.0	17.5	16.0	---	26.5	35.0	---	21.0
23	---	12.0	9.0	7.5	20.0	12.0	15.0	20.0	25.0	31.0	---	17.5
24	13.5	---	9.0	8.0	15.0	---	20.0	21.5	---	30.0	---	19.0
25	12.0	17.5	---	10.0	---	6.5	25.0	21.5	25.0	30.0	---	19.0
26	---	---	7.0	---	7.0	13.0	23.0	21.5	25.0	26.0	---	---
27	13.0	9.0	10.0	10.5	12.0	6.0	---	24.0	27.0	30.0	---	19.0
28	17.0	11.0	9.5	---	16.0	---	17.5	25.0	27.0	30.0	25.0	---
29	19.0	---	7.5	12.5	---	12.0	16.5	24.0	---	---	25.0	24.0
30	15.5	12.5	8.0	9.0	---	---	16.0	---	27.0	29.0	---	26.0
31	16.0	---	9.0	10.5	---	16.5	---	23.0	---	26.5	31.0	---
MEAN	19.0	13.5	9.5	5.5	10.5	16.0	18.5	20.5	25.5	30.5	29.5	24.0

## 08082700 MILLERS CREEK NEAR MUNDAY, TX

LOCATION.--Lat 33°19'45", long 99°27'53", Throckmorton County, Hydrologic Unit 12060101, near right bank on downstream side of bridge on Farm Road 1720, 12.7 mi (20.4 km) southeast of Munday, and 24.6 mi (39.6 km) upstream from mouth.

DRAINAGE AREA.--104 mi<sup>2</sup> (269 km<sup>2</sup>).

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

Water-quality records: Sediment records: October 1976 to September 1978.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,350 ft (411 m), from topographic map.

REMARKS.--Records fair. No diversions above station.

AVERAGE DISCHARGE.--19 years (water years 1964-82), 8.02 ft<sup>3</sup>/s (0.227 m<sup>3</sup>/s), 1.05 in/yr (27 mm/yr), 5,810 acre-ft/yr (7.16 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,600 ft<sup>3</sup>/s (980 m<sup>3</sup>/s) Aug. 4, 1978, gage height, 17.53 ft (5.343 m); no flow most of time.

Maximum stage since 1930, 18.0 ft (5.49 m) in October 1962, from information by local resident.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1883 occurred June 13, 1930, and exceeded 18.0 ft (5.49 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft<sup>3</sup>/s (5.66 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
May 6	1515	1,450	41.1	13.47	4.106	June 18	1545	2,680	75.9	14.44	4.401
May 18	0145	537	15.2	10.74	3.274	June 20	0115	2,060	58.3	14.10	4.298
May 24	1900	317	8.98	7.49	2.283	June 22	0115	1,070	30.3	13.32	4.060
May 27	0415	1,000	28.3	13.25	4.039	June 25	1300	*8,630	244	16.03	4.886
May 28	2145	1,500	42.5	13.68	4.170						

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	.00	.00	.00	.00	.00	.00	.00	5.5	8.3	.56	.00		
2	.00	.00	.00	.00	.00	.00	.00	.00	3.2	5.5	.76	.00		
3	.00	.00	.00	.00	.00	.00	.00	.00	2.0	3.7	.49	.00		
4	.00	.00	.00	.00	.00	.00	.00	.00	1.4	2.8	.43	.00		
5	.00	.00	.00	.00	.00	.00	.00	18	1.1	2.2	.40	.00		
6	.00	.00	.00	.00	.00	.00	.00	897	.84	1.9	.34	.00		
7	10	.00	.00	.00	.00	.00	.00	415	.71	1.7	.31	.00		
8	1.0	.00	.00	.00	.00	.00	.00	26	.60	1.5	.37	.00		
9	.30	.00	.00	.00	.00	.00	.00	6.3	.53	1.4	.37	.00		
10	.20	.00	.00	.00	.00	.00	.00	3.0	.46	1.3	16	.00		
11	.10	.00	.00	.00	.00	.00	.00	4.6	.43	1.3	14	.00		
12	50	.00	.00	.00	.00	.00	.00	10	.53	1.2	3.6	.00		
13	45	.00	.00	.00	.00	.00	.00	24	.53	1.0	1.4	.00		
14	20	.00	.00	.00	.00	.00	.00	11	.43	.83	.72	.00		
15	12	.00	.00	.00	.00	.00	.00	4.8	.37	.76	.40	.00		
16	7.0	.00	.00	.00	.00	.00	.00	2.1	.34	.64	.24	.05		
17	6.0	.00	.00	.00	.00	.00	.00	253	.31	.49	.18	.09		
18	3.0	.00	.00	.00	.00	.00	.00	369	1370	.43	.14	.08		
19	1.5	.00	.00	.00	.00	.00	.00	104	896	.46	.13	.14		
20	.90	.00	.00	.00	.00	.00	.00	19	1120	.34	.13	.15		
21	.60	.00	.00	.00	.00	.00	.00	7.4	675	.31	.13	.11		
22	1.0	.00	.00	.00	.00	.00	.00	7.5	691	.31	.13	.08		
23	.40	.00	.00	.00	.00	.00	.00	23	297	.34	.10	.06		
24	.20	.00	.00	.00	.00	.00	.00	219	386	.31	.08	.03		
25	.10	.00	.00	.00	.00	.00	.00	241	5140	.31	.06	.01		
26	.06	.00	.00	.00	.01	.00	.00	516	1540	.31	.03	.00		
27	.04	.00	.00	.00	.00	.00	.00	775	319	.37	.02	.00		
28	.02	.00	.00	.00	.00	.00	.00	911	108	.37	.01	.00		
29	.01	.00	.00	.00	---	.00	.00	706	25	.46	.00	.00		
30	.00	.00	.00	.00	---	.00	.00	65	12	.46	.00	.00		
31	.00	---	.00	.00	---	.00	---	11	---	.46	.00	---		
TOTAL	159.43	.00	.00	.00	.01	.00	.00	5648.70	12598.28	41.76	41.53	.80		
MEAN	5.14	.000	.000	.000	.000	.000	.000	182	420	1.35	1.34	.027		
MAX	50	.00	.00	.00	.01	.00	.00	911	5140	8.3	16	.15		
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.31	.31	.00	.00		
CFSM	.05	.000	.000	.000	.000	.000	.000	1.75	4.04	.01	.01	.000		
IN.	.06	.00	.00	.00	.00	.00	.00	2.02	4.51	.01	.01	.00		
AC-FT	316	.00	.00	.00	.02	.00	.00	11200	24990	83	82	1.6		
CAL YR 1981	TOTAL	428.32	MEAN	1.17	MAX	50	MIN	.00	CFSM	.01	IN	.15	AC-FT	850
WTR YR 1982	TOTAL	18490.51	MEAN	50.7	MAX	5140	MIN	.00	CFSM	.49	IN	6.61	AC-FT	36680

## BRAZOS RIVER BASIN

## 08082800 MILLERS CREEK RESERVOIR NEAR BOMARTON, TX

LOCATION.--Lat 33°24'32", long 99°23'19", Baylor County, Hydrologic Unit 12060101, at intake tower on left bank of Millers Creek, 1.1 mi (1.8 km) upstream from dam, 7.1 mi (11.4 km) southeast of Bomarton, and 13.2 mi (21.2 km) upstream from mouth.

DRAINAGE AREA.--240 mi<sup>2</sup> (622 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

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 an earthfill dam 9,250 ft (2,820 m) long. The dam was completed in 1974 and storage began in July 1974. Dead storage, 1,240 acre-ft (1.53 hm<sup>3</sup>) below elevation, 1,303.4 ft (397.28 m). The reservoir is used for municipal, mining, and industrial water supply. The uncontrolled spillway is an open cut 3,000 ft (910 m) wide located on left bank about 800 ft (240 m) upstream from levee. The service spillway is an uncontrolled morning-glory-type drop inlet, 16.5 ft (5.0 m) square, that discharges through a 5.0-foot-square (1.5 m) concrete conduit. Low-flow releases are made by valves in the outlet vault of the drop inlet. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,355.0	-
Crest of spillway.....	1,340.1	49,080
Crest of spillway.....	1,331.2	25,180
Lowest gated outlet (invert).....	1,305.0	1,660
Dead storage.....	1,303.4	1,240

COOPERATION.--The area-capacity tables, prepared from data of Sept. 17, 1965, were furnished by Freese and Nichols, Inc., Consulting Engineers. Record of diversions furnished by North Central Texas Municipal Water Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 53,850 acre-ft (66.4 hm<sup>3</sup>) June 26, 1982, elevation, 1,341.42 ft (408.865 m); minimum contents were below dead storage elevation prior to Apr. 20, 1977, and July 17 to Aug. 3, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 53,850 acre-ft (66.4 hm<sup>3</sup>) June 26 at 0100 hours, elevation, 1,341.42 ft (408.865 m); minimum, 17,740 acre-ft (21.9 hm<sup>3</sup>) Apr. 30, May 1, elevation, 1,326.72 ft (404.384 m).

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

1,326.0	16,760	1,338.0	42,170
1,330.0	22,950	1,342.0	56,050
1,334.0	31,240		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18130	19890	19270	18970	18640	18360	18290	17770	28760	42700	25120	23660
2	18130	19850	19350	19010	18630	18350	18360	17810	28000	40680	25100	23640
3	18160	19820	19340	18950	18560	18340	18350	17840	27400	38620	25070	23600
4	18170	19820	19300	18970	18510	18320	18350	17820	26980	36560	25030	23550
5	18100	19800	19300	18980	18510	18310	18250	18850	26690	34590	24990	23530
6	18050	19770	19300	18820	18480	18290	18230	21600	26460	32620	24930	23500
7	18290	19790	19300	18790	18530	18280	18230	23220	26340	30670	24910	23440
8	18320	19680	19260	18760	18510	18260	18170	23370	26140	29340	24880	23390
9	18390	19610	19290	18720	18450	18250	18160	23390	25960	28450	24800	23370
10	18360	19650	19230	18690	18480	18230	18130	23390	25840	27780	24780	23330
11	18420	19650	19230	18640	18510	18220	18170	23330	25680	27280	24840	23300
12	18610	19630	19200	18640	18440	18200	18140	23910	25640	26900	24740	23220
13	19580	19630	19210	18580	18500	18190	18140	25070	25580	26670	24690	23200
14	20130	19660	19180	18640	18540	18170	18130	25260	25540	26460	24650	23190
15	20210	19580	19210	18640	18540	18140	18130	25240	25440	26220	24570	23110
16	20290	19580	19130	18510	18540	18310	18060	25240	25380	26100	24520	23130
17	20280	19610	19090	18610	18500	18350	18020	27280	25360	25940	24460	23150
18	20210	19580	19070	18630	18470	18350	18000	28280	27590	25840	24380	23040
19	20200	19510	19070	18610	18500	18350	17990	28000	29930	25640	24340	23100
20	20200	19510	19070	18610	18480	18310	17920	27530	31260	25620	24360	23080
21	20080	19480	19070	18600	18480	18230	17850	27050	32520	25560	24250	23040
22	20070	19510	19030	18660	18470	18220	17860	26820	33190	25460	24190	23020
23	20050	19460	19040	18640	18450	18200	17860	26960	32650	25380	24140	23000
24	20050	19440	19060	18610	18440	18220	17860	27610	32010	25320	24080	22970
25	19990	19520	19100	18610	18420	18120	17840	28040	53780	25300	23990	22930
26	19970	19400	19040	18630	18410	18090	17810	28580	52150	25200	23950	22920
27	19990	19380	19060	18640	18390	18100	17780	29860	50450	25180	23820	22930
28	19970	19320	19000	18600	18380	18120	17820	32350	48800	25160	23750	22880
29	19970	19320	19000	18660	---	18160	17790	33140	46770	25140	23910	22860
30	19970	19350	19030	18630	---	18160	17740	31590	44700	25120	23770	22810
31	19890	---	18980	18640	---	18120	---	29860	---	25140	23710	---
MAX	20290	19890	19350	19010	18640	18360	18360	33140	53780	42700	25120	23660
MIN	18050	19320	18980	18510	18380	18090	17740	17770	25360	25120	23710	22810
(†)	1328.17	1327.82	1327.58	1327.35	1327.17	1326.99	1326.72	1333.41	1338.80	1331.18	1330.42	1329.92
(‡)	+1690	-540	-370	-340	-260	-260	-380	+12120	+14840	-19560	-1430	-900
(††)	101	93.8	91.3	119	82.8	97.0	105	104	108	143	138	120

CAL YR 1981 MAX 23640 MIN 18050 ‡ -4480 †† 1339

WTR YR 1982 MAX 53780 MIN 17740 ‡ +4610 †† 1303

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for North Central Texas Municipal Water Authority.

BRAZOS RIVER BASIN

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08082800 MILLERS CREEK RESERVOIR NEAR BOMARTON, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 30...	1400	305	28.5	130	5	38	7.3	10

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)
AUG 30...	.4	6.5	120	20	10	.2	11	175



## BRAZOS RIVER BASIN

08082950 ELM CREEK NEAR PROFFITT, TX  
(Reconnaissance partial-record station)

LOCATION.--Lat 33°11'00", long 98°53'40", Young County, Hydrologic Unit 12060101, at bridge on U.S. Highway 380 in Proffitt community, 1,000 ft (305 m) west of Farm Road 578 south, 5.5 mi (8.9 km) upstream from mouth, and about 9 mi (14 km) west of Newcastle.

DRAINAGE AREA.--275 mi<sup>2</sup> (712 km<sup>2</sup>).

PERIOD OF RECORD.--Occasional discharge measurements: October 1968 to current year. Occasional water-quality data: December 1968 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 02...	1000	.55	830	12.0	230	110	60	19	70
DEC 15...	1520	.40	1280	9.0	350	190	89	31	120
JAN 25...	1015	.01	2190	4.5	590	390	140	59	230
MAR 09...	0845	.09	3600	9.5	880	710	170	110	430
APR 21...	1037	.01	3160	10.0	750	550	150	90	370
JUN 02...	1930	22	812	25.0	240	80	60	22	68
JUL 12...	1145	14	2870	27.0	820	560	170	96	280
AUG 23...	1230	1.6	4880	25.0	1200	980	220	150	580

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 02...	2.2	5.9	120	33	170	.2	10	440
DEC 15...	3.0	6.7	160	88	270	.3	9.4	711
JAN 25...	4.1	7.9	200	160	520	.3	5.5	1240
MAR 09...	6.3	6.5	170	230	1100	.2	.8	2150
APR 21...	5.9	6.9	200	210	850	.3	<1.1	1800
JUN 02...	2.1	7.3	160	46	140	.3	15	469
JUL 12...	4.3	5.8	260	160	730	.3	8.3	1610
AUG 23...	7.4	6.4	190	220	1500	.4	12	2800

## 08083100 CLEAR FORK BRAZOS RIVER NEAR ROBY, TX

LOCATION.--Lat 32°47'15", long 100°23'18", Fisher County, Hydrologic Unit 12060102, on right bank at downstream side of pile bent of bridge on State Highway 70, 3.0 mi (4.8 km) north of Roby, 3.2 mi (5.1 km) upstream from Cottonwood Creek, and 255.7 mi (411.4 km) upstream from mouth.

DRAINAGE AREA.--228 mi<sup>2</sup> (591 km<sup>2</sup>).

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,885.09 ft (574.575 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some small diversions above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years (water years 1963-82), 10.6 ft<sup>3</sup>/s (0.300 m<sup>3</sup>/s), 0.63 in/yr (16 mm/yr), 7,680 acre-ft/yr (9.47 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,050 ft<sup>3</sup>/s (200 m<sup>3</sup>/s) Oct. 18, 1965, gage height, 21.48 ft (6.547 m); maximum gage height, 21.52 ft (6.559 m) Sept. 19, 1969; no flow at times in 1963-67.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since the 1890's, about 22 ft (6.7 m) in May and June 1935, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft<sup>3</sup>/s (8.50 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
May 17	1800	1,440 40.8	14.25 4.343	May 28	1200	793 22.5	11.97 3.648
May 22	1530	1,660 47.0	14.80 4.511	June 12	1630	335 9.49	9.29 2.832
May 24	0630	*2,760 78.2	17.16 5.230	June 25	2300	859 24.3	12.25 3.734
May 25	1800	2,040 57.8	15.67 4.776				

Minimum discharge, 0.58 ft<sup>3</sup>/s (0.061 m<sup>3</sup>/s) May 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	3.1	3.6	5.3	5.7	3.7	2.1	1.3	29	20	7.1	4.0
2	2.8	3.2	3.5	5.4	5.5	3.7	2.3	1.2	28	19	21	4.0
3	2.8	3.1	3.4	5.5	5.1	3.7	2.1	1.2	26	18	12	4.0
4	2.8	3.2	3.4	5.4	5.0	3.6	2.0	1.2	25	17	7.6	3.9
5	2.8	3.1	3.5	5.4	4.9	3.6	1.9	2.5	24	15	6.5	3.9
6	2.9	3.1	3.6	5.6	4.9	3.6	1.9	8.3	23	14	6.0	3.9
7	4.0	3.0	3.7	5.5	4.9	3.6	2.0	4.7	22	14	5.9	3.9
8	3.6	3.1	3.8	5.6	5.0	3.5	1.9	2.2	21	17	6.2	3.9
9	3.2	3.0	3.7	5.7	5.0	3.6	1.9	1.2	21	14	6.5	3.9
10	3.1	3.0	3.8	5.5	4.9	3.6	1.9	1.0	20	13	6.8	3.8
11	3.2	2.9	3.9	5.6	4.8	3.7	1.9	.96	20	13	6.6	3.8
12	3.6	3.0	4.0	5.8	4.9	3.5	1.8	.95	148	12	6.3	3.8
13	5.1	3.0	4.1	5.8	4.7	3.2	1.8	1.7	46	12	6.1	3.8
14	4.8	3.0	4.2	5.9	4.7	3.9	1.7	.92	23	11	5.9	3.7
15	4.0	2.9	4.1	6.0	4.8	5.4	1.6	.69	20	11	5.7	3.7
16	3.8	2.9	4.1	5.8	4.6	4.4	1.6	.63	18	10	5.6	3.7
17	3.7	2.9	4.1	5.8	4.6	3.3	1.4	867	17	10	5.4	3.6
18	3.6	2.9	4.1	5.7	4.4	3.0	1.4	463	17	9.6	4.9	3.5
19	3.5	2.9	4.2	5.8	4.3	2.8	1.5	85	17	7.7	5.1	3.7
20	3.5	3.0	4.4	6.1	4.2	2.5	1.3	18	24	9.4	5.0	3.8
21	3.5	3.0	4.5	6.2	4.0	2.3	1.4	16	20	9.2	4.9	3.7
22	3.8	3.1	4.6	6.1	3.9	2.3	1.5	839	17	8.7	4.8	3.5
23	3.7	3.1	4.7	5.8	3.9	2.3	1.5	595	21	8.4	4.7	3.5
24	3.6	3.2	4.7	5.7	3.7	2.3	1.5	1940	54	8.1	3.5	3.5
25	3.5	3.2	4.8	5.6	3.8	2.2	1.5	1290	214	7.8	3.9	3.5
26	3.4	3.3	4.9	5.6	3.7	2.2	1.4	894	291	7.5	4.0	3.4
27	3.4	3.2	4.9	5.7	3.7	2.2	1.2	255	100	7.4	4.2	3.4
28	3.3	3.2	5.0	5.7	3.6	2.2	1.2	453	55	7.2	4.7	3.3
29	3.3	3.3	5.0	6.0	---	2.2	1.1	127	29	7.3	4.4	3.2
30	3.3	---	5.2	6.4	---	2.1	1.2	46	23	7.3	4.3	3.2
31	3.2	---	5.3	6.1	---	2.0	---	33	---	6.8	4.2	---
TOTAL	107.6	92.7	130.8	178.1	127.2	96.2	49.5	7951.65	1413	352.4	189.8	110.5
MEAN	3.47	3.09	4.22	5.75	4.54	3.10	1.65	257	47.1	11.4	6.12	3.68
MAX	5.1	3.8	5.3	6.4	5.7	5.4	2.3	1940	291	20	21	4.0
MIN	2.8	2.9	3.4	5.3	3.6	2.0	1.1	.63	17	6.8	3.5	3.2
CFSM	.02	.01	.02	.03	.02	.01	.007	1.13	.21	.05	.03	.02
IN.	.02	.02	.02	.03	.02	.02	.01	1.30	.23	.06	.03	.02
AC-FT	213	184	259	353	252	191	98	15770	2800	699	376	219

CAL YR 1981	TOTAL	6346.10	MEAN	17.4	MAX	1570	MIN	1.2	CFSM	.08	IN	1.04	AC-FT	12590
WTR YR 1982	TOTAL	10799.45	MEAN	29.6	MAX	1940	MIN	.63	CFSM	.13	IN	1.76	AC-FT	21420

## BRAZOS RIVER BASIN

08083240 CLEAR FORK BRAZOS RIVER AT HAWLEY, TX

LOCATION.--Lat 32°35'53", long 99°48'53", Jones County, Hydrologic Unit 12060102, on right bank 90 ft (27 m) upstream from upstream bridge on U.S. Highways 83 and 277, 0.8 mi (1.3 km) south of Hawley, 7.4 mi (11.9 km) upstream from Mulberry Creek, and 188.6 mi (303.5 km) upstream from mouth.

DRAINAGE AREA.--1,4165mi<sup>2</sup> (3,667 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,612.45 ft (491.475 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 21, 1973, at datum 0.80 ft (0.244 m) higher.

REMARKS.--Water-discharge records fair. Lake Sweetwater, capacity 11,900 acreft (14.7 is located on a tributary upstream from gage.

AVERAGE DISCHARGE.--15 years, 57.0 ft<sup>3</sup>/s (1.614 m<sup>3</sup>/s), 41,300 acre-ft/yr (50.9 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,540 ft<sup>3</sup>/s (242 m<sup>3</sup>/s) Sept. 30, 1980, gage height, 21.07 ft (6.422 m), present datum; no flow July 30, 31, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1915 occurred in 1932; second highest stage in 1957, 25.0 ft (7.62 m), present datum, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
May 13	2000	1,160	32.9	12.61	3.844	June 27	2300	1,180	33.4	12.51	3.813
May 20	1630	1,270	36.0	12.80	3.901	July 8	0830	1,010	28.6	12.09	3.685
May 28	0100	*4,690	133	17.77	5.416						

Minimum daily discharge, 18 ft<sup>3</sup>/s (0.51 m<sup>3</sup>/s) Sept. 29, 30.

REVISIONS.--Revised figures of daily discharge, in cubic feet per second, for the water year 1981 are given below. They supersede those published in the report for 1981.

Jan. 5, 1981....40	Jan. 16, 1981...42	Jan. 27.....39	Feb. 7.....36
6.....40	17.....40	28.....40	8.....36
7.....39	18.....40	29.....38	9.....35
8.....42	19.....41	30.....37	10.....35
9.....47	20.....43	31.....38	11.....34
10.....48	21.....43	Feb. 1.....38	12.....34
11.....54	22.....43	2.....37	13.....33
12.....49	23.....42	3.....36	14.....33
13.....47	24.....43	4.....38	15.....33
14.....44	25.....46	5.....37	16.....32
15.....42	26.....40	6.....37	17.....32

Month	TOTAL	MEAN	MAXIMUM	MINIMUM	ACRE-FEET
January 1981.....	1,314	42.4	54	37	2,610
February.....	910	32.5	38	27	1,800

## BRAZOS RIVER BASIN

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08083240 CLEAR FORK BRAZOS RIVER AT HAWLEY, TX--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	20	22	21	21	20	20	31	224	172	48	25
2	28	20	22	21	21	20	21	33	189	127	54	35
3	28	20	22	21	21	20	21	31	163	106	78	29
4	25	20	22	20	21	20	22	31	145	95	55	24
5	22	20	22	20	21	20	22	156	131	91	56	23
6	22	20	22	20	20	20	22	521	120	94	41	22
7	29	20	22	20	20	20	22	253	113	140	38	22
8	39	20	21	20	20	19	23	76	107	565	48	22
9	27	20	21	20	20	19	23	35	101	107	114	22
10	22	21	21	19	20	19	23	32	96	105	71	21
11	21	21	21	19	20	19	23	29	93	81	54	21
12	21	21	21	19	20	19	24	30	98	194	41	20
13	183	21	21	20	20	19	24	627	405	316	36	20
14	719	21	21	20	20	20	24	773	464	169	34	20
15	120	21	21	20	20	20	24	92	176	99	33	20
16	45	21	21	21	20	19	24	42	119	79	32	20
17	54	21	21	21	20	19	24	258	98	69	31	20
18	36	21	21	21	20	19	24	500	90	64	29	20
19	25	20	21	20	20	20	25	773	316	61	29	24
20	23	20	21	20	20	19	25	1080	231	60	29	21
21	22	20	21	20	20	19	25	142	274	56	29	20
22	24	20	21	20	20	19	25	178	575	53	28	20
23	36	20	21	20	20	19	25	930	224	53	29	20
24	40	20	21	20	20	19	26	1110	250	53	28	20
25	27	20	21	20	20	19	27	1570	414	53	27	20
26	23	20	21	20	20	19	27	3080	394	51	27	20
27	23	20	20	20	20	19	27	4210	819	50	25	20
28	22	20	20	20	20	19	28	4010	871	50	54	19
29	21	20	20	20	---	19	29	2100	405	48	45	18
30	20	21	20	20	---	19	29	1210	264	47	31	18
31	20	---	20	21	---	20	---	398	---	47	27	---
TOTAL	1796	610	653	624	565	600	728	24341	7969	3355	1301	646
MEAN	57.9	20.3	21.1	20.1	20.2	19.4	24.3	785	266	108	42.0	21.5
MAX	719	21	22	21	21	20	29	4210	871	565	114	35
MIN	20	20	20	19	20	19	20	29	90	47	25	18
CFSM	.04	.01	.02	.01	.01	.01	.02	.55	.19	.08	.03	.02
IN.	.05	.02	.02	.02	.01	.02	.02	.64	.21	.09	.03	.02
AC-FT	3560	1210	1300	1240	1120	1190	1440	48280	15810	6650	2580	1280
CAL YR 1981	TOTAL	35326	MEAN	96.8	MAX	3370	MIN 20	CFSM .07	IN .93	AC-FT	70070	
WTR YR 1982	TOTAL	43188	MEAN	118	MAX	4210	MIN 18	CFSM .08	IN 1.13	AC-FT	85660	

## BRAZOS RIVER BASIN

08083240 CLEAR FORK BRAZOS RIVER AT HAWLEY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1979, October 1981 to September 1982.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to September 1979, October 1981 to September 1982.

WATER TEMPERATURES: October 1967 to September 1979, October 1981 to September 1982.

INSTRUMENTATION.--Beginning Apr. 21, 1982, specific conductance and temperature are recorded continuously at this station.

REMARKS.--Specific conductance and water temperature from October 1981 through Apr. 20, 1982, are measured once daily. 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 (1967-70, 1972-79, 1981-82): Maximum daily, 11,500 micromhos Oct. 5, 1969; minimum daily, 163 micromhos Sept. 11, 1969.

WATER TEMPERATURES (1967-69, 1972-79, 1981-82): Maximum daily, 35.0°C Sept. 8, 1982; minimum daily, 0.0°C Dec. 16, 1967, Jan. 3, 4, 1974.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 5,790 micromhos Aug. 3; minimum daily, 468 micromhos May 27.

WATER TEMPERATURES: Maximum daily, 35.0°C Sept. 8; minimum daily, 2.0°C Jan. 11.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 14...	1200	765	597	22.0	210	120	65	12	43
NOV 17...	0945	21	5390	13.0	1900	1600	460	180	620
MAR 30...	1105	19	5660	13.5	1900	1700	450	190	670
MAY 27...	1225	4150	498	23.0	180	96	58	9.7	24
JUN 23...	1000	218	1450	26.5	490	360	130	39	130
AUG 05...	1015	61	3950	26.0	1400	1200	340	130	430
SEP 08...	0840	21	5350	23.5	1900	1700	450	180	650

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 14...	1.4	7.3	91	140	56	.2	8.3	387
NOV 17...	6.2	7.1	260	1700	900	.5	12	4040
MAR 30...	6.7	6.1	200	2000	860	.4	9.8	4310
MAY 27...	.8	7.3	89	110	38	.2	10	311
JUN 23...	2.8	7.6	130	400	160	.5	13	958
AUG 05...	5.0	7.0	180	1300	550	.5	11	2880
SEP 08...	6.6	6.3	210	1900	750	.6	17	4080



## BRAZOS RIVER BASIN

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08083240 CLEAR FORK BRAZOS RIVER AT HAWLEY, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	1796	2030	1430	6930	280	1380	600	2930	710
NOV.	1981	610	5160	3700	6100	810	1330	1600	2580	1700
DEC.	1981	653	5530	3980	7020	880	1560	1700	2970	1800
JAN.	1982	624	5510	3970	6680	880	1480	1700	2830	1800
FEB.	1982	565	5440	3910	5970	860	1320	1700	2530	1800
MAR.	1982	600	5640	4070	6590	910	1470	1700	2790	1800
APR.	1982	728	5560	4010	7870	890	1750	1700	3340	1800
MAY	1982	24341	803	556	36500	100	6640	230	15400	300
JUNE	1982	7969	1590	1100	23800	210	4440	470	10000	580
JULY	1982	3355	3800	2700	24500	560	5110	1100	10400	1300
AUG.	1982	1301	4470	3190	11200	680	2390	1400	4750	1500
SEPT	1982	646	5170	3710	6470	810	1420	1600	2740	1700
TOTAL		43188	**	**	150000	**	30300	**	63200	**
WTD. AVG.		118	1820	1280	**	260	**	540	**	630

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1			5360			4370			5690			5490
2			5380			4430			5670			5530
3			5270			4490			5560			5570
4			5210			4550			5560			5550
5			5100			4620			5570			5590
6			4810			4680			5560			5550
7			4750			4740			5540			5490
8			5190			4800			5550			5560
9			2680			4860			5530			5530
10			2730			4930			5520			5520
11			2820			4990			5530			5570
12			3620			5050			5530			5540
13			2000			5110			5480			5550
14			874			5170			5470			5520
15			1020			5240			5480			5590
16			1930			5310			5490			5580
17			1510			5390			5490			5490
18			1810			5410			5480			5510
19			1640			5430			5490			5480
20			1900			5450			5480			5510
21			2390			5470			5480			5500
22			2300			5490			5490			5490
23			2910			5510			5510			5500
24			1900			5530			5520			5520
25			2000			5550			5530			5520
26			2850			5570			5540			5510
27			3020			5590			5490			5540
28			3360			5610			5500			5400
29			3680			5630			5490			5370
30			4180			5650			5510			5350
31			4310						5520			5270
MONTH			3180			5150			5520			5510

## BRAZOS RIVER BASIN

08083240 CLEAR FORK BRAZOS RIVER AT HAWLEY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1			5290			5480	---	---	5590	5540	5470	5510
2			5460			5650	---	---	5580	5630	5530	5570
3			5450			5690	---	---	5570	5570	5310	5480
4			5520			5670	---	---	5680	5440	5220	5340
5			5510			5680	---	---	5510	5450	670	3710
6			5490			5670	---	---	5680	3120	810	1360
7			5420			5640	---	---	5560	1600	900	1440
8			5450			5680	---	---	5500	3180	1320	2120
9			5370			5690	---	---	5570	3970	3280	3660
10			5480			5680	---	---	5540	3950	3460	3750
11			5450			5610	---	---	5530	3450	3340	3380
12			5470			5550	---	---	5400	3470	3410	3440
13			5460			5580	---	---	5460	---	---	500
14			5480			5580	---	---	5500	---	---	750
15			5460			5880	---	---	5480	---	---	1000
16			5440			5630	---	---	5390	---	---	1130
17			5470			5720	---	---	5580	---	---	900
18			5450			5680	---	---	5630	---	---	715
19			5490			5710	---	---	5610	---	---	708
20			5470			5680	---	---	5610	---	---	800
21			5390			5700	5690	5660	5680	---	---	600
22			5400			5680	5690	5620	5640	---	---	500
23			5370			5710	5630	5570	5600	---	---	655
24			5400			5680	5600	5560	5570	---	---	651
25			5360			5570	5580	5480	5550	---	---	672
26			5400			5580	5570	5530	5550	---	---	479
27			5410			5520	5590	5550	5560	---	---	468
28			5420			5600	5570	5500	5540	---	---	914
29						5560	5560	5520	5540	---	---	851
30						5590	5550	5520	5540	---	---	1200
31						5570	---	---	---	---	---	1620
MONTH			5440			5640	5690	5480	5560	5630	670	1930

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1			2500	---	---	2500	5720	5040	5320	5050	4150	4660
2			3190	---	---	3740	5350	4250	5020	5380	2940	4780
3			1700	---	---	3680	5790	4290	5240	4800	2450	3590
4			1730	---	---	3760	5640	3950	4620	5170	4400	4900
5			1580	---	---	3690	3890	3520	3650	5230	5090	5190
6			1600	---	---	3800	---	---	3800	5080	4990	5040
7			1700	---	---	4230	---	---	4000	5330	5080	5230
8			1660	---	---	4250	---	---	5000	5300	5250	5280
9			1710	---	---	4260	---	---	2800	5340	5250	5290
10			1750	---	---	4180	---	---	4000	5390	5280	5330
11			1740	---	---	4200	---	---	4440	5440	5330	5380
12			1760	---	---	3600	---	---	4500	5410	5350	5380
13			1800	---	---	2000	---	---	4400	5390	5350	5360
14			1980	---	---	2200	---	---	4320	5440	5350	5390
15			1800	---	---	2410	---	---	4500	5430	5370	5390
16			1600	---	---	3310	---	---	4670	5450	5380	5410
17			1400	---	---	3700	---	---	4750	5480	5390	5430
18			1260	---	---	4000	4920	4860	4890	5490	5420	5450
19			1000	---	---	4200	5050	4900	4960	5450	4210	5070
20			829	---	---	4700	5110	5000	5040	5280	4230	5150
21			991	5040	4970	5010	5150	5050	5090	5230	4390	5060
22			831	5160	4990	5070	5200	5090	5140	5370	5220	5300
23			1390	5240	5110	5160	5220	5130	5170	5410	5330	5370
24			1400	5300	5190	5230	5250	5150	5190	5400	5340	5370
25			1410	5360	5230	5290	5250	5200	5220	5420	5330	5370
26			1560	5370	5250	5330	5280	5200	5240	5430	5360	5400
27			1600	5350	5140	5300	5320	5220	5270	5460	5390	5420
28			1650	5370	4840	5240	5290	2490	4040	5460	5380	5420
29			1800	5350	5120	5250	4850	3130	4330	5450	5370	5420
30			1940	5360	5250	5310	4920	4090	4500	5370	5300	5340
31				5380	5270	5330	4550	3490	4050	---	---	---
MONTH			1630	5380	4840	4190	5790	2490	4620	5490	2450	5210

## BRAZOS RIVER BASIN

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08083240 CLEAR FORK BRAZOS RIVER AT HAWLEY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

## BRAZOS RIVER BASIN

08083240 CLEAR FORK BRAZOS RIVER AT HAWLEY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

## 08083245 MULBERRY CREEK NEAR HAWLEY, TX

LOCATION.--Lat 32°34'04", long 99°47'32", Jones County, Hydrologic Unit 12060102, on right bank at downstream side of downstream bridge on U.S. Highways 83 and 277, 3.3 mi (5.3 km) south of Hawley, and 5.8 mi (9.3 km) upstream from mouth.

DRAINAGE AREA.--205 mi<sup>2</sup> (531 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-74-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 1,615.98 ft (492.551 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--14 years (water years 1969-82), 9.48 ft<sup>3</sup>/s (0.268 m<sup>3</sup>/s), 0.63 in/yr (16 mm/yr), 6,870 acre-ft/yr (8.47 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,750 ft<sup>3</sup>/s (77.9 m<sup>3</sup>/s) May 28, 1980, gage height, 16.00 ft (4.877 m); no flow at times most years.

Maximum stage since 1932, that of May 28, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1957 reached a stage of about 16.0 ft (4.88 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft<sup>3</sup>/s (8.50 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)				
Oct. 14	0900	440	12.5	8.44	2.573	May 26	0900	376	10.6	7.61	2.320
May 13	0730	*1,250	35.4	12.57	3.831	July 13	0330	390	11.0	7.79	2.374
May 25	1330	410	11.6	8.05	2.454						

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	.00	.00	.18	.11	1.1	.19	.00	1.4	2.8	.24	.00		
2	.00	.00	.00	.18	.15	.74	.24	.00	1.1	2.2	.24	.00		
3	.00	.00	.00	.18	.16	.61	.21	.00	.98	1.8	.18	.00		
4	.00	.00	.00	.18	.11	.43	.21	.00	.93	1.6	.13	.00		
5	.00	.00	.00	.18	.05	.37	.21	3.3	.81	1.5	.11	.00		
6	.00	.00	.00	.15	.07	.34	.21	6.1	.71	1.3	.24	.00		
7	.00	.00	.00	.13	.09	.32	.21	12	.64	1.1	.24	.00		
8	.07	.00	.00	.13	.11	.32	.21	2.6	.55	1.1	.36	.00		
9	.07	.00	.00	.07	.11	.32	.18	1.0	.45	1.0	1.2	.00		
10	.04	.00	.00	.06	.13	.36	.11	.58	.46	.87	6.1	.00		
11	.03	.00	.00	.05	.15	.37	.05	.39	.62	.68	1.6	.00		
12	4.0	.00	.00	.05	.18	.37	.04	11	45	144	.71	.00		
13	151	.00	.00	.15	.21	.35	.02	679	66	149	.24	.00		
14	263	.00	.00	.28	.24	1.0	.02	65	6.6	11	.09	.00		
15	18	.00	.00	.41	.28	.46	.01	7.5	2.8	4.4	.09	.00		
16	3.8	.00	.00	.46	.31	.45	.00	2.2	1.7	2.8	.05	.00		
17	1.5	.00	.00	.41	.32	.37	.00	1.2	1.2	2.3	.00	.00		
18	.42	.00	.10	.52	.32	.35	.00	.90	.94	1.9	.00	.00		
19	.09	.00	.21	.52	.32	.28	.00	.73	1.0	1.5	.00	.00		
20	.06	.00	.21	.46	.32	.28	.00	.56	1.3	1.3	.00	.00		
21	.03	.00	.21	.46	.31	.26	.00	.50	3.1	1.1	.00	.00		
22	6.6	.00	.18	.41	.28	.21	.00	.58	52	.93	.00	.00		
23	2.3	.00	.15	.24	.25	.21	.00	22	9.3	.46	.00	.00		
24	2.1	.00	.15	.21	.24	.21	.00	13	99	.62	.00	.00		
25	.76	.00	.15	.18	.47	.20	.00	217	20	.46	.00	.00		
26	.31	.00	.15	.13	.51	.18	.00	278	15	.41	.00	.00		
27	.17	.00	.15	.13	.81	.18	.00	150	18	4.9	.36	.00		
28	.11	.00	.15	.13	1.4	.20	.00	27	43	.58	.00	.00		
29	.06	.00	.15	.17	---	.19	.00	7.4	10	.37	.00	.00		
30	.04	.00	.15	.04	---	.21	.00	3.3	4.1	.31	.00	.00		
31	.02	---	.18	.03	---	.21	---	1.9	---	.24	.00	---		
TOTAL	454.58	.00	2.29	6.88	8.01	11.45	2.12	1514.74	408.69	344.53	12.18	.00		
MEAN	14.7	.000	.074	.22	.29	.37	.071	48.9	13.6	11.1	.39	.000		
MAX	263	.00	.21	.52	1.4	1.1	.24	679	99	149	6.1	.00		
MIN	.00	.00	.00	.03	.05	.18	.00	.00	.45	.24	.00	.00		
CFSM	.07	.000	.000	.001	.001	.002	.000	.24	.07	.05	.002	.000		
IN.	.08	.00	.00	.00	.00	.00	.00	.27	.07	.06	.00	.00		
AC-FT	902	.00	4.5	14	16	23	4.2	3000	811	683	24	.00		
CAL YR 1981	TOTAL	4320.00	MEAN	11.8	MAX	628	MIN	.00	CFSM	.06	IN	.78	AC-FT	8570
WTR YR 1982	TOTAL	2765.47	MEAN	7.58	MAX	679	MIN	.00	CFSM	.04	IN	.50	AC-FT	5490



## BRAZOS RIVER BASIN

08083245 MULBERRY CREEK NEAR HAWLEY, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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 14...	0950	440	362	7.4	22.0	150	47	39	12
JAN 05...	0950	.18	7020	--	5.0	2500	2200	390	370
FEB 17...	0905	.31	5980	--	10.0	2100	1800	300	330
MAR 30...	0940	.22	6940	--	14.0	2300	2100	310	380
MAY 11...	1550	.38	4980	--	25.5	1700	1500	260	250
27...	1325	109	685	--	23.0	220	90	50	23
JUN 22...	1700	32	814	--	28.0	260	130	48	33
AUG 05...	0850	.12	3550	--	25.0	1100	900	150	180

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)
OCT 14...	20	.7	6.1	100	43	45	.2	9.3	235
JAN 05...	800	7.0	10	290	2100	1400	.3	6.4	5250
FEB 17...	710	6.7	5.8	270	1800	1200	.5	.6	4510
MAR 30...	810	7.3	7.0	190	2100	1400	.4	.4	5120
MAY 11...	550	5.8	7.6	160	1500	900	.4	2.4	3570
27...	53	1.7	6.1	130	79	100	.2	13	402
JUN 22...	64	2.0	4.8	130	160	92	.4	8.7	489
AUG 05...	400	5.2	8.6	220	960	580	.6	3.1	2410

## BRAZOS RIVER BASIN

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08083430 ELM CREEK AT ABILENE, TX

LOCATION.--Lat 32°30'29", long 99°44'27", Taylor County, Hydrologic Unit 12060102, on left bank at downstream side of bridge on State Highway Loop 243 in the city of Abilene and about 17 mi (27 km) upstream from mouth.

DRAINAGE AREA.--422 mi<sup>2</sup> (1,093 km<sup>2</sup>).

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

GAGE.--water-stage recorder and crest-stage gages. Datum of gage is 1,647.16 ft (502.054 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since 1921, flow largely regulated by Lake Abilene, capacity 7,900 acre-ft (9.74 hm<sup>3</sup>), about 30 mi (48 km) upstream. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,020 ft<sup>3</sup>/s (142 m<sup>3</sup>/s) Oct. 13, 1981, gage height, 15.37 ft (4.685 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,020 ft<sup>3</sup>/s (142 m<sup>3</sup>/s) Oct. 13 at 1630 hours, gage height, 15.37 ft (4.685 m); minimum daily, 0.01 ft<sup>3</sup>/s (0.0003 m<sup>3</sup>/s) Oct. 1-5, Sept. 26, 27, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	21	13	1.9	8.3	3.4	1.5	26	8.1	66	2.7	.13
2	.01	20	5.3	2.0	3.8	3.0	1.8	55	5.5	51	4.3	.05
3	.01	19	4.4	2.0	3.4	2.7	1.4	2.4	2.9	44	3.8	.05
4	.01	18	3.5	2.0	2.5	2.4	1.3	1.1	2.0	36	2.5	8.8
5	.01	17	2.9	2.0	2.0	2.4	1.3	15	2.6	31	1.9	.94
6	9.0	17	2.9	2.0	2.1	2.3	1.2	81	2.4	26	1.6	.22
7	216	16	2.7	1.9	2.3	2.3	1.4	7.4	2.0	23	1.3	.04
8	4.1	14	2.7	1.7	2.6	2.2	1.4	1.9	1.9	20	140	.05
9	.65	14	2.6	1.8	2.2	2.1	1.3	1.4	2.2	17	49	.05
10	.31	13	2.5	1.7	2.2	2.0	1.2	1.3	2.7	16	6.8	.05
11	.63	13	2.5	1.5	2.2	2.0	1.2	1.1	3.4	14	2.0	.07
12	658	12	2.5	2.3	2.4	1.8	1.3	34	124	112	1.2	.03
13	3980	11	2.7	1.8	2.6	1.7	1.1	482	132	55	1.1	.04
14	2980	10	7.9	3.6	2.6	12	1.2	90	113	60	.92	.06
15	627	10	6.2	9.0	2.4	6.8	1.3	19	108	52	.81	.07
16	228	9.2	3.6	3.3	2.0	2.4	1.2	8.9	82	41	.87	.07
17	162	8.8	3.1	2.6	1.9	2.4	1.2	9.2	73	33	.93	.09
18	106	8.4	2.9	3.2	1.8	2.2	1.2	4.0	75	27	.64	.07
19	70	8.0	2.9	3.0	1.6	2.2	1.2	15	118	22	.36	50
20	59	7.5	2.9	3.0	1.6	2.0	1.2	4.2	197	18	.25	16
21	53	11	2.8	2.9	1.6	1.9	1.1	1.8	199	15	.21	.69
22	178	8.2	2.7	3.0	1.6	1.8	1.4	8.0	120	12	.17	.18
23	139	7.3	2.4	2.6	1.5	1.9	2.4	226	179	12	.15	.22
24	57	6.5	2.5	2.5	1.4	1.9	1.4	110	146	9.9	.15	.12
25	35	6.3	2.7	2.5	21	1.9	1.2	498	187	8.3	.15	.03
26	28	5.3	2.4	2.1	23	1.9	1.1	409	130	6.9	.15	.01
27	25	5.1	2.0	2.5	6.5	2.0	1.0	159	223	5.8	.14	.01
28	24	4.8	2.3	2.4	4.3	2.0	1.1	38	171	5.0	.13	.02
29	24	4.4	2.3	2.6	---	2.0	1.1	23	105	4.3	.16	.02
30	23	19	2.3	22	---	2.0	1.2	16	87	3.6	.17	.01
31	22	---	2.2	25	---	1.7	---	12	---	3.0	.16	---
TOTAL	9708.74	344.8	106.3	122.4	113.4	81.3	38.9	2360.7	2604.7	849.8	224.72	78.19
MEAN	313	11.5	3.43	3.95	4.05	2.62	1.30	76.2	86.8	27.4	7.25	2.61
MAX	3980	21	13	25	23	12	2.4	498	223	112	140	50
MIN	.01	4.4	2.0	1.5	1.4	1.7	1.0	1.1	1.9	3.0	.13	.01
AC-FT	19260	684	211	243	225	161	77	4680	5170	1690	446	155

CAL YR 1981 TOTAL 14951.26 MEAN 41.0 MAX 3980 MIN .01 AC-FT 29660  
WTR YR 1982 TOTAL 16633.95 MEAN 45.6 MAX 3980 MIN .01 AC-FT 32990

## BRAZOS RIVER BASIN

08083470 CEDAR CREEK AT ABILENE, TX

LOCATION.--Lat 32°26'56", long 99°43'13", Taylor County, Hydrologic Unit 12060102, on right bank at upstream side of North Second Street Bridge and State Highway 355 at Abilene, 0.2 mi (0.3 km) downstream from Lytle Creek, 4.1 mi (6.6 km) downstream from Buttonwillow Creek, 5.9 mi (9.5 km) upstream from Rainy Creek, 7.2 mi (11.6 km) downstream from Kirby Lake, and 9.8 mi (15.8 km) upstream from mouth.

DRAINAGE AREA.--119 mi<sup>2</sup> (308 km<sup>2</sup>).

PERIOD OF RECORD.--October 1970 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,677.67 ft (511.354 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is partly regulated by Lytle Lake, capacity 1,200 acre-ft (1.48 hm<sup>3</sup>), and by Lake Kirby, capacity 7,620 acre-ft (9.40 hm<sup>3</sup>). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--12 years, 7.99 ft<sup>3</sup>/s (0.226 m<sup>3</sup>/s), 5,790 acre-ft/yr (7.14 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,500 ft<sup>3</sup>/s (524 m<sup>3</sup>/s) Oct. 13, 1981, gage height, 16.80 ft (5.121 m) from floodmark, from rating curve extended above 5,700 ft<sup>3</sup>/s (161 m<sup>3</sup>/s) on basis of contracted-opening and flow-over-road measurement, of peak flow; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,500 ft<sup>3</sup>/s (524 m<sup>3</sup>/s) Oct. 13 at 0830 hours, gage height, 16.80 ft (5.121 m), from floodmark, from rating curve extended above 5,700 ft<sup>3</sup>/s (161 m<sup>3</sup>/s) on basis of contracted-opening and flow-over-road measurement of peak flow; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	7.3	.40	.10	.15	.21	1.0	3.4	10	8.2	.03	.00
2	.00	6.4	.29	.10	.25	.15	1.0	.86	13	5.1	.03	3.3
3	.00	5.5	.18	.10	.21	.13	1.0	.16	8.2	3.1	.01	.12
4	.00	4.8	.16	.10	.18	.09	.80	.13	7.0	2.1	.35	.02
5	.00	4.3	.15	.10	.13	.07	.80	11	7.8	1.8	.02	.00
6	17	4.0	.13	.11	.09	.07	.80	8.0	14	2.1	.00	.00
7	60	4.3	.13	.07	.09	.07	.50	2.1	8.2	1.3	.00	.00
8	4.2	3.7	.13	.07	.09	.06	.50	.40	6.3	.88	2.3	.00
9	2.0	2.4	.14	.06	.09	.06	.50	.23	5.1	.57	.34	.00
10	.09	1.9	.15	.06	.09	.06	.10	.11	4.8	.39	.02	.00
11	.18	1.7	.15	.05	.09	.07	.00	.11	8.2	.34	.00	.00
12	267	1.5	.15	.11	.09	.07	.00	15	27	30	.00	.00
13	7820	1.5	2.0	.07	.09	.06	.50	73	6.7	17	.00	.00
14	1120	1.4	3.7	2.4	.11	12	.02	21	12	11	.00	.00
15	302	1.4	.20	.65	.11	.18	.02	13	13	6.3	.00	.00
16	156	1.3	.12	.04	.11	.11	.03	7.4	3.4	3.1	.00	.00
17	94	1.2	.09	.02	.13	.11	.03	11	2.1	1.4	.00	.00
18	53	1.1	.09	.05	.13	.09	.04	7.0	1.3	.88	.00	.00
19	41	.88	.09	.09	.11	.11	.05	5.7	23	.50	.00	8.1
20	31	.72	.08	.18	.15	.11	.05	5.1	11	.29	.00	1.6
21	29	.57	.07	.18	.15	.09	.03	3.5	48	.29	.00	.02
22	75	.44	.07	.09	.15	.09	.78	14	13	.25	.00	.00
23	37	.39	.07	.07	.15	.09	.13	27	35	.25	.00	.00
24	31	.34	.06	.06	.13	.00	.09	14	19	.21	.00	.00
25	31	.42	.05	.07	23	.00	.07	239	31	.15	.00	.00
26	21	.50	.05	.34	5.1	.00	.05	141	15	.13	.00	.00
27	17	.62	.06	.29	1.1	.00	.04	66	64	.13	.00	.00
28	16	.35	.07	.05	.44	.00	.05	39	43	.11	.00	.00
29	15	.51	.10	.03	---	.00	.06	28	20	.07	.00	.00
30	11	11	.09	13	---	.50	.06	25	11	.06	.00	.00
31	8.4	---	.09	3.9	---	1.4	---	16	---	.05	.00	---
TOTAL	10258.87	72.44	9.31	22.61	32.71	16.05	9.10	797.20	491.1	98.05	3.10	13.16
MEAN	331	2.41	.30	.73	1.17	.52	.30	25.7	16.4	3.16	.10	.44
MAX	7820	11	3.7	13	23	12	1.0	239	64	30	2.3	8.1
MIN	.00	.34	.05	.02	.09	.00	.00	.11	1.3	.05	.00	.00
AC-FT	20350	144	18	45	65	32	18	1580	974	194	6.1	26
CAL YR 1981	TOTAL	11394.01	MEAN	31.2	MAX	7820	MIN	.00	AC-FT	22600		
WTR YR 1982	TOTAL	11823.70	MEAN	32.4	MAX	7820	MIN	.00	AC-FT	23450		

## 08083500 FORT PHANTOM HILL RESERVOIR NEAR NUGENT, TX

LOCATION.--Lat 32°36'58", long 99°40'05", Jones County, Hydrologic Unit 12060102, at outlet gate tower near right bank, 120 ft (37 m) upstream from dam on Elm Creek, 4.3 mi (6.9 km) upstream from mouth, and 5.4 mi (8.7 km) south of Nugent.

DRAINAGE AREA.--470 mi<sup>2</sup> (1,217 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1940 to current year. Prior to October 1965, monthend contents only.

REVISED RECORDS.--WSP 1562: 1953-57 (figures of monthend contents). WDR TX-76-2: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 1,580.78 ft (481.822 m) National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rock-faced earthfill dam 3,740 ft (1,140 m) long. The dam was completed and storage began in October 1938. The uncontrolled service spillway is a cut channel through natural ground with a concrete ogee weir located 0.7 mi (1.1 km) from right end of dam. The service outlet works consist of a concrete tower with a 4.0- by 7.0-foot (1.2 by 2.1 m) conduit. The service tower contains five gated openings at various elevations. The dam and reservoir are owned by the city of Abilene and were built to impound water for municipal use. Since July 1974, the West Texas Utility Co. has operated a steam generating powerplant on the reservoir. During the year, the city of Abilene diverted 6,290 acre-ft (7.76 hm<sup>3</sup>) from Clear Fork Brazos River into Fort Phantom Hill Reservoir and an undetermined amount of floodflow was diverted by gravity ditch from Deadman Creek into the reservoir. The capacity table was based on a survey of Oct. 2, 1953. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	69.2	-
Crest of spillway.....	55.1	74,310
Highest gated outlet (invert).....	28.0	10,330
Lowest gated outlet (invert).....	1.6	-

COOPERATION.--Records of gage heights and diversions were furnished by the city of Abilene. The capacity table is furnished by the Soil Conservation Service.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents observed, 89,910 acre-ft (111 hm<sup>3</sup>) May 25, 1957, gage height, 58.7 ft (17.89 m); minimum observed, 19,040 acre-ft (23.5 hm<sup>3</sup>) Apr. 23-25, 1953, gage height, 34.5 ft (10.52 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents observed, 85,830 acre-ft (106 hm<sup>3</sup>) Oct. 14, gage height, 57.8 ft (17.62 m); minimum observed, 46,750 acre-ft (57.6 hm<sup>3</sup>) Oct. 6, gage height, 47.2 ft (14.39 m).

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

47.0	46,160	55.0	73,900
49.0	52,230	58.0	86,710
52.0	62,420		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 0800

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47640	76790	74310	72310	69930	68390	65730	62420	78020	78450	74310	68780
2	47340	76790	74310	72310	69930	68390	65730	62420	78020	78020	74310	68390
3	47340	76790	74310	71910	69930	68390	65730	62420	77610	78020	73900	68390
4	47050	76370	74310	71910	69930	68390	65360	62420	77610	78020	73900	68010
5	47050	76370	74310	71910	69930	68390	65360	62420	77200	77610	73500	68010
6	46750	76370	74310	71910	69540	68010	65360	62420	77200	77200	73110	67630
7	47340	76370	73900	71520	69540	68010	64990	62420	76790	77200	73110	67630
8	47640	76370	73900	71520	69540	68010	64990	62420	76790	77610	73110	67250
9	47640	76370	73900	71520	69540	68010	64990	62420	76370	77200	73110	67250
10	47340	75960	73900	71520	69540	67630	64620	62420	76370	77200	73110	66860
11	47340	75960	73900	71120	69540	67630	64620	62420	76370	76790	72710	66860
12	48530	75960	73900	71120	69540	67630	64620	62420	76370	77610	72710	66480
13	49440	75960	73500	71120	69160	67630	64260	66480	76370	77610	72710	66480
14	85830	75960	73500	70720	69160	67630	64260	69540	76790	77610	72310	66100
15	84060	75960	73500	70720	69160	67630	63890	71520	76790	77610	72310	66100
16	81440	75550	73500	70720	69160	67250	63890	71520	76370	77610	71910	66100
17	80160	75550	73500	70720	69160	67250	63890	71520	75960	77200	71520	65730
18	79300	75550	73110	70320	68780	67250	63520	71120	75550	77200	71520	65360
19	78880	75550	73110	70320	68780	67250	63520	71910	76370	76790	71120	65360
20	78450	75140	73110	70320	68780	66860	63520	73110	76370	76790	70720	65360
21	78020	75140	73110	70320	68780	66860	63150	73900	76370	76370	70720	65360
22	78450	75140	73110	70320	68780	66860	63150	73900	76790	76370	70320	65360
23	78450	75140	72710	70320	68390	66860	63150	73900	76790	75960	70320	64990
24	78020	74720	72710	70320	68390	66860	63150	75140	77200	75960	69930	64990
25	78020	74720	72710	70320	68390	66480	62780	75550	77610	75550	69930	64620
26	77610	74720	72710	70320	68390	66480	62780	78020	77610	75550	69540	64620
27	77610	74720	72710	69930	68390	66480	62420	79300	78020	75550	69160	64620
28	77200	74720	72310	69930	68390	66100	62420	79300	78880	75140	69160	64260
29	77200	74310	72310	69930	---	66100	62420	79300	78880	74720	69160	63890
30	76790	74310	72310	69930	---	66100	62420	78880	78880	74720	69160	63890
31	76790	---	72310	69930	---	66100	---	78450	---	74720	68780	---
MAX	85830	76790	74310	72310	69930	68390	65730	79300	78880	78450	74310	68780
MIN	46750	74310	72310	69930	68390	66100	62420	75550	74720	68780	63890	
(†)	55.7	55.1	54.6	54.0	53.6	53.0	52.0	56.1	56.2	55.2	53.7	52.4
(+)	+29150	-2480	-2000	-2380	-1540	-2290	-3680	+16030	+430	-4160	-5940	-4890
(††)	2040	1790	1750	1860	1720	1960	2360	1810	2320	3230	3550	2550

CAL YR 1981 MAX 85830 MIN 41180 † +28980 †† 22720

WTR YR 1982 MAX 85830 MIN 46750 † +16250 †† 26940

† Gage height, in feet, at end of month.

† Change in contents, in acre-feet.

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

## BRAZOS RIVER BASIN

08083500 FORT PHANTOM HILL RESERVOIR NEAR NUGENT, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
OCT 07...	1430	770	22.0	250	110	64	22	63

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 CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 07...	1.9	9.7	140	130	96	.3	4.1	473



## BRAZOS RIVER BASIN

185

## 08084000 CLEAR FORK BRAZOS RIVER AT NUGENT, TX

LOCATION.--Lat 32°41'24", long 99°40'09", Jones County, Hydrologic Unit 12060102, on right bank 33 ft (10 m) downstream from bridge on Farm Road 600 at Nugent, 2 mi (3 km) downstream from Elm Creek, 4 mi (6 km) upstream from Deadman Creek, and 167.8 mi (270.0 km) upstream from mouth.

DRAINAGE AREA.--2,199 mi<sup>2</sup> (5,695 km<sup>2</sup>).

PERIOD OF RECORD.--February 1924 to current year.

Water-quality records: Chemical analyses: August 1948 to September 1953. Chemical and biochemical analyses: February 1968 to September 1981.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,531.91 ft (466.926 m) National Geodetic Vertical Datum of 1929 (levels by Brazos River Authority). Prior to Dec. 12, 1933, nonrecording gage at site 575 ft (175 m) downstream at same datum.

REMARKS.--Records good. Flow affected by four reservoirs with a capacity of 103,600 acre-ft (128 hm<sup>3</sup>). Numerous diversions above station for municipal supply and oilfield operation materially affect all flow.

AVERAGE DISCHARGE.--14 years (water years 1925-38) prior to completion of Fort Phantom Hill Reservoir, 186 ft<sup>3</sup>/s (5.268 m<sup>3</sup>/s), 134,800 acre-ft/yr (166 hm<sup>3</sup>/yr); 44 years (water years 1939-82) partially regulated, 83.5 ft<sup>3</sup>/s (2.365 m<sup>3</sup>/s), 60,500 acre-ft/yr (74.6 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 47,000 ft<sup>3</sup>/s (1,330 m<sup>3</sup>/s) Sept. 8, 1932, gage height, 27.05 ft (8.245 m), site then in use, from rating curve extended above 25,000 ft<sup>3</sup>/s (708 m<sup>3</sup>/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 30 ft (9.1 m) in 1876; floods in 1900 and May 1923 reached stages of 24 and 24.5 ft (7.3 and 7.47 m), respectively, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,100 ft<sup>3</sup>/s (144 m<sup>3</sup>/s) Oct. 14 at 2230 hours, gage height, 14.17 ft (4.319 m); minimum daily, 12 ft<sup>3</sup>/s (0.34 m<sup>3</sup>/s) Oct. 1-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	45	27	26	28	25	21	17	338	270	48	28
2	12	40	27	27	28	25	21	22	263	206	51	27
3	12	36	27	26	27	24	19	23	216	171	53	40
4	12	34	27	25	26	23	19	18	186	146	65	28
5	12	32	27	25	25	22	18	29	169	133	59	26
6	14	31	27	26	24	22	18	513	154	291	51	25
7	28	30	27	26	23	21	18	422	139	206	43	24
8	47	29	27	24	23	21	18	150	128	589	44	24
9	49	26	28	24	23	22	18	70	118	179	107	24
10	27	25	28	23	23	22	17	43	108	130	78	23
11	20	25	28	23	22	23	17	34	105	115	74	22
12	51	25	29	23	22	24	17	109	103	371	51	21
13	411	25	29	24	22	25	18	1280	396	686	42	21
14	3640	26	29	24	22	26	17	497	430	310	39	20
15	3670	26	28	25	22	26	16	176	322	186	38	20
16	1460	25	28	26	22	26	16	108	145	137	36	21
17	845	25	27	25	22	25	14	63	109	110	35	21
18	539	24	27	25	22	25	15	371	93	93	34	21
19	344	23	27	25	22	26	15	34	281	82	33	21
20	233	23	27	25	22	25	14	110	142	74	33	26
21	166	23	27	26	22	24	14	559	319	68	32	21
22	211	23	27	26	22	21	15	98	452	63	32	19
23	220	23	26	25	22	21	15	697	428	62	32	20
24	255	24	26	25	21	20	16	1080	272	59	30	20
25	164	24	28	25	25	20	16	1360	419	57	30	19
26	113	24	26	24	24	20	16	2210	538	54	29	18
27	94	25	26	23	25	20	16	3680	628	52	29	18
28	84	25	26	22	24	20	15	4190	1070	57	42	17
29	73	26	26	23	---	20	16	2950	629	52	58	17
30	65	27	26	26	---	20	15	1540	398	50	37	17
31	56	---	26	28	---	21	---	741	---	49	32	---
TOTAL	12939	819	841	770	655	705	500	23194	9098	5108	1397	669
MEAN	417	27.3	27.1	24.8	23.4	22.7	16.7	748	303	165	45.1	22.3
MAX	3670	45	29	28	28	26	21	4190	1070	686	107	40
MIN	12	23	26	22	21	20	14	17	93	49	29	17
AC-FT	25660	1620	1670	1530	1300	1400	992	46010	18050	10130	2770	1330
CAL YR 1981	TOTAL	42362	MEAN 116	MAX 3670	MIN 12	AC-FT 84030						
WTR YR 1982	TOTAL	56695	MEAN 155	MAX 4190	MIN 12	AC-FT 112500						

## BRAZOS RIVER BASIN

08084100 DEADMAN CREEK NEAR NUGENT, TX  
(Reconnaissance partial-record station)

LOCATION.--Lat 32°40'36", long 99°37'00", Jones County, Hydrologic Unit 12060102, at low-water crossing on county road, 3.2 mi (5.1 km) east of Nugent, and 4.4 mi (7.1 km) upstream from Clear Fork Brazos River.

DRAINAGE AREA.--168 mi<sup>2</sup> (435 km<sup>2</sup>).

PERIOD OF RECORD.--Periodic discharge measurements and water-quality data: October 1967 to current year.

REMARKS.--During the current water year, the city of Abilene discharged 8,530 acre-ft (10.5 hm<sup>3</sup>) of sewage effluent into creek 12 mi (19 km) upstream from station.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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 21...	1430	30	1620	8.1	1.9	11.5	132	22	340	150
DEC 15...	1615	17	1750	7.8	13.0	10.8	109	7.0	340	150
FEB 09...	1415	23	1540	7.6	7.0	12.0	103	22	260	60
APR 13...	1400	13	1790	8.4	23.0	15.9	196	16	290	110
JUN 22...	1530	14	1840	8.5	32.0	15.5	221	13	350	150
AUG 19...	0915	7.7	1890	7.7	26.4	4.8	62	6.4	340	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)
OCT 21...	81	34	210	5.4	13	190	180	320	.5
DEC 15...	76	36	240	6.2	14	190	250	310	1.0
FEB 09...	58	28	200	5.9	16	200	200	220	.9
APR 13...	61	33	250	7.1	15	180	250	290	1.2
JUN 22...	75	39	260	6.7	14	200	250	350	.9
AUG 19...	75	38	270	7.0	15	210	250	350	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 21...	14	967	1.8	.400	2.2	.090	5.2	5.30	.120
DEC 15...	13	1050	3.9	.130	4.0	.340	1.6	1.90	7.90
FEB 09...	10	864	3.0	.180	3.2	8.30	11	19.0	9.30
APR 13...	8.2	1020	3.3	.230	3.5	.060	.80	.86	5.70
JUN 22...	11	1120	1.5	.040	1.5	<.060	--	2.90	.790
AUG 19...	15	1140	1.2	.070	1.3	.140	2.1	2.20	6.40

## 08084500 LAKE STAMFORD NEAR HASKELL, TX

LOCATION.--Lat 33°04'44", long 99°34'52", Haskell County, Hydrologic Unit 12060103, on left bank at intake structure of West Texas Utilities Co. steam powerplant at Lake Stamford on Paint Creek, 1.0 mi (1.6 km) upstream from dam, 1.7 mi (2.7 km) upstream from California Creek, 10 mi (16 km) southeast of Haskell, and 21.8 mi (35.1 km) upstream from mouth.

DRAINAGE AREA.--368 mi<sup>2</sup> (953 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1953 to current year.

REVISED RECORDS.--WDR TX-77-2: Drainage area.

GAGE.--Nonrecording gage read once daily. Datum of gage is 2.77 ft (0.84 m) above National Geodetic Vertical Datum of 1929 (levels by Freese and Nichols, Inc., Consulting Engineers).

REMARKS.--The lake is formed by a rolled earthfill dam 3,600 ft (1,097 m) long. The dam was completed in March 1953, and deliberate impoundment began in June 1953. The right spillway is an uncontrolled natural channel located near the right end of dam. The left spillway is an uncontrolled channel excavated through natural ground, 169 ft (52 m) wide, located 900 ft (270 m) to left of left end of dam. The service outlet is a controlled 24-inch-diameter (610 mm) concrete pipe that is used for low-flow releases. The capacity table is based on sedimentation survey of 1966. The gage-height record was furnished by the West Texas Utilities Co. from their powerplant 1.0 mi (1.6 km) upstream from dam. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	1,434.0	-
Crest of spillway.....	1,423.0	110,400
Crest of spillway.....	1,414.0	53,070
Lowest gated outlet (invert).....	1,380.0	358

COOPERATION.--The capacity table was furnished by the Soil Conservation Service. The diversions were furnished by the city of Stamford.

EXTREMES (at 0800) FOR PERIOD OF RECORD.--Maximum contents, 103,700 acre-ft (128 hm<sup>3</sup>) Aug. 5, 1978, gage height, 1,422.2 ft (433.49 m); minimum since first appreciable storage in June 1954, 14,060 acre-ft (17.3 hm<sup>3</sup>) Jan. 29-31, 1957, gage height, 1,400.2 ft (426.78 m).

EXTREMES (at 0800) FOR CURRENT YEAR.--Maximum contents, 70,850 acre-ft (87.4 hm<sup>3</sup>) June 26, 27, gage height, 1,417.4 ft (432.02 m); minimum, 40,720 acre-ft (50.2 hm<sup>3</sup>) Apr. 20, Apr. 23 to May 2, gage height, 1,411.1 ft (430.10 m).

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

1,411.0	40,330	1,415.0	57,920
1,412.0	44,280	1,416.0	63,080
1,413.0	48,530	1,417.0	68,560
1,414.0	53,070	1,418.0	74,400

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43880	46790	45110	44700	43880	43470	42670	40720	57920	64690	54970	54020
2	43470	46790	45110	44280	43880	43470	42670	40720	58420	63610	54970	54020
3	43470	46370	45530	44700	43880	43470	42270	41100	58420	63610	54970	54020
4	43470	46790	45530	44280	43880	43470	42270	41100	57920	61500	54970	53540
5	43470	46790	45530	44700	43880	43470	42270	41100	57920	60980	54490	53540
6	43070	46790	45530	44280	43880	43470	41880	41880	57920	59950	54020	53540
7	44280	46790	45530	44280	43880	43470	42270	42270	57920	58930	54020	53070
8	44280	46790	45110	44280	43880	43470	41880	42670	57420	58930	53540	53070
9	44280	46790	45110	44280	43880	43470	41880	42670	56430	58420	54020	53070
10	44280	46370	45110	44280	43470	43070	41880	42670	56430	58420	55460	53070
11	44280	46370	45110	44280	43470	43070	41880	42670	56430	58420	55940	52600
12	44280	46370	45110	44280	43470	43070	41880	43070	55940	57920	55940	52600
13	45950	46370	45110	43880	43470	43070	41880	43070	55940	56920	55940	52600
14	46790	46370	45110	44280	43470	43070	41490	43070	55940	57420	55460	52130
15	47220	46370	45110	44280	43470	43070	41490	42670	55940	57420	55460	52130
16	47650	46370	45530	44280	43470	43070	41490	42670	55940	56920	54970	52130
17	47220	45950	45110	44280	43470	43070	41490	43880	55940	56920	55460	52130
18	47650	45950	45110	43880	43880	42670	41100	43880	56430	56430	54970	52130
19	47650	45950	45110	43880	43470	43470	41100	43880	58930	56430	54970	52130
20	47650	45950	45110	43470	43470	43070	40720	43880	63080	56430	54970	52130
21	47220	45950	45110	43880	43470	42670	41100	43470	64150	55940	54970	52130
22	47220	45950	45110	43880	43470	42670	41100	44280	63610	55940	54490	52130
23	47220	45950	44280	43470	43470	42670	40720	45110	63080	55940	54970	52130
24	47220	45950	43880	43470	43470	43070	40720	46370	62550	55460	54490	51670
25	46790	45950	43880	43470	43470	42270	40720	48090	67430	55460	54490	51670
26	46790	45950	44280	43470	43070	42670	40720	50310	70850	55460	54490	51670
27	46790	45530	43880	43470	43470	42270	40720	52130	70850	55460	54020	51670
28	47220	45530	44700	43470	43470	42670	40720	54020	69700	54970	54020	51670
29	46790	45110	43880	43470	---	42270	40720	55940	67990	54970	54020	50310
30	46790	45110	44700	43470	---	42670	40720	56920	66320	54970	54020	50310
31	46790	---	44700	43880	---	42670	---	57420	---	54490	54490	---
MAX	47650	46790	45530	44700	43880	43470	42670	57420	70850	64690	55940	54020
MIN	43070	45110	43880	43470	43070	42270	40720	55940	55940	54490	53540	50310
(†)	1416.6	1412.2	1412.1	1411.9	1411.8	1411.6	1411.1	1414.9	1416.6	1414.3	1414.3	1413.4
(+)	+3320	-1680	-410	-820	-410	-800	-1950	+16700	+8900	-11830	0	-4180
(††)	168	130	140	143	125	160	130	150	153	175	266	165
CAL YR 1981	MAX	60980	MIN	43070	±	-10760	††	2047				
WTR YR 1982	MAX	70850	MIN	40720	±	+6840	††	1905				

† Gage-height, in feet, at end of month.

± Change in contents, in acre-feet.

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

## BRAZOS RIVER BASIN

08084500 LAKE STAMFORD NEAR HASKELL, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 30...	1615	620	31.0	200	58	48	19	46
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)
AUG 30...	1.5	8.9	140	74	66	.3	7.8	354

## 08084800 CALIFORNIA CREEK NEAR STAMFORD, TX

LOCATION.--Lat 32°55'51", long 99°38'32", Jones County, Hydrologic Unit 12060103, near right bank at downstream side of bridge on Farm Road 142, 9 mi (14 km) east of Stamford, and 19.4 mi (31.2 km) upstream from Paint Creek.

DRAINAGE AREA.--478 mi<sup>2</sup> (1,238 km<sup>2</sup>).

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

Water-quality records: Specific conductance: October 1962 to September 1979. Water temperature: October 1962 to September 1979.

REVISED RECORDS.--WSP 2122: 1965. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,470 ft (448 m), from topographic map.

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

AVERAGE DISCHARGE.--20 years, 34.6 ft<sup>3</sup>/s (0.980 m<sup>3</sup>/s), 0.98 in/yr (25 mm/yr), 25,070 acre-ft/yr (30.9 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft<sup>3</sup>/s (1,130 m<sup>3</sup>/s) Aug. 4, 1978, gage height, 31.00 ft (9.449 m), from floodmark, from rating curve extended above 21.0 ft (6.40 m) on basis of field discharge estimates of peak flows; no flow at times.

Maximum stage since at least 1897, that of Aug. 4, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1962, reached a stage of 29.6 ft (9.02 m), from floodmark; flood of July 1961 (stage unknown) was third highest. Other large floods are reported to have occurred in June 1909, June 24, 1915, and May 1957; flood of September 1962 reached a stage of 28.1 ft (8.56 m); from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft<sup>3</sup>/s (11.3 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)		Gage height (ft) (m)		Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)		Gage height (ft) (m)	
Oct. 13	unknown	529	15.0	13.15	4.008	May 21	2300	714	20.2	14.48	4.414
May 5	1130	407	11.5	12.12	3.694	May 26	1700	*3,240	91.8	25.23	7.690
May 6	0915	797	22.6	15.03	4.581	June 20	2400	831	23.5	15.25	4.648
May 13	1200	2,320	65.7	22.24	6.779	June 29	1000	2,350	66.6	22.37	6.818
May 17	1800	2,830	80.1	23.95	7.300	July 9	0300	712	20.2	14.47	4.410

Minimum discharge, 0.72 ft<sup>3</sup>/s (0.020 m<sup>3</sup>/s) Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	1.1	5.4	5.0	3.3	4.7	5.3	3.1	2.2	88	184	12	8.9		
2	1.0	4.7	4.7	3.3	4.8	5.6	2.8	2.2	59	89	16	5.5		
3	.93	4.7	4.7	3.3	5.3	5.6	2.6	1.9	45	57	11	4.3		
4	.99	4.5	6.0	3.0	5.9	5.0	2.8	1.8	37	42	10	3.7		
5	.90	4.4	4.7	3.1	5.1	4.7	2.6	166	32	33	12	3.1		
6	.95	4.4	5.3	3.1	4.2	3.8	2.2	674	30	30	10	2.7		
7	6.5	4.4	5.3	3.0	3.8	3.6	2.2	203	27	30	8.7	2.4		
8	2.2	4.7	5.0	2.9	3.7	3.3	2.2	40	25	313	8.4	2.5		
9	3.9	3.6	4.4	2.9	3.6	3.3	2.2	23	25	472	103	2.2		
10	2.8	3.6	4.1	2.9	3.3	3.3	1.9	14	23	116	80	1.9		
11	3.9	3.6	4.1	2.8	3.3	3.3	1.9	7.5	21	53	33	2.0		
12	11	3.6	3.8	2.9	3.4	3.3	1.9	8.7	20	56	19	1.7		
13	347	3.6	3.6	3.2	3.2	3.3	1.9	1720	19	153	14	1.8		
14	289	3.6	3.8	3.1	3.3	3.6	2.4	1030	18	148	11	1.9		
15	181	3.6	3.8	3.0	3.3	4.7	1.9	235	17	83	8.9	2.0		
16	67	3.6	3.8	3.1	3.3	3.6	1.7	72	19	48	7.1	2.0		
17	37	3.6	3.6	3.0	3.3	3.6	1.5	1830	18	35	6.2	1.9		
18	31	3.6	3.3	3.1	3.3	3.3	1.5	2070	18	27	5.6	2.1		
19	14	3.6	3.6	3.2	3.3	3.3	1.5	2320	29	22	7.6	3.3		
20	9.7	3.6	3.8	3.1	3.3	3.3	1.4	826	436	19	5.0	3.1		
21	9.0	3.6	3.8	3.1	3.6	3.3	1.4	293	538	17	3.6	2.6		
22	9.0	3.6	3.8	3.1	3.6	3.1	1.5	305	171	15	3.2	2.2		
23	11	3.6	3.6	3.3	3.3	2.8	1.5	323	69	13	3.2	1.7		
24	9.8	3.8	3.5	3.3	3.6	2.8	1.7	849	87	12	2.8	2.2		
25	8.5	3.8	3.4	3.3	4.4	2.8	1.9	1620	486	11	2.4	2.2		
26	8.6	4.1	3.5	3.1	4.7	2.8	1.7	2950	649	11	2.4	2.1		
27	8.3	4.1	3.3	3.1	4.4	3.1	1.4	2550	725	11	2.4	1.7		
28	7.6	4.1	3.3	3.2	4.7	3.1	1.5	1620	1520	10	40	1.6		
29	6.7	5.0	3.3	3.7	---	3.1	1.8	707	2060	10	122	2.0		
30	6.2	6.3	3.5	4.3	---	3.6	1.9	333	507	9.9	23	1.9		
31	5.8	---	3.6	4.8	---	3.3	---	174	---	14	10	---		
TOTAL	1102.37	122.4	125.0	99.6	109.7	112.6	58.5	22971.3	7818	2143.9	603.5	79.2		
MEAN	35.6	4.08	4.03	3.21	3.92	3.63	1.95	741	261	69.2	19.5	2.64		
MAX	347	6.3	6.0	4.8	5.9	5.6	3.1	2950	2060	472	122	8.9		
MIN	.90	3.6	3.3	2.8	3.2	2.8	1.4	1.8	17	9.9	2.4	1.6		
CFSM	.07	.009	.008	.007	.008	.008	.004	1.55	.55	.15	.04	.006		
IN.	.09	.01	.01	.01	.01	.01	.00	1.79	.61	.17	.05	.01		
AC-FT	2190	243	248	198	218	223	116	45560	15510	4250	1200	157		
CAL YR 1981	TOTAL	20439.34	MEAN	56.0	MAX	4130	MIN	.90	CFSM	.12	IN	1.59	AC-FT	40540
WTR YR 1982	TOTAL	35346.07	MEAN	96.8	MAX	2950	MIN	.90	CFSM	.20	IN	2.75	AC-FT	70110



## BRAZOS RIVER BASIN

08085500 CLEAR FORK BRAZOS RIVER AT FORT GRIFFIN, TX

LOCATION.--Lat 32°56'04", long 99°13'27", Shackelford County, Hydrologic Unit 12060104, on right bank just downstream from pier of bridge on old Fort Griffin-Throckmorton Road, 0.4 mi (0.6 km) northeast of Fort Griffin, 1.0 mi (1.6 km) upstream from bridge on U.S. Highway 283, 1.7 mi (2.7 km) upstream from Mill Creek, and 74.6 mi (120.0 km) upstream from mouth.

DRAINAGE AREA.--3,988 mi<sup>2</sup> (10,329 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1923 to current year.

REVISED RECORDS.--WSP 1392: 1949. WDR TX-76-2: Drainage area.

GAGE.--water-stage recorder. Datum of gage is 1,174.09 ft (357.863 m) National Geodetic Vertical Datum of 1929. Prior to June 23, 1932, nonrecording gage at same site and datum.

REMARKS.--water-discharge records good. Diversions above station for irrigation, municipal supply, and oilfield operation materially affect low flow. Gage-height telemeter at station.

AVERAGE DISCHARGE.--58 years (water years 1925-82), 229 ft<sup>3</sup>/s (6.485 m<sup>3</sup>/s), 165,900 acre-ft/yr (205 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 149,000 ft<sup>3</sup>/s (4,220 m<sup>3</sup>/s) Aug. 4, 1978, gage height, 38.88 ft (11.851 m), from floodmark, from rating curve extended above 33,600 ft<sup>3</sup>/s (952 m<sup>3</sup>/s) on basis of contracted-opening and flow-over-road measurement of peak flow; no flow at times.  
Maximum stage since 1876, that of Aug. 4, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1900 reached a stage of 38.0 ft (11.58 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,900 ft<sup>3</sup>/s (110 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 16	0815	5,130 145	16.38 4.993	June 18	1330	6,120 173	19.12 5.828
May 14	1215	5,830 165	18.42 5.614	June 19	1945	8,700 246	24.89 7.586
May 18	1445	5,080 144	16.54 5.041	June 26	0700	*9,430 267	26.36 8.035
May 29	0330	7,570 214	22.44 6.840	June 30	0815	4,490 127	15.11 4.606

Minimum discharge, 18 ft<sup>3</sup>/s (0.51 m<sup>3</sup>/s) Apr. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	110	49	45	75	42	29	25	1330	1820	118	91
2	21	103	50	49	79	42	29	28	695	1270	115	66
3	19	92	50	51	67	44	27	28	580	907	113	51
4	19	84	42	49	64	42	27	29	485	759	105	45
5	20	75	44	47	54	45	29	49	417	644	100	40
6	22	67	47	48	53	42	27	597	384	547	91	46
7	38	66	46	53	53	44	25	1090	340	586	87	39
8	37	62	49	53	56	42	24	774	311	756	81	32
9	41	58	49	56	55	42	22	359	277	896	75	31
10	49	57	49	55	49	42	22	218	257	902	73	31
11	66	53	49	53	49	41	24	148	263	449	226	30
12	100	51	52	54	48	39	23	111	384	351	189	30
13	2100	50	48	48	46	42	23	506	287	403	152	31
14	2930	48	47	46	46	56	22	4810	280	876	117	30
15	3460	47	45	48	46	59	22	1760	518	661	93	31
16	4580	44	45	48	45	56	24	533	590	443	78	32
17	1680	41	43	48	43	60	21	1060	314	328	68	31
18	835	40	44	47	43	57	21	4420	3100	276	61	32
19	570	38	43	59	43	53	22	3010	6390	243	55	40
20	403	38	41	70	44	52	21	2210	3980	222	51	44
21	277	37	40	59	42	49	19	717	1890	198	49	39
22	231	35	39	58	44	47	18	1350	1640	187	46	39
23	200	36	39	60	42	48	19	934	1260	171	44	38
24	242	38	41	58	42	48	19	1020	1380	160	44	32
25	229	36	41	58	41	44	20	2490	5610	150	42	31
26	242	38	42	53	42	39	22	4220	8250	144	43	29
27	187	39	41	53	42	38	22	5820	3730	143	43	28
28	151	39	41	53	42	34	22	6890	4110	131	44	28
29	138	39	42	55	---	32	22	7210	4240	126	45	28
30	129	47	43	62	---	33	23	4970	3850	118	143	28
31	121	---	45	72	---	30	---	2350	---	118	141	---
TOTAL	19159	1608	1386	1668	1395	1384	690	59736	57142	14985	2732	1123
MEAN	618	53.6	44.7	53.8	49.8	44.6	23.0	1927	1905	483	88.1	37.4
MAX	4580	110	52	72	79	60	29	7210	8250	1820	226	91
MIN	19	35	39	45	41	30	18	25	257	118	42	28
AC-FT	38000	3190	2750	3310	2770	2750	1370	118500	113300	29720	5420	2230
CAL YR 1981	TOTAL	80723	MEAN	221	MAX	4670	MIN	19	AC-FT	160100		
WTR YR 1982	TOTAL	163008	MEAN	447	MAX	8250	MIN	18	AC-FT	323300		

## BRAZOS RIVER BASIN

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08085500 CLEAR FORK BRAZOS RIVER AT FORT GRIFFIN, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1949 to September 1951, November 1967 to September 1979, October 1981 to September 1982 (discontinued).

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1949 to September 1951, November 1967 to September 1979, October 1981 to September 1982 (discontinued).

WATER TEMPERATURES: November 1949 to September 1951, November 1967 to September 1979, October 1981 to September 1982 (discontinued).

SUSPENDED-SEDIMENT DISCHARGE: November 1949 to September 1951.

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. Where maximum and minimum specific conductance values are not shown, mean values are estimated.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1949-51, 1967-77, 1981-82): Maximum daily, 6,680 micromhos May 11, 1972; minimum daily, 204 micromhos July 27, 1950.

WATER TEMPERATURES (1949-51, 1967-77, 1981-82): Maximum daily, 34.0°C June 14, 1969, June 28, 1972; minimum daily, 0.0°C on during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 5,090 micromhos Aug. 21; minimum daily, 290 micromhos June 19.

WATER TEMPERATURES: Maximum daily, 31.5°C July 22-25, Aug. 16, 17; minimum daily, 3.0°C Jan. 13.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 31...	1650	119	1190	18.0	340	200	85	30	110
NOV 30...	1710	48	2200	14.0	700	510	180	62	220
JAN 25...	1355	60	4260	7.0	1200	1100	260	140	510
APR 22...	1105	20	4630	16.0	1300	1100	270	140	610
MAY 18...	1615	5090	546	21.0	170	77	50	12	42
JUN 26...	1450	7880	703	25.5	210	100	58	17	56

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 31...	2.8	8.7	140	190	190	.3	7.1	705
NOV 30...	3.6	9.6	190	410	400	.4	1.9	1400
JAN 25...	6.3	10	160	1100	800	.6	2.6	2920
APR 22...	7.5	14	160	1100	920	.5	1.1	3140
MAY 18...	1.5	4.6	97	67	68	.3	10	312
JUN 26...	1.8	5.9	110	100	95	.2	11	409

## BRAZOS RIVER BASIN

08085500 CLEAR FORK BRAZOS RIVER AT FORT GRIFFIN, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	19159	972	657	34000	180	9300	200	10500	300
NOV.	1981	1608	1620	1090	4720	300	1290	350	1510	500
DEC.	1981	1386	3130	2040	7640	550	2060	700	2630	910
JAN.	1982	1668	3950	2550	11500	680	3060	910	4100	1100
FEB.	1982	1395	4260	2730	10300	730	2740	990	3740	1200
MAR.	1982	1384	3970	2560	9560	680	2550	910	3410	1100
APR.	1982	690	4320	2770	5150	740	1370	1000	1870	1200
MAY	1982	59736	753	510	82200	140	22500	160	25400	240
JUNE	1982	57142	891	602	92800	160	25400	190	28900	280
JULY	1982	14985	1190	799	32300	220	8840	250	10100	370
AUG.	1982	2732	3170	2060	15200	550	4090	720	5300	920
SEPT	1982	1123	3830	2470	7500	660	2000	880	2670	1100
TOTAL		163008	**	**	313000	**	85200	**	100000	**
WTD. AVG.		447	1060	711	**	190	**	230	**	330

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1			2090			1220			2410			3550
2			2090			1310			2400			3560
3			2100			1230			2410			3570
4			2110			1180			2480			3590
5			2160			1170			2700			3600
6			2220			1230			2690			3610
7			2240			1340			2840			3620
8			2170			1500			2860			3640
9			1940			1700			2900			3660
10			1830			1800			3030			3680
11			1590			1830			3020			3690
12			1400			1860			3130			3700
13			1200			1870			3200			3740
14			1700			1870			3230			3780
15			537			1850			3250			3770
16			718			1810			3280			3800
17			786			1770			3320			3820
18			810			1750			3340			3890
19			796			1770			3380			4020
20			832			1760			3400			4140
21			865			1750			3400			4240
22			908			1740			3390			4170
23			1010			1790			3400			4150
24			1140			1910			3430			4190
25			1520			1970			3440			4280
26			1170			2020			3460			4370
27			1060			2060			3490			4390
28			1070			2090			3520			4430
29			1050			2140			3550			4440
30			1120			2210			3560			4410
31			1190						3560			4280
MONTH			1400			1720			3140			3930

## BRAZOS RIVER BASIN

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08085500 CLEAR FORK BRAZOS RIVER AT FORT GRIFFIN, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1			4380			3850			4140			4300
2			4390			3840			4160			4290
3			4250			3900			4190			4270
4			4290			3920			4240			4300
5			4390			3950			4210			4230
6			4370			3990			4230			3200
7			4400			4040			4270			2180
8			4530			4020			4290			2490
9			4630			4000			4300			2510
10			4750			3970			4310			1880
11			4720			3960			4320			2180
12			4540			3960			4370			2280
13			4420			3960			4390			1500
14			4390			3870			4370			590
15			4380			3890			4390			505
16			4320			3940			4410			580
17			4220			3950			4420			690
18			4140			3980			4420			750
19			4000			3990			4430			560
20			3960			4000			4420			540
21			3970			3900			4410			570
22			3940			3920			4390			900
23			3940			3890			4370			750
24			3950			3920			4340			850
25			3890			3910			4320			750
26			3820			4020			4330			690
27			3800			4070			4330			600
28			3850			4100			4320			570
29						4140			4320			600
30						4180			4310			630
31						4210						700
MONTH			4240			3980			4320			1660

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	930	700	640	660	1930	1850	1900	4620	4360	4520
2	---	---	1010	770	710	730	1970	1890	1930	4560	3260	4010
3	---	---	1090	870	770	830	2090	1920	2020	3210	2800	2930
4	---	---	1100	940	870	908	2220	2020	2120	2820	2800	2810
5	---	---	1170	1010	930	964	2290	2080	2180	3030	2810	2900
6	---	---	1290	1090	1010	1060	2330	2280	2300	3270	3040	3150
7	---	---	1380	1150	1090	1120	2370	2330	2350	3470	3270	3380
8	---	---	1510	1480	1110	1350	2460	2370	2400	3550	3520	3520
9	---	---	1620	1540	1080	1400	2570	2460	2530	3660	3570	3610
10	1790	1730	1760	3020	800	1780	2660	2610	2630	3700	3650	3660
11	1910	1800	1850	800	750	770	2960	2660	2820	3870	3730	3800
12	2040	1670	1950	830	800	817	3190	2980	3080	4040	3870	3950
13	1990	1310	1640	1020	840	933	3070	2640	2790	4150	4040	4090
14	2300	2000	2140	2500	910	1440	3530	2960	3280	4180	4130	4150
15	2980	2330	2600	1660	850	1190	3810	3550	3670	4150	4090	4120
16	3100	2650	2930	2740	1740	2400	4300	3810	4040	4090	3970	4030
17	3330	3120	3240	2690	1550	1950	4570	4200	4410	3970	3870	3930
18	3320	1100	1970	1590	1360	1450	4720	4480	4600	3870	3820	3830
19	1730	290	730	1970	1450	1700	4900	4560	4730	3800	3740	3760
20	540	360	400	2100	1980	2060	5000	4680	4880	3740	3730	3730
21	2260	470	1050	2040	1670	1870	5090	4990	5050	3840	3740	3790
22	1660	1070	1250	1640	1240	1400	5040	4610	4850	3960	3840	3910
23	1180	920	1010	1300	1230	1260	4620	4160	4370	4200	3950	4060
24	1540	920	1250	1340	1310	1330	4150	3960	4050	4250	3970	4220
25	1520	340	680	1420	1340	1380	3950	3840	3910	4270	4230	4240
26	770	350	560	1420	1370	1400	3850	3800	3830	4240	4210	4220
27	700	600	630	1370	1340	1350	3770	3730	3760	4210	4200	4210
28	1090	700	890	1470	1350	1410	3740	3720	3730	4240	4200	4220
29	710	520	550	1550	1430	1480	3770	3720	3740	4270	4240	4250
30	650	600	630	1770	1560	1670	3870	3750	3800	4270	4250	4260
31	---	---	---	1880	1780	1850	4340	3890	4130	---	---	---
MONTH	3330	290	1360	3020	640	1350	5090	1850	3420	4620	2800	3840

## BRAZOS RIVER BASIN

08085500 CLEAR FORK BRAZOS RIVER AT FORT GRIFFIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

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



## BRAZOS RIVER BASIN

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08085500 CLEAR FORK BRAZOS RIVER AT FORT GRIFFIN, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

## 08086150 NORTH FORK HUBBARD CREEK NEAR ALBANY, TX

LOCATION.--Lat 32°42'27", long 99°16'29", Shackelford County, Hydrologic Unit 12060105, on downstream side of bridge on U.S. Highway 6, 1.7 mi (2.7 km) southeast of Albany, and 2.0 mi (3.2 km) upstream from Salt Prong Hubbard Creek.

DRAINAGE AREA.--39.3 mi<sup>2</sup> (101.8 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,340.54 ft (408.597 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--19 years (water years 1964-82), 7.05 ft<sup>3</sup>/s (0.200 m<sup>3</sup>/s), 2.44 in/yr (62 mm/yr), 5,110 acre-ft/yr (6.30 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 103,000 ft<sup>3</sup>/s (2,920 m<sup>3</sup>/s) Aug. 4, 1978, gage height, 23.3 ft (7.10 m), from floodmarks, from rating curve extended above 1,500 ft<sup>3</sup>/s (42.5 m<sup>3</sup>/s) on basis of slope-area measurement of 4,570 ft<sup>3</sup>/s (129 m<sup>3</sup>/s), contracted-opening measurement of 9,520 ft<sup>3</sup>/s (270 m<sup>3</sup>/s), and computation of flow-through-culvert, contracted-opening, and flow-over-road determinations of 103,000 ft<sup>3</sup>/s (2,920 m<sup>3</sup>/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood information begins in 1940. Floods of June 10, 1940, and July 18, 1953, reached stages of about 21 ft (6.4 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft<sup>3</sup>/s (2.83 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 13	0400	364	10.3	May 26	0800	495	14.0
May 13	0230	*3,060	86.7	June 25	0600	1,260	35.7
May 17	1800	125	3.54	June 27	0600	1,110	31.4
May 23	1600	223	6.32				
			3.78				6.08
			1.152				1.853

Minimum discharge, 0.13 ft<sup>3</sup>/s (0.004 m<sup>3</sup>/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	.92	1.1	.48	1.2	.68	.38	5.1	9.2	8.2	1.1	.32
2	.24	.97	.84	.52	.77	.60	.44	2.0	7.0	5.7	1.3	.29
3	.24	.89	.74	.46	.67	.51	.44	1.0	5.6	5.0	1.3	.31
4	.27	.93	.69	.51	.67	.46	.41	.70	5.2	3.9	1.0	.34
5	.30	.97	.67	.56	.67	.46	.30	3.5	4.9	3.3	.97	.37
6	.34	.97	.67	.55	.74	.46	.28	7.3	3.8	3.1	1.0	.37
7	1.3	.97	.67	.55	.81	.46	.30	1.5	3.1	2.9	.91	.37
8	1.2	.92	.64	.56	.81	.46	.34	.81	3.1	2.7	.89	.36
9	.78	.77	.61	.58	.68	.46	.36	.64	2.8	2.6	.89	.29
10	.67	.74	.64	.55	.67	.46	.37	.56	2.7	2.5	.88	.27
11	.67	.78	.67	.52	.67	.46	.37	.53	3.7	2.3	.76	.27
12	7.5	.81	.67	.56	.63	.46	.33	1.4	10	2.2	.94	.27
13	187	.86	.71	.56	.80	.48	.30	714	4.8	2.3	.90	.24
14	20	.89	.81	.56	.78	2.6	.30	40	3.1	2.3	.65	.26
15	5.2	.86	.81	.56	.67	1.2	.30	9.8	2.4	2.1	.56	.27
16	4.6	.81	.69	.49	.56	.67	.29	3.6	1.8	1.8	.51	.30
17	2.5	.74	.59	.48	.61	.56	.26	48	1.8	1.7	.44	.32
18	1.7	.67	.56	.49	.61	.62	.24	46	2.3	1.5	.46	.30
19	1.5	.79	.56	.46	.61	.53	.24	12	4.4	1.6	.46	.28
20	2.1	.89	.57	.63	.62	.38	.24	5.9	3.8	1.7	.43	.43
21	2.0	.89	.61	.62	.78	.33	.24	3.1	4.3	1.4	.36	.43
22	5.7	.94	.57	.54	.81	.30	.24	3.2	2.9	1.3	.33	.35
23	2.6	.97	.56	.48	.86	.30	.27	67	1.9	1.2	.33	.29
24	1.8	.97	.56	.51	.68	.27	.30	81	5.3	1.1	.30	.26
25	1.4	.97	.56	.51	2.0	.33	.28	32	243	1.1	.30	.22
26	1.3	.93	.54	.51	2.1	.37	.30	169	28	5.9	.30	.22
27	1.3	.89	.56	.56	1.0	.39	.30	24	210	2.7	.33	.21
28	1.3	.93	.53	.56	.79	.43	.35	56	38	1.7	.29	.19
29	1.3	1.0	.56	.62	---	.46	.43	20	18	1.2	.27	.16
30	1.4	3.3	.58	.81	---	.44	3.1	14	11	1.2	.29	.14
31	1.2	---	.51	1.9	---	.39	---	12	---	1.1	.30	---
TOTAL	259.68	28.94	20.05	18.25	23.27	16.98	12.30	1385.64	647.9	79.3	19.75	8.70
MEAN	8.38	.96	.65	.59	.83	.55	.41	44.7	21.6	2.56	.64	.29
MAX	187	3.3	1.1	1.9	2.1	2.6	3.1	714	243	8.2	1.3	.43
MIN	.24	.67	.51	.46	.56	.27	.24	.53	1.8	1.1	.27	.14
CFSM	.21	.02	.02	.02	.02	.01	.01	1.14	.55	.07	.02	.007
IN.	.25	.03	.02	.02	.02	.02	.01	1.31	.61	.08	.02	.01
AC-FT	515	57	40	36	46	34	24	2750	1290	157	39	17

CAL YR 1981 TOTAL 1451.58 MEAN 3.98 MAX 187 MIN .18 CFSM .10 IN 1.37 AC-FT 2880  
WTR YR 1982 TOTAL 2520.76 MEAN 6.91 MAX 714 MIN .14 CFSM .18 IN 2.39 AC-FT 5000

## BRAZOS RIVER BASIN

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08086150 NORTH FORK HUBBARD CREEK NEAR ALBANY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: November 1962 to current year. Sediment records: October 1967 to September 1975.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1962 to current year.

WATER TEMPERATURES: November 1962 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, 9,750 micromhos Sept. 28-30, 1968; minimum measured daily, 408 micromhos Sept. 16, 1974; minimum estimated daily, 149 micromhos Aug. 4, 1978.

WATER TEMPERATURES (1962-69, 1974-76): Maximum daily, 33.0°C July 11, 1964; minimum daily, 0.0°C Jan. 12, 1963, Jan. 29, 1966.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 4,980 micromhos Oct. 11; minimum daily, 697 micromhos May 13.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 13...	1410	205	1420	21.0	270	190	81	17	170
MAR 09...	1110	.47	4410	12.0	1000	820	260	84	500
MAY 05...	0825	.57	3740	20.0	810	640	210	70	440
JUL 09...	1020	2.5	3620	27.0	710	540	190	58	460
AUG 11...	1000	.71	3860	28.0	840	670	220	71	480
SEP 07...	1115	.36	4360	26.0	940	760	240	82	580

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)
OCT 13...	4.7	3.9	79	24	390	.3	7.9	742
MAR 09...	6.9	3.3	180	170	1300	.3	11	2440
MAY 05...	6.7	3.4	170	130	1200	.3	10	2170
JUL 09...	7.5	3.5	170	91	1100	.4	10	2020
AUG 11...	7.2	3.4	170	110	1200	.4	14	2200
SEP 07...	8.2	3.5	180	140	1400	.4	16	2570

## BRAZOS RIVER BASIN

08086150 NORTH FORK HUBBARD CREEK NEAR ALBANY, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	259.68	2390	1330	936	700	493	68	47	520
NOV.	1981	28.94	4370	2400	187	1300	102	130	9.9	980
DEC.	1981	20.05	4430	2430	132	1300	72	130	6.9	1000
JAN.	1982	18.25	4780	2610	129	1400	71	140	6.8	1100
FEB.	1982	23.27	4590	2510	158	1400	86	130	8.4	1000
MAR.	1982	16.98	4470	2450	112	1300	61	130	5.9	1000
APR.	1982	12.30	3910	2150	71	1200	39	110	3.8	880
MAY	1982	1385.64	1300	727	2720	380	1410	36	135	280
JUNE	1982	647.9	1530	854	1490	450	781	43	75	330
JULY	1982	79.3	3560	1970	422	1100	226	100	22	790
AUG.	1982	19.75	3990	2200	117	1200	63	110	6.1	890
SEPT	1982	8.70	4380	2410	57	1300	31	130	3.0	980
TOTAL		2520.76	**	**	6530	**	3440	**	330	**
WTD. AVG.		6.9	1720	960	**	510	**	48	**	380

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4790	3880	4680	4600	4930	4290	4540	3930	3210	2970	3800	4520
2	4840	3890	4570	4200	4530	4310	4120	3750	3160	3120	3820	4350
3	4800	4010	4490	4060	4650	3890	4630	3610	3200	3160	3830	4340
4	4790	4070	4250	4800	4770	4130	4580	3690	3310	3220	3870	4350
5	4780	4060	4170	4140	4060	4280	4450	3370	3400	3400	3850	4360
6	4760	4060	4050	4600	4300	4350	4540	2850	3630	3580	3810	4350
7	4780	3880	3950	4880	4580	4360	4630	2760	3640	3490	3820	4360
8	4900	4220	4200	4850	4120	4380	4700	2780	3680	3600	3860	4350
9	4910	4250	4320	4870	4510	4370	4620	2930	3610	3550	3880	4360
10	4970	4100	4310	4890	4640	4330	4630	2980	3760	3790	3920	4350
11	4980	4140	4300	4860	4680	4300	4640	3040	3660	3770	3860	4340
12	3940	4360	4310	4900	4510	4550	4650	2850	3130	3740	3970	4330
13	2190	4040	4300	4910	4550	4570	4660	697	3300	3750	4040	4320
14	1620	3940	4290	4850	4650	4590	4670	1230	3470	3760	4060	4310
15	2190	4200	4300	4730	4630	4680	4680	1620	3460	3790	4070	4320
16	2730	4600	4270	4620	4610	4630	4690	2240	3520	3820	4090	4330
17	2740	4410	4280	4810	4600	4540	4700	1880	3670	3850	4110	4340
18	2740	4480	4270	4830	4650	4490	4690	2270	3800	3860	4140	4330
19	2810	4470	4490	4850	4810	4510	4700	2410	3880	3880	4160	4350
20	2960	4480	4580	4700	4750	4490	4710	2600	3700	3920	4090	4460
21	2970	4300	4630	4860	4800	4470	4700	2750	3280	3960	4200	4450
22	3450	4570	4650	4880	4890	4430	4710	2770	3400	4000	4250	4450
23	3460	4580	4600	4900	4850	4320	4720	2250	3530	4030	4230	4430
24	3430	4590	4610	4910	4790	4460	4730	2110	3380	4070	4270	4340
25	3500	4600	4620	4910	4680	4540	4740	2340	1100	4090	4280	4450
26	3450	4700	4640	4880	4390	4550	4750	1290	1000	3870	4290	4460
27	3460	4750	4670	4810	4380	4460	4590	1760	1010	3630	4300	4470
28	3480	4760	4690	4880	4220	4390	4450	2010	2010	3900	4350	4510
29	3730	4750	4780	4890	---	4690	3750	2500	2050	4060	4400	4480
30	3630	4760	4740	4790	---	4640	1950	2490	2420	3760	4450	4490
31	3880	---	4750	4920	---	4600	---	2620	---	3500	4500	---
MEAN	3730	4330	4440	4760	4590	4440	4510	2530	3110	3710	4080	4390

## BRAZOS RIVER BASIN

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08086150 NORTH FORK HUBBARD CREEK NEAR ALBANY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	---	12.0	---	10.0	---	18.0	19.0	27.0	29.0	30.0	26.0
2	28.0	18.0	12.0	---	7.0	18.0	16.0	20.0	29.0	31.0	---	28.0
3	---	18.0	15.0	12.0	---	17.0	20.0	21.0	---	---	30.0	---
4	---	20.0	---	10.0	6.0	11.0	21.0	23.0	28.0	29.0	29.0	---
5	---	---	15.0	12.0	10.0	12.0	19.0	24.0	---	31.0	---	---
6	23.0	19.0	---	15.0	---	17.0	20.0	---	28.0	31.0	30.0	---
7	24.0	18.0	17.0	7.0	11.0	---	---	20.0	28.0	28.0	28.0	26.0
8	20.0	17.0	16.0	8.0	9.0	18.0	17.0	21.0	30.0	31.0	---	---
9	22.0	16.0	17.0	---	9.0	12.0	15.0	22.0	29.0	30.0	32.0	---
10	23.0	---	---	6.0	12.0	---	---	---	29.0	32.0	34.0	---
11	---	17.0	---	8.0	10.0	17.0	---	21.0	28.0	29.0	---	---
12	23.0	16.0	---	---	9.0	21.0	---	23.0	26.0	26.0	33.0	---
13	25.0	17.0	---	8.0	---	---	---	22.0	---	29.0	34.0	---
14	25.0	16.0	---	11.0	11.0	19.0	---	24.0	30.0	---	---	---
15	26.0	---	---	---	---	21.0	---	25.0	29.0	30.0	---	---
16	23.0	18.0	---	12.0	15.0	20.0	---	---	28.0	31.0	---	---
17	24.0	17.0	12.0	12.0	16.0	20.0	---	24.0	29.0	31.0	---	---
18	22.0	12.0	11.0	---	14.0	---	---	24.0	27.0	---	29.0	---
19	---	---	9.0	11.0	17.0	23.0	---	24.0	26.0	32.0	30.0	24.0
20	22.0	18.0	10.0	10.0	16.0	---	---	27.0	28.0	31.0	30.0	24.0
21	23.0	17.0	15.0	12.0	16.0	16.0	---	29.0	29.0	---	32.0	24.0
22	17.0	17.0	11.0	---	14.0	18.0	---	24.0	---	31.0	29.0	25.0
23	---	16.0	10.0	8.0	---	18.0	---	24.0	30.0	32.0	30.0	26.0
24	17.0	---	10.0	---	10.0	19.0	---	26.0	---	---	30.0	27.0
25	15.0	---	---	10.0	8.0	16.0	22.0	25.0	26.0	---	---	24.0
26	16.0	---	12.0	11.0	15.0	15.0	20.0	26.0	---	31.0	---	---
27	---	17.0	11.0	15.0	16.0	---	20.0	27.0	26.0	31.0	---	27.0
28	18.0	17.0	10.0	16.0	17.0	18.0	20.0	26.0	30.0	28.0	---	26.0
29	19.0	---	10.0	15.0	---	18.0	---	27.0	31.0	31.0	---	27.0
30	18.0	15.0	11.0	12.0	---	---	17.0	28.0	30.0	30.0	---	27.0
31	17.0	---	12.0	10.0	---	19.0	---	25.0	---	31.0	---	---
MEAN	21.5	17.0	12.5	11.0	12.0	17.5	19.0	24.0	28.5	30.0	30.5	26.0



## BRAZOS RIVER BASIN

08086212 HUBBARD CREEK BELOW ALBANY, TX

LOCATION.--Lat 32°43'58", long 99°08'25", Shackelford County, Hydrologic Unit 12060105, on left bank 0.5 mi (0.8 km) downstream from Salt Prong Hubbard Creek, 2.8 mi (4.5 km) upstream from Newcomb Creek, 4.5 mi (7.2 km) upstream from U.S. Highway 180, 9.1 mi (14.6 km) east of Albany, 22.6 mi (36.4 km) upstream from Hubbard Creek Reservoir, and 35.2 mi (56.6 km) upstream from mouth.

DRAINAGE AREA.--613 mi<sup>2</sup> (1,588 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,184.99 ft (361.185 m) National Geodetic Vertical Datum of 1929. Prior to June 12, 1968, water-stage recorder at site 2.1 mi (3.4 km) downstream at datum 7.63 ft (2.326 m) lower.

REMARKS.--Water-discharge records good.

AVERAGE DISCHARGE.--16 years, 73.6 ft<sup>3</sup>/s (2.084 m<sup>3</sup>/s), 1.63 in/yr (41 mm/yr), 53,320 acre-ft/yr (65.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 330,000 ft<sup>3</sup>/s (9,350 m<sup>3</sup>/s) Aug. 4, 1978, gage height, 41.41 ft (12.622 m), from floodmark, from rating curve extended above 110 ft<sup>3</sup>/s (3.12 m<sup>3</sup>/s) on basis of step-backwater method and computation of flow-through culverts, contracted-openings, and flow-over-road determination of 330,000 ft<sup>3</sup>/s (9,350 m<sup>3</sup>/s) at site 4.5 mi (7.2 km) downstream; no flow for many days.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 13	1200	*36,100 1,020	33.05 10.074	June 25	1000	5,040 143	14.62 4.456
May 13	0730	13,000 368	22.26 6.785	June 27	1230	4,150 118	13.37 4.075

Minimum discharge, no flow Oct. 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	25	20	7.2	11	8.2	4.7	71	40	54	8.2	.35
2	.00	22	15	7.3	10	7.6	4.4	18	34	41	7.4	.46
3	.00	21	13	7.3	9.2	7.8	4.2	11	31	34	6.1	.57
4	.00	20	11	6.9	8.1	7.0	3.8	7.7	29	29	5.4	.61
5	.00	19	10	6.9	7.6	6.4	3.7	10	26	26	7.3	.70
6	.00	18	9.8	6.9	7.5	6.0	3.6	64	23	24	6.8	.68
7	1.0	17	9.3	6.5	7.2	5.8	3.4	41	22	22	6.1	.67
8	1.2	17	9.3	6.4	7.1	5.5	3.1	21	21	22	6.6	.66
9	.71	17	9.2	6.4	6.7	5.2	3.1	15	21	20	6.0	.60
10	4.0	15	8.8	5.7	6.6	5.2	3.1	12	21	18	5.2	.42
11	4.3	15	8.7	3.5	6.5	4.9	3.1	10	20	16	4.4	.34
12	3660	14	8.7	5.7	6.1	4.9	3.0	154	67	15	3.7	.15
13	27500	14	8.7	5.9	6.0	4.7	2.9	5630	48	14	3.2	.18
14	11600	14	8.9	6.0	6.1	20	2.9	304	29	13	2.9	.11
15	869	14	9.0	6.5	5.9	29	2.7	110	22	12	2.8	.89
16	620	13	9.0	6.9	5.9	19	2.5	71	21	12	2.6	1.6
17	331	13	8.6	6.6	5.9	12	2.4	60	20	11	2.4	.85
18	221	13	8.3	6.4	5.9	8.3	2.2	98	32	10	2.2	.34
19	160	11	8.1	6.4	5.6	7.3	2.3	73	31	9.6	1.9	.44
20	122	11	8.1	6.4	5.6	6.6	2.2	52	27	9.0	1.8	.61
21	101	11	8.1	6.4	5.4	6.0	2.9	44	117	8.7	1.6	.61
22	123	11	8.1	6.4	5.6	5.8	2.7	477	102	8.5	1.5	.61
23	205	11	8.1	6.1	5.3	5.4	2.0	413	48	8.1	1.2	.37
24	127	11	8.1	6.1	5.2	4.8	1.9	361	49	8.0	.91	.22
25	82	11	8.1	6.2	7.3	4.7	1.8	282	1900	7.5	.85	.25
26	61	11	7.9	6.1	11	4.8	1.8	924	281	7.0	.90	.28
27	46	11	7.8	5.8	12	4.7	1.7	306	1580	7.4	.90	.08
28	36	11	7.6	5.6	10	4.7	1.9	157	460	8.5	.89	.05
29	33	10	7.5	5.7	---	4.7	2.2	98	145	8.7	.84	.11
30	29	12	7.5	5.5	---	4.7	45	66	79	8.5	.85	.35
31	27	---	7.3	7.2	---	4.7	---	50	---	8.7	.54	---
TOTAL	45964.21	433	287.6	194.9	202.3	236.4	127.2	10010.7	5346	501.2	103.98	14.16
MEAN	1483	14.4	9.28	6.29	7.23	7.63	4.24	323	178	16.2	3.35	.47
MAX	27500	25	20	7.3	12	29	45	5630	1900	54	8.2	1.6
MIN	.00	10	7.3	3.5	5.2	4.7	1.7	7.7	20	7.0	.54	.05
CFSM	2.42	.02	.02	.01	.01	.01	.007	.53	.29	.03	.005	.001
IN.	2.79	.03	.02	.01	.01	.01	.01	.61	.32	.03	.01	.00
AC-FT	91170	859	570	387	401	469	252	19860	10600	994	206	28
CAL YR 1981	TOTAL	50325.22	MEAN 138	MAX 27500	MIN .00	CFSM .23	IN 3.05	AC-FT 99820				
WTR YR 1982	TOTAL	63421.65	MEAN 174	MAX 27500	MIN .00	CFSM .28	IN 3.85	AC-FT 125800				

## BRAZOS RIVER BASIN

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08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to current year.

WATER TEMPERATURES: October 1966 to current year.

INSTRUMENTATION.--Beginning Mar. 30, 1982, specific conductance and water temperature are recorded continuously at this station.

REMARKS.--Specific conductance and water temperature from October 1981 through Mar. 29, 1982, are measured once daily. 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, 21,200 micromhos Feb. 15, 21, 1978; minimum measured daily, 253 micromhos Sept. 8, 1967; minimum estimated daily, 129 micromhos Aug. 4, 1978.

WATER TEMPERATURES (1966-80): Maximum daily, 37.0°C July 11, 1969; minimum daily, 0.0°C Dec. 11, 1972, Jan. 8, 10, 1973.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 5,180 micromhos Sept. 30; minimum daily, 276 micromhos Oct. 13.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 28...	1550	35	1640	16.5	420	250	115	32	160
MAY 26...	1240	1750	889	24.0	230	100	68	15	84
JUN 08...	1310	21	2190	28.5	500	310	130	42	250
JUL 09...	1300	20	1910	29.5	450	270	120	37	210
AUG 11...	1025	4.3	2860	30.0	620	490	150	59	350
SEP 07...	1240	.75	4450	28.0	830	710	200	79	630

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 28...	3.6	5.2	170	110	370	.3	11	906
MAY 26...	2.5	5.5	130	34	190	.2	16	491
JUN 08...	4.9	4.8	190	130	540	.3	10	1220
JUL 09...	4.6	4.5	180	110	450	.3	7.5	1050
AUG 11...	6.1	4.9	130	200	780	.3	10	1630
SEP 07...	9.6	5.6	120	260	1300	.3	12	2560

## BRAZOS RIVER BASIN

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	45964.21	372	194	24100	98	12100	18	2250	79
NOV.	1981	433	2850	1540	1800	790	929	130	148	590
DEC.	1981	287.6	3590	1950	1520	1000	791	160	121	740
JAN.	1982	194.9	3990	2190	1150	1100	602	170	90	820
FEB.	1982	202.3	3590	1960	1070	1000	558	160	85	740
MAR.	1982	236.4	4200	2310	1470	1200	773	180	113	860
APR.	1982	127.2	4100	2250	774	1200	406	170	60	850
MAY	1982	10010.7	653	344	9290	170	4690	31	844	140
JUNE	1982	5346	1070	568	8190	290	4160	51	730	230
JULY	1982	501.2	1760	937	1270	480	648	81	110	370
AUG.	1982	103.98	2800	1510	424	780	219	130	35	580
SEPT	1982	14.16	4310	2370	91	1200	48	180	6.9	890
TOTAL		63421.65	**	**	51200	**	26000	**	4590	**
WTD. AVG.		174	566	299	**	150	**	27	**	120

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1			---			2130			3330			3840
2			---			2270			3300			3940
3			---			2310			3290			4060
4			---			2340			3280			4050
5			---			2520			3360			3930
6			---			2430			3420			4150
7			3240			2690			3400			4310
8			3200			2850			3390			4280
9			3340			2710			3400			4200
10			3250			2660			3410			4150
11			3180			2720			3540			4200
12			766			2870			3620			4180
13			276			3010			3600			4150
14			325			3110			3590			4120
15			510			3060			3600			4050
16			675			2990			3700			4110
17			840			3120			3850			4060
18			1020			3310			3910			4130
19			1200			3220			3860			3940
20			1380			3160			3820			3810
21			1550			3150			3850			3720
22			1320			3410			3870			3910
23			1000			3280			3830			3850
24			1260			3260			3790			3750
25			1390			3280			3800			3770
26			1450			3290			3960			3810
27			1580			3190			3740			3850
28			1640			3160			3700			3910
29			1720			3200			3580			3880
30			1900			3450			3650			3940
31			1970						3870			3750
MONTH			1600			2940			3620			3990

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1			3320	---	---	3940	4480	4120	4230	2220	2120	2160
2			3150	---	---	3900	4280	4100	4150	2320	2140	2200
3			3170	---	---	3920	4320	4200	4250	2320	2260	2290
4			3200	---	---	3990	4260	4220	4240	2480	2280	2390
5			3250	---	---	4010	4360	4180	4240	3140	1280	2610
6			3290	---	---	4090	4360	4300	4330	3160	1800	2700
7			3330	---	---	4050	4360	4280	4320	2780	2380	2610
8			3420	---	---	4060	4400	4240	4300	2940	2580	2750
9			3460	---	---	4150	4400	4340	4370	---	---	2900
10			3510	---	---	4270	4380	4280	4360	---	---	3050
11			3530	---	---	4380	4380	4300	4330	---	---	3230
12			3580	---	---	4410	4340	4280	4310	---	---	1530
13			3640	---	---	4420	4320	4160	4250	---	---	346
14			3690	---	---	4040	4340	4260	4300	---	---	600
15			3730	---	---	3890	4340	4280	4310	---	---	775
16			3770	---	---	4240	4360	4320	4330	---	---	1020
17			3840	---	---	4280	4500	4340	4420	---	---	1250
18			3890	---	---	4320	4460	4380	4430	---	---	1150
19			3930	---	---	4390	4440	4360	4400	---	---	1300
20			3990	---	---	4430	4480	4400	4440	---	---	1600
21			4080	---	---	4450	4480	4360	4450	---	---	1850
22			4040	---	---	4470	4360	4300	4330	---	---	638
23			3870	---	---	4460	4340	4300	4330	---	---	750
24			3890	---	---	4460	4360	4300	4330	---	---	950
25			3960	---	---	4490	4420	4240	4310	---	---	1200
26			3740	---	---	4530	4440	4340	4400	---	---	918
27			3650	---	---	4490	4460	4420	4440	---	---	975
28			3710	---	---	4560	4820	4340	4500	---	---	1020
29			---	---	---	4540	4400	4360	4370	---	---	1090
30			---	---	---	4510	4400	1940	3710	---	---	1210
31			---	4540	4020	4270	---	---	---	---	---	1330
MONTH			3630	4540	4020	4270	4820	1940	4320	3160	1280	1630
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1			1410	---	---	1150			2400	---	---	3800
2			1550	---	---	1200			2460	---	---	3850
3			1620	---	---	1260			2530	---	---	3920
4			1780	---	---	1370			2600	---	---	3980
5			1870	---	---	1430			2500	---	---	4050
6			1940	---	---	1510			2580	---	---	4120
7			2070	---	---	1590			2690	4260	4100	4170
8			2190	---	---	1670			2650	4200	4100	4140
9			2320	1840	1660	1740			2730	4260	4100	4190
10			2400	1940	1740	1840			2810	4360	4220	4290
11			2530	2100	1760	1980			2860	4500	4300	4380
12			2010	2140	1680	1940			2910	4640	4440	4540
13			2160	2120	1900	1980			2970	4840	4440	4630
14			2320	2220	2040	2110			3010	4860	4520	4710
15			2590	---	---	2130			3050	4880	4320	4680
16			2740	---	---	2200			3100	4320	4160	4240
17			3000	---	---	2240			3130	4360	4200	4270
18			2850	---	---	2260			3170	4560	4320	4450
19			2910	---	---	2300			3220	4620	4360	4490
20			3040	---	---	2330			3280	4560	4440	4510
21			2140	---	---	2370			3340	4520	4440	4470
22			2250	---	---	2440			3400	4460	4340	4430
23			2690	---	---	2450			3460	4640	4440	4500
24			2600	---	---	2470			3510	4780	4540	4670
25			726	---	---	2490			3570	4800	4560	4720
26			1500	---	---	2530			3560	4700	4580	4650
27			787	---	---	2500			3550	4800	4680	4720
28			950	---	---	2360			3610	5000	4700	4850
29			1000	---	---	2310			3670	5060	4740	4880
30			1080	---	---	2370			3660	5180	4800	4920
31			---	---	---	2340			3720	---	---	---
MONTH			2030	2220	1660	2030			3090	5180	4100	4410

## BRAZOS RIVER BASIN

08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
MONTH												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1				---	---	---	19.5	16.0	17.5	19.0	17.5	18.5
2				---	---	---	21.5	18.0	19.5	21.0	18.5	19.5
3				---	---	---	20.5	17.0	18.5	23.0	19.0	21.0
4				---	---	---	21.5	16.5	19.0	25.0	20.5	22.5
5				---	---	---	20.0	17.0	18.5	23.0	19.5	22.0
6				---	---	---	20.0	15.0	17.5	21.0	19.0	20.0
7				---	---	---	19.0	15.5	17.5	22.5	17.5	20.0
8				---	---	---	19.0	17.0	18.0	22.5	18.0	20.0
9				---	---	---	19.0	16.5	17.5	---	---	---
10				---	---	---	17.0	15.0	15.5	---	---	---
11				---	---	---	18.5	13.5	16.0	---	---	---
12				---	---	---	20.5	15.5	18.0	---	---	---
13				---	---	---	24.0	17.5	20.5	---	---	---
14				---	---	---	25.0	20.0	21.5	---	---	---
15				---	---	---	23.0	19.0	21.5	---	---	---
16				---	---	---	26.0	21.5	23.0	---	---	---
17				---	---	---	22.0	19.5	20.5	---	---	---
18				---	---	---	19.5	19.0	19.0	---	---	---
19				---	---	---	24.5	18.5	21.5	---	---	---
20				---	---	---	20.5	15.5	17.5	---	---	---
21				---	---	---	16.0	14.0	15.0	---	---	---
22				---	---	---	16.0	14.5	15.0	---	---	---
23				---	---	---	18.0	14.5	16.0	---	---	---
24				---	---	---	17.5	15.5	16.5	---	---	---
25				---	---	---	21.5	15.0	18.5	---	---	---
26				---	---	---	23.0	17.0	20.0	---	---	---
27				---	---	---	22.5	18.5	20.5	---	---	---
28				---	---	---	21.5	19.0	20.0	---	---	---
29				---	---	---	21.0	18.5	19.5	---	---	---
30				19.0	17.5	18.5	22.0	18.5	20.0	---	---	---
31				18.5	15.5	17.0	---	---	---	---	---	---
MONTH				19.0	15.5	18.0	26.0	13.5	18.5	25.0	17.5	20.5



BRAZOS RIVER BASIN

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08086212 HUBBARD CREEK BELOW ALBANY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

## BRAZOS RIVER BASIN

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX

LOCATION.--Lat 32°38'54", long 99°00'15", Stephens County, Hydrologic Unit 12060105, on left bank 600 ft (180 m) downstream from Battle Creek, 1.6 mi (2.6 km) upstream from bridge on Farm Road 576, 9.8 mi (15.8 km) southwest of Breckenridge, and about 14.6 mi (23.5 km) upstream from Hubbard Creek Dam.

DRAINAGE AREA.--280 mi<sup>2</sup> (725 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1962 to current year. Prior to October 1975, published as "near Breckenridge."

REVISED RECORDS.--WDR TX-76-2: Drainage area at former site.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,185.83 ft (361.441 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1975, at site 1.6 mi (2.6 km) downstream at datum 7.41 ft (2.259 m) lower.

REMARKS.--Water-discharge records good except those for Oct. 13, which are fair. Flow is affected by Lake Cisco, capacity 25,600 acre-ft (31.6 hm<sup>3</sup>).

AVERAGE DISCHARGE.--20 years (water years 1963-82), 29.6 ft<sup>3</sup>/s (0.838 m<sup>3</sup>/s), 1.44 in/yr (37 mm/yr), 21,450 acre-ft/yr (26.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,000 ft<sup>3</sup>/s (2,270 m<sup>3</sup>/s) Oct. 13, 1981, gage height, 28.60 ft (8.717 m), from floodmark and field estimate, based on 2-section slope-area determination of peak flow; no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--According to information from State Department of Highways and Public Transportation, the floods of May 16, 1949, July 20, 1953, and Apr. 29, 1957, each reached a stage of 24.6 ft (7.50 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 13	0500	*80,000 2,270	a28.60 8.717
June 25	1200	7,230 250	a24.31 7.410

a From floodmark.

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.3	14	.60	6.0	2.5	.71	.18	.11	16	.49	.13
2	.00	3.1	1.4	.60	2.8	1.6	.61	.18	.04	9.0	.36	.13
3	.00	1.3	1.4	.54	1.8	1.1	.49	.18	.03	6.8	.28	.11
4	.00	.89	1.6	.51	1.3	.89	.40	.17	.03	5.0	.23	.10
5	.00	.89	1.8	.54	1.3	.78	.35	1.9	.03	4.2	.17	.07
6	.00	.89	1.8	.52	1.3	.61	.23	29	.03	3.4	.15	.03
7	182	1.3	1.6	.46	1.3	.48	.19	29	.03	2.5	.13	.01
8	12	17	.92	.42	1.1	.45	.18	9.6	.03	1.8	.13	.00
9	2.0	21	.82	.39	1.0	.32	.17	2.8	.03	1.1	.13	.00
10	.09	22	.78	.39	.89	.34	.15	1.1	.04	1.1	.13	.00
11	.00	15	.75	.39	.78	.34	.15	.66	.49	.89	.13	.00
12	4910	9.5	.69	.39	.78	.34	.15	3.1	471	.89	.13	.00
13	28100	1.5	.74	.40	.78	.34	.14	291	77	.85	.13	.01
14	1420	.46	.88	.40	.78	18	.13	32	13	.60	.13	.01
15	258	.34	.73	.30	.78	16	.13	5.8	3.4	.60	.13	.02
16	63	.40	.76	.20	.78	12	.12	1.6	.40	.60	.13	.00
17	15	.34	.60	.20	.78	4.5	.09	1.2	.06	.59	.13	.00
18	33	.29	.54	.50	.78	1.6	.09	5.7	6.2	.52	.13	.00
19	29	.21	.56	1.0	.78	.69	.09	5.3	7.8	.52	.13	.01
20	16	.21	.66	1.0	.78	.60	.09	.76	13	.50	.13	.00
21	16	.18	.69	1.0	.78	.40	.09	.40	124	.44	.11	.00
22	150	.29	.69	.95	.69	.25	.09	.44	41	.34	.11	.00
23	268	.40	.58	.76	.52	.18	.09	.31	12	.34	.11	.00
24	85	.40	.50	.69	.45	.15	.10	.31	9.8	.34	.11	.00
25	47	.52	.50	.68	.86	.15	.11	.58	2020	.34	.11	.00
26	29	.60	.55	.60	1.8	.21	.11	36	430	.29	.11	.00
27	16	.60	.60	.60	9.2	.25	.10	35	322	4.1	.13	.00
28	9.5	.60	.60	.60	5.4	.34	.16	41	203	3.1	.13	.00
29	5.8	.69	.59	.60	---	.46	.29	30	93	.51	.13	.00
30	5.4	97	.62	1.1	---	.60	.22	1.4	32	.33	.13	.00
31	5.4	---	.60	7.9	---	.75	---	.29	---	.28	.13	---
TOTAL	35677.19	200.20	39.55	25.23	46.29	67.22	6.02	566.96	3879.55	67.87	4.81	.63
MEAN	1151	6.67	1.28	.81	1.65	2.17	.20	18.3	129	2.19	.16	.021
MAX	28100	97	14	7.9	9.2	18	.71	291	2020	16	.49	.13
MIN	.00	.18	.50	.20	.45	.15	.09	.17	.03	.28	.11	.00
CFSM	4.11	.02	.005	.003	.006	.008	.001	.07	.46	.008	.001	.000
IN	4.74	.03	.01	.00	.01	.03	.00	.08	.52	.01	.00	.00
AC-FT	70770	397	78	50	92	101	12	1120	7700	135	9.5	1.2
CAL YR 1981	TOTAL	39746.21	MEAN 109	MAX 28100	MIN .00	CFSM .39	IN 5.28	AC-FT 78840				
WTR YR 1982	TOTAL	40581.52	MEAN 111	MAX 28100	MIN .00	CFSM .40	IN 5.39	AC-FT 80490				

BRAZOS RIVER BASIN

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08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: February 1962 to current year. Sediment records: October 1967 to September 1975.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1962 to current year.

WATER TEMPERATURES: February 1962 to current year.

INSTRUMENTATION.--Beginning Mar. 30, 1982, specific conductance and water temperature are recorded continuously at this station.

REMARKS.--Specific conductance from October 1981 to Mar. 30, 1982, is measured once daily. When maximum and minimum specific conductance values are not shown, mean value is estimated. Mean monthly and annual concentrations and loads for selected chemical constituents have been computed using the daily (or continuous) records of specific conductance and regression relationships between each chemical constituent and specific conductance. Regression equations developed for this station may be obtained from the Geological Survey District office upon request.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 28,700 micromhos Apr. 5, 10, 1976; minimum daily, 59 micromhos Nov. 21, 1963.

WATER TEMPERATURES (1976-77, 1980 ): Maximum daily, 35.5°C July 21, 22, 24, Aug. 15, 16, 1982; minimum daily, 0.0°C Jan. 9, 10, 1977.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 19,800 micromhos Aug. 24; minimum daily, 95 micromhos Oct. 13.

WATER TEMPERATURES: Maximum daily, 35.5°C July 21, 22, 24, Aug. 15, 16.

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 27...	1545	15	1460	16.5	350	230	110	19	150
DEC 08...	1430	1.0	6560	14.0	1400	1200	420	82	820
JAN 19...	1600	1.0	8620	10.0	1700	1500	520	100	1200
MAR 31...	1440	.74	7150	19.5	1400	1300	430	88	930
MAY 05...	1320	.87	4450	23.0	820	730	250	48	580
AUG 11...	1750	.12	11900	32.0	2200	2000	640	140	2000
SEP 07...	1630	.01	17000	30.5	3100	3000	880	210	2900

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 27...	3.6	5.1	120	86	330	.3	11	784
DEC 08...	9.6	6.4	170	290	2100	.1	4.4	3830
JAN 19...	13	7.0	210	410	2800	.2	7.7	5170
MAR 31...	11	7.8	160	--	--	--	--	--
MAY 05...	8.8	5.6	92	210	1400	.2	4.7	2550
AUG 11...	19	6.5	140	620	4100	.2	12	7600
SEP 07...	23	6.7	56	880	6200	.2	9.0	11100

## BRAZOS RIVER BASIN

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	35677.19	133	71	6810	38	3650	5.5	530	24
NOV.	1981	200.20	4690	2620	1420	1400	770	190	104	850
DEC.	1981	39.55	6050	3430	367	1900	200	250	26	1100
JAN.	1982	25.23	8010	4630	315	2500	173	330	22	1500
FEB.	1982	46.29	5480	3090	386	1700	211	220	28	1000
MAR.	1982	67.22	6780	3870	702	2100	384	280	50	1200
APR.	1982	6.02	10000	5950	97	3300	54	410	6.6	*
MAY	1982	566.96	2240	1240	1890	670	1030	92	141	410
JUNE	1982	3879.55	673	359	3760	190	2020	28	291	120
JULY	1982	67.87	3380	1890	346	1000	188	140	25	610
AUG.	1982	4.81	11900	7230	94	4000	52	480	6.3	*
SEPT	1982	0.63	17100	10800	18	6100	10	680	1.2	*
TOTAL		40581.52	**	**	16200	**	8750	**	1230	**
WTD. AVG.		111	273	148	**	80	**	11	**	49

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1			---			2430			4640			7910
2			---			2660			4830			7220
3			---			2970			5700			7590
4			---			3120			5800			7880
5			---			3170			6270			8270
6			---			3450			6260			8250
7			402			3750			6370			8210
8			231			3840			6500			8240
9			500			3990			6660			8550
10			750			4020			7030			9650
11			---			4210			7140			9600
12			125			4170			7210			9510
13			95			4290			7140			9400
14			402			4390			7030			9290
15			706			4700			7140			9210
16			900			4890			7200			9030
17			1080			5160			7300			9000
18			1150			5250			7320			8780
19			1360			5300			7400			8620
20			1680			5620			7460			8300
21			1750			5600			7440			8370
22			775			6140			7420			8570
23			427			6060			7510			8690
24			699			6120			8440			8620
25			719			6250			8020			8490
26			1110			6360			7940			8670
27			1420			6380			7850			8510
28			1700			6390			7740			8440
29			1800			6540			7590			8410
30			2120			5390			7890			7890
31			2200						8110			7000
MONTH			1000			4750			7040			8520

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1			5510	---	---	4580	6720	6520	6600	---	---	11600
2			3170	---	---	4670	7240	6680	6850	---	---	9790
3			3270	---	---	4760	7460	7200	7330	---	---	9720
4			3920	---	---	5020	7800	7320	7610	---	---	9810
5			4350	---	---	5380	8220	7560	7800	---	---	7930
6			4770	---	---	5530	8840	8080	8300	---	---	6970
7			4950	---	---	5840	8940	8480	8780	---	---	5310
8			5070	---	---	6300	9680	8940	9160	---	---	4280
9			5260	---	---	6570	10300	9620	9830	---	---	4760
10			5470	---	---	6860	10400	10200	10300	---	---	4900
11			5500	---	---	7360	10400	10100	10300	---	---	4890
12			5490	---	---	7500	11100	10200	10600	---	---	5610
13			5520	---	---	7640	11500	11000	11200	---	---	970
14			5740	---	---	7490	12200	11500	11800	---	---	2980
15			5970	---	---	7290	12500	12000	12200	---	---	4050
16			6350	---	---	6530	12700	12300	12500	---	---	4180
17			6560	---	---	5840	12700	12500	12600	---	---	4020
18			6780	---	---	6500	12900	12700	12700	---	---	4850
19			6870	---	---	6670	13400	12800	13100	---	---	5050
20			7030	---	---	6840	13500	13400	13500	---	---	5470
21			7300	---	---	6560	14000	13500	13700	5980	5640	5810
22			7440	---	---	6070	14200	13800	13900	6420	5980	6170
23			7570	---	---	6800	14200	13900	14100	6780	6320	6520
24			7600	---	---	7410	14300	14100	14200	7140	6700	6900
25			7030	---	---	7660	14400	13800	14300	7280	6980	7150
26			6680	---	---	7790	14600	14000	14300	---	---	2300
27			6320	---	---	7960	14900	14400	14600	---	---	2230
28			4510	---	---	7500	15000	14800	14900	---	---	2050
29				---	---	7220	14800	14500	14600	---	---	2630
30				---	---	7160	14600	14200	14400	---	---	3150
31				6740	6620	6700	---	---	---	---	---	3740
MONTH			5790	6740	6620	6580	15000	6520	11500	7280	5640	5350

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	4210	---	---	1440	7660	6800	7310	19100	16300	17200
2	---	---	5250	---	---	1870	7100	6360	6760	17900	16600	16800
3	---	---	5870	---	---	2000	8080	7100	7520	17100	16600	16800
4	---	---	7030	---	---	2550	8620	7840	8220	18100	16700	17100
5	---	---	6980	---	---	2910	9180	8440	8740	17700	16800	17100
6	---	---	7850	---	---	3470	9620	8920	9240	18000	16900	17200
7	---	---	8010	---	---	3750	9960	9500	9690	18400	17100	17300
8	---	---	9230	---	---	3980	10500	9900	10100	---	---	---
9	10300	9500	9820	---	---	4450	11400	10200	10800	---	---	---
10	11600	10400	10800	5080	4280	4640	12000	11200	11500	---	---	---
11	12600	11100	11700	5580	4780	5180	---	---	11900	---	---	---
12	---	---	756	5760	5100	5430	---	---	12200	---	---	---
13	---	---	1140	5960	5320	5660	---	---	12800	18100	17700	17900
14	---	---	1520	6300	5600	6020	---	---	13000	18400	17800	18100
15	---	---	1440	6440	6060	6250	---	---	13400	18200	17400	17700
16	---	---	1630	6800	6320	6570	---	---	13700	---	---	---
17	---	---	2280	7080	6520	6820	---	---	14200	---	---	---
18	---	---	2050	7520	6800	7160	---	---	14700	---	---	---
19	---	---	1870	8080	7060	7550	19500	13500	15500	17800	16800	17500
20	---	---	1180	8220	7260	7710	19600	13700	15400	---	---	---
21	---	---	929	8600	7820	8200	19200	14000	15200	---	---	---
22	---	---	1300	9000	8120	8570	19100	14300	15400	---	---	---
23	---	---	2000	9000	8720	8880	19600	14600	15600	---	---	---
24	---	---	2350	9100	8920	9010	19800	14800	15800	---	---	---
25	---	---	600	9080	8880	9000	18500	15000	15800	---	---	---
26	---	---	655	8980	8660	8880	19600	15200	16500	---	---	---
27	---	---	580	9020	4240	7710	16600	15400	15800	---	---	---
28	---	---	506	5900	4040	4820	19600	15700	17000	---	---	---
29	---	---	546	6020	5580	5880	19300	15800	16700	---	---	---
30	---	---	1260	6760	5760	6000	19300	16100	16900	---	---	---
31	---	---	---	7520	6780	7020	19100	16200	16700	---	---	---
MONTH	12600	9500	3710	9100	4040	5790	19800	6360	13000	19100	16300	17300

## BRAZOS RIVER BASIN

08086290 BIG SANDY CREEK ABOVE BRECKENRIDGE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
MONTH												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1				---	---	---	20.5	16.5	18.5	21.5	19.0	20.0
2				---	---	---	22.5	19.0	20.5	22.5	20.0	21.0
3				---	---	---	21.0	16.5	18.5	25.5	20.0	22.0
4				---	---	---	23.0	16.5	19.5	26.5	21.0	23.5
5				---	---	---	22.5	17.5	20.0	23.5	21.0	22.5
6				---	---	---	20.0	16.0	18.0	21.5	18.5	20.0
7				---	---	---	19.5	15.5	17.0	21.5	16.5	19.0
8				---	---	---	20.0	16.5	18.0	24.5	18.0	21.0
9				---	---	---	18.5	16.0	17.0	24.5	19.5	22.0
10				---	---	---	16.5	14.0	15.0	23.5	20.5	22.0
11				---	---	---	19.5	11.5	15.5	26.0	22.0	23.5
12				---	---	---	21.0	16.0	18.5	25.0	22.5	24.0
13				---	---	---	25.0	18.5	21.5	22.0	19.5	20.5
14				---	---	---	26.5	20.5	23.0	24.0	20.5	22.0
15				---	---	---	25.0	21.0	22.5	26.5	22.0	24.0
16				---	---	---	27.0	21.5	24.0	26.5	23.5	25.0
17				---	---	---	22.5	19.5	21.5	26.0	23.0	25.0
18				---	---	---	20.5	18.5	19.0	26.5	23.5	25.0
19				---	---	---	26.0	18.5	21.5	28.0	24.0	26.0
20				---	---	---	22.0	16.0	18.0	28.5	25.0	27.0
21				---	---	---	16.0	14.0	14.5	29.5	26.0	27.5
22				---	---	---	15.5	13.0	14.5	28.5	26.5	27.5
23				---	---	---	19.0	14.5	16.0	27.5	25.5	26.5
24				---	---	---	18.0	16.0	17.0	29.0	25.5	27.0
25				---	---	---	24.0	16.0	19.5	29.0	26.0	27.5
26				---	---	---	24.5	17.5	20.5	28.0	25.5	26.5
27				---	---	---	23.5	19.0	21.0	28.0	27.0	27.5
28				---	---	---	21.5	19.5	20.5	29.5	26.5	28.0
29				---	---	---	20.5	18.0	19.5	31.5	27.5	29.0
30				---	---	---	23.5	19.0	21.0	32.0	28.5	30.5
31				---	---	---	---	---	---	31.5	27.5	29.0
MONTH				21.0	18.5	19.5	27.0	11.5	19.0	32.0	16.5	24.5



## BRAZOS RIVER BASIN

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TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

## 08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX

LOCATION.--Lat 32°49'53", long 98°58'03", Stephens County, Hydrologic Unit 12060105, on left bank just upstream from dam on Hubbard Creek, 1.4 mi (2.3 km) upstream from U.S. Highway 183, 6.5 mi (10.5 km) northwest of Breckenridge, and 12.6 mi (20.3 km) upstream from mouth.

DRAINAGE AREA.--1,085 mi<sup>2</sup> (2,810 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

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

REMARKS.--The reservoir is formed by a rolled earthfill dam 5,630 ft (1,720 m) long. There are two additional levees, the north and south, making an overall length of 3.5 mi (5.6 km). Storage began September 1962 and the dam was completed in December 1962. The emergency spillway is a 2,000-foot-wide (610 m) cut through natural ground near the left end of dam. The service spillway is a partially controlled morning-glory type, with 12 lift gates designed to discharge 30,000 ft<sup>3</sup>/s (850 m<sup>3</sup>/s), with a 17.5-foot (5.3 m) head through a 22.0-foot-diameter (6.7 m) concrete conduit. The dam is the property of the West Central Texas Municipal Water District. The District has a permit to divert 56,000 acre-ft (69.0 hm<sup>3</sup>) annually for municipal, mining, and industrial uses. Diversions during the current year are as follows: 1,390 acre-ft (1.71 hm<sup>3</sup>) for municipal use, 3,680 acre-ft (4.54 hm<sup>3</sup>) for oilfield operation, and 2,050 acre-ft (2.53 hm<sup>3</sup>) for irrigation and domestic uses. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,208.0	-
Crest of spillway.....	1,194.0	515,800
Top of gates.....	1,185.1	350,900
Top of conservation pool.....	1,183.0	317,800
Crest of spillway.....	1,176.6	230,100
Sill of gate.....	1,138.0	5,580
Lowest gated outlet (invert).....	1,136.0	3,470

COOPERATION.--The diversions and capacity table were furnished by the West Central Texas Municipal Water District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 441,200 acre-ft (544 hm<sup>3</sup>) Oct. 14, 1981, for several hours, elevation, 1,190.22 ft (362.779 m); minimum since normal operating level was reached in May 1969, 171,200 acre-ft (211 hm<sup>3</sup>) Oct. 18-20, 1972, elevation, 1,171.3 ft (357.01 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 441,200 acre-ft (544 hm<sup>3</sup>) Oct. 14, for several hours, elevation, 1,190.22 ft (362.779 m); minimum, 231,800 acre-ft (286 hm<sup>3</sup>) Oct. 5, elevation, 1,176.74 ft (358.670 m).

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

1,176.0	222,800	1,185.0	349,300
1,179.0	260,700	1,188.0	400,400
1,182.0	302,800	1,191.0	456,100

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	232600	289100	286800	283100	281400	281100	281100	276800	281700	284200	277700	268000
2	232400	289100	286700	283100	281100	280700	280400	276900	281700	284000	277500	267500
3	232300	288800	285900	282600	280500	280500	280300	276900	281500	283800	277200	267200
4	232100	289000	285700	282900	280400	280100	280400	276900	281400	283500	276800	266800
5	231800	288800	285700	282500	280300	279800	279400	278600	281500	283200	276300	266500
6	232000	288700	285700	281700	280400	280100	279300	278400	281200	282900	276100	266100
7	233000	288700	285700	281400	280400	280400	279600	278600	281000	282600	275900	265800
8	233000	288500	285600	281800	280100	280100	278900	278400	280800	282800	275600	265600
9	233000	288100	285400	281000	280000	280000	278400	278000	280500	282500	275500	265300
10	233000	288100	285400	280700	280100	280300	278900	278000	280400	282200	275200	265000
11	233000	288100	285400	280500	280500	280300	279000	278700	284300	281800	275200	264800
12	259000	288100	285400	280500	280100	280100	278400	283200	285300	281700	274900	264200
13	426000	288000	285300	280500	280000	280100	278400	297400	285300	281200	274500	264300
14	429000	288300	285300	280400	280300	281700	279300	294800	285400	281100	274100	263900
15	399000	287800	285300	280700	280400	281800	278900	292000	284700	281000	273700	263400
16	371000	287700	284300	280500	280300	281700	277600	288300	284700	280400	273300	263300
17	344000	288000	284200	280400	280100	281900	277600	287800	284600	280100	272900	263300
18	322000	288000	284300	280500	280000	282100	277600	287500	286100	279800	272600	262700
19	311000	287400	284300	280300	280100	281800	277200	287500	287400	279300	272300	262900
20	304000	287000	284500	280400	280300	281700	276800	287700	287700	279000	271900	262500
21	300000	287100	284300	280500	280300	281000	276300	287100	289000	278600	271700	261900
22	298000	287000	283800	280300	280300	281000	276100	289800	289100	278400	271700	261900
23	296000	286700	283600	280100	280300	280800	276200	292000	288800	278000	271100	261500
24	294000	286800	283600	280100	279300	281100	276300	293500	290000	277700	270700	261000
25	291000	287300	283900	280000	280500	280300	275800	293000	309800	277500	270300	260700
26	289000	286600	283500	280100	280800	280500	275800	295800	304000	277900	269900	260300
27	290000	286000	283300	280300	280800	280300	275800	292600	301600	277600	269200	259900
28	290000	286400	282900	280000	281000	280700	276100	288700	297000	277500	269200	259900
29	290000	286100	283100	280400	---	280800	275900	284500	291700	277300	268900	259500
30	289600	287000	283100	280700	---	280700	276200	282500	286700	277000	268700	259300
31	289400	---	282800	281200	---	280400	---	281800	---	276900	268400	---
MAX	429000	289100	286800	283100	281400	282100	281100	297400	309800	284200	277700	268000
MIN	231800	286000	282800	280000	279300	279800	275800	276800	280400	276900	268400	259300
(†)	1181.08	1180.91	1180.61	1180.50	1180.48	1180.44	1180.14	1180.54	1180.89	1180.19	1179.57	1178.89
(‡)	+56400	-2400	-4200	-1600	-200	-600	-4200	+5600	+4900	-9800	-8500	-9100

CAL YR 1981 MAX 429000 MIN 231800 ‡ +44800  
WTR YR 1982 MAX 429000 MIN 231800 ‡ +26300

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

## BRAZOS RIVER BASIN

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08086400 HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1963 to current year.

324932098575101 HUBBARD CREEK RESERVOIR SITE P1

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT										
27...	0940	1.00	632	7.9	17.5	.20	7.4	80	160	87
27...	0941	.40	--	--	--	--	--	--	--	--
27...	0942	10.0	632	7.9	17.5	--	7.5	82	--	--
27...	0944	20.0	634	7.9	17.5	--	7.4	80	--	--
27...	0946	30.0	634	7.9	17.5	--	7.4	80	--	--
27...	0948	40.0	635	7.9	17.5	--	7.4	80	--	--
27...	0950	50.0	639	8.0	17.0	--	7.5	81	--	--
27...	0952	60.0	645	7.9	17.0	--	7.5	81	--	--
27...	0954	70.0	645	7.9	17.0	--	7.4	80	160	84
AUG										
03...	1405	1.00	641	8.1	30.0	.70	7.0	97	170	74
03...	1407	10.0	641	8.0	29.5	--	7.0	96	--	--
03...	1409	20.0	641	7.8	28.5	--	6.0	81	--	--
03...	1411	30.0	641	7.7	28.5	--	6.0	81	--	--
03...	1413	40.0	643	6.9	27.5	--	.9	12	--	--
03...	1415	50.0	643	6.8	25.5	--	.4	5	--	--
03...	1417	58.0	654	7.0	23.5	--	.4	5	180	68

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...	45	11	57	2.1	6.1	71	18	160	.3
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	45	11	59	2.2	5.9	74	26	150	--
AUG									
03...	49	11	54	1.9	5.4	94	28	130	.2
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	53	11	55	1.9	5.2	110	25	130	--

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)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)
OCT									
27...	4.9	345	.22	.43	.65	.040	1	160	<1
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	.11	.61	.72	.050	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	5.0	347	.20	.93	1.1	.040	1	150	<1
AUG									
03...	5.6	340	<.10	.60	--	.030	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	.10	.50	.60	.030	--	--	--
03...	--	--	<.10	.70	--	.030	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	7.0	354	<.10	1.30	--	.060	--	--	--

## BRAZOS RIVER BASIN

## HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324932098575101 HUBBARD CREEK RESERVOIR SITE P1--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT									
27...	<10	2	75	1	9	<.1	<1	<1	11
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	20	--	10	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	<10	3	62	1	30	<.1	<1	<1	9
AUG									
03...	--	--	<3	--	7	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	<10	--	40	--	--	--	--
03...	--	--	100	--	910	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	370	--	1200	--	--	--	--

324712098575701 HUBBARD CREEK RESERVOIR SITE P4

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
27...	1040	1.00	642	8.0	16.5	7.9	84
27...	1042	10.0	642	8.0	16.5	7.9	84
27...	1044	21.0	702	7.7	15.0	7.0	72
AUG							
03...	1434	1.00	642	7.7	29.0	5.8	79
03...	1436	10.0	642	7.7	28.5	5.0	68
03...	1438	16.0	642	7.6	28.5	2.9	39

324843098582901 HUBBARD CREEK RESERVOIR SITE P6

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
27...	1350	1.00	581	7.9	18.0	7.5	82
27...	1352	10.0	576	8.0	17.5	7.5	82
27...	1354	20.0	576	8.0	17.5	7.5	82
27...	1356	30.0	570	8.0	17.0	7.5	81
27...	1358	40.0	487	7.9	17.0	7.5	81
27...	1400	50.0	483	7.9	16.5	7.5	80
27...	1402	60.0	480	7.9	16.5	7.6	81
27...	1404	69.0	480	7.8	17.0	7.8	84
AUG							
03...	1348	1.00	636	8.0	29.5	6.8	93
03...	1350	10.0	637	7.9	29.0	6.5	88
03...	1352	20.0	638	7.8	28.5	6.3	84
03...	1354	30.0	639	7.7	28.5	6.2	83
03...	1356	40.0	644	6.8	26.5	.3	4
03...	1358	50.0	645	6.9	25.5	.4	5
03...	1400	61.0	660	7.3	24.0	.4	5

## BRAZOS RIVER BASIN

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## HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324649099000501 HUBBARD CREEK RESERVOIR SITE P9

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT									
27...	1420	1.00	412	7.8	16.5	.20	7.8	83	110
27...	1422	10.0	408	7.8	16.0	--	7.7	81	--
27...	1424	20.0	463	7.8	16.0	--	7.7	81	--
27...	1426	30.0	459	7.8	16.0	--	7.6	80	--
27...	1428	40.0	416	7.8	16.0	--	7.6	80	--
27...	1430	50.0	284	7.7	16.0	--	7.2	76	86
AUG									
03...	1320	1.00	634	7.8	29.0	.50	6.2	84	170
03...	1322	10.0	634	7.7	28.5	--	5.9	79	--
03...	1324	20.0	641	7.2	28.0	--	2.9	39	--
03...	1326	30.0	641	7.1	27.5	--	2.1	28	--
03...	1328	40.0	641	6.9	27.5	--	.7	9	--
03...	1330	45.0	641	7.1	27.5	--	.9	12	170

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)
OCT									
27...	52	34	6.7	35	1.5	4.4	61	7.0	95
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	32	27	4.6	21	1.0	3.7	54	9.0	52
AUG									
03...	71	50	10	55	2.0	5.3	95	26	130
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	68	50	10	56	2.0	5.4	98	24	130

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT								
27...	5.7	225	.30	.75	1.1	.060	170	12
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
27...	--	--	.18	.55	.73	.080	440	30
27...	7.1	157	.34	.83	1.2	.100	510	48
AUG								
03...	5.7	339	.10	.60	.70	.050	<3	7
03...	--	--	--	--	--	--	--	--
03...	--	--	.17	.90	1.1	.040	10	40
03...	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--
03...	6.3	341	.17	1.20	1.4	.110	11	370

## BRAZOS RIVER BASIN

## HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

## 324606099000201 HUBBARD CREEK RESERVOIR SITE P10

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
27...	0910	1.00	285	7.6	15.0	7.8	80
27...	0912	10.0	285	7.6	15.0	7.8	80
27...	0914	20.0	285	7.6	15.0	7.8	80
27...	0916	30.0	277	7.6	15.0	7.7	79
27...	0918	36.0	262	7.5	15.0	7.4	76
AUG							
03...	1304	1.00	632	7.8	29.5	6.4	88
03...	1306	10.0	632	7.6	29.0	6.1	82
03...	1308	20.0	637	7.0	28.0	2.2	29
03...	1310	30.0	640	7.0	27.5	.3	4
03...	1312	35.0	643	7.3	28.0	.3	4

## 324514099010201 HUBBARD CREEK RESERVOIR SITE P11

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
27...	1500	1.00	237	7.7	16.5	7.7	82
27...	1502	10.0	233	7.7	16.0	7.7	81
27...	1504	20.0	233	7.7	15.5	7.6	79
27...	1506	30.0	233	7.6	15.5	7.4	77
AUG							
03...	1726	1.00	631	7.6	29.5	5.8	79
03...	1728	10.0	631	7.5	28.5	5.0	68
03...	1730	20.0	633	7.3	28.0	3.8	51
03...	1732	27.0	633	7.2	28.0	2.2	29

## 324301099001701 HUBBARD CREEK RESERVOIR SITE P12

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT									
27...	1515	1.00	494	7.9	15.0	.20	8.1	84	150
27...	1517	10.0	515	7.9	15.0	--	8.1	84	--
27...	1519	18.0	621	7.6	14.5	--	6.6	67	160
AUG									
03...	1743	1.00	629	7.8	30.0	.10	6.7	93	170
03...	1745	10.0	629	7.5	28.5	--	4.5	61	--
03...	1747	15.0	629	7.6	28.5	--	4.2	57	160

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
27...	62	49	5.8	37	1.4	4.1	84	7.0	100
27...	--	--	--	--	--	--	--	--	--
27...	77	54	7.0	49	1.7	4.2	87	8.0	140
AUG									
03...	68	51	9.9	54	1.9	5.4	100	24	130
03...	--	--	--	--	--	--	--	--	--
03...	67	49	10	54	1.9	5.4	97	26	130



## BRAZOS RIVER BASIN

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## HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324301099001701 HUBBARD CREEK RESERVOIR SITE P12--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT 27...	9.0	262	.37	.95	1.3	.070	48	16
27...	--	--	--	--	--	--	--	--
27...	10	325	.49	.81	1.3	.060	290	55
AUG 03...	6.9	341	<.10	.80	--	.040	6	34
03...	--	--	--	--	--	--	--	--
03...	6.6	340	.10	1.20	1.3	.070	110	200

324949098594301 HUBBARD CREEK RESERVOIR SITE P13

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT 27...	1055	1.00	615	8.0	18.0	7.5	82
27...	1057	10.0	613	8.0	17.5	7.5	82
27...	1059	20.0	597	8.0	17.5	7.6	83
27...	1101	30.0	591	8.0	17.0	7.6	82
27...	1103	40.0	587	8.0	17.0	7.6	82
27...	1105	50.0	589	8.0	17.0	7.6	82
27...	1107	60.0	596	8.0	17.0	7.5	81
27...	1109	65.0	591	7.9	17.0	7.4	80
AUG 03...	1449	1.00	647	8.1	30.0	7.3	101
03...	1451	10.0	647	8.0	29.0	6.9	95
03...	1453	20.0	647	7.9	28.5	6.5	88
03...	1455	30.0	647	7.8	28.5	6.4	86
03...	1457	40.0	647	7.0	27.0	2.4	32
03...	1459	50.0	647	6.9	26.0	.4	5
03...	1501	60.0	658	7.2	24.0	.4	5

324802099021601 HUBBARD CREEK RESERVOIR SITE P15

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT 27...	1130	1.00	564	8.0	16.5	7.9	84
27...	1132	10.0	556	8.0	16.5	7.9	84
27...	1134	20.0	471	8.0	15.5	7.8	81
27...	1136	30.0	446	8.0	15.5	7.8	81
27...	1138	40.0	446	7.9	16.0	7.6	80
AUG 03...	1510	1.00	644	8.0	29.5	7.0	96
03...	1512	10.0	644	8.0	29.0	6.6	90
03...	1514	20.0	644	7.9	28.5	6.3	85
03...	1516	30.0	644	7.8	28.5	5.5	74
03...	1518	36.0	644	7.4	28.5	2.1	28

## BRAZOS RIVER BASIN

## HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324653099032401 HUBBARD CREEK RESERVOIR SITE P16

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT									
27...	1150	1.00	429	7.9	15.0	.20	7.8	80	120
27...	1152	10.0	429	7.9	15.0	--	7.7	79	--
27...	1154	20.0	475	7.8	15.0	--	7.2	74	--
27...	1156	29.0	777	7.6	15.0	--	4.9	51	220
AUG									
03...	1530	1.00	654	7.9	29.5	.40	6.2	85	170
03...	1532	10.0	654	7.8	29.0	--	5.8	79	--
03...	1534	20.0	652	7.6	29.0	--	3.7	51	170

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- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
27...	45	38	7.0	34	1.4	4.9	79	6.0	88
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	100	68	13	66	2.0	5.2	120	35	150
AUG									
03...	74	50	11	58	2.0	5.5	96	29	140
03...	--	--	--	--	--	--	--	--	--
03...	75	50	11	55	1.9	5.4	95	26	130

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)
OCT								
27...	7.7	233	.22	.88	1.1	.090	130	15
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
27...	13	423	.46	.90	1.4	.090	390	140
AUG								
03...	6.1	357	<.10	1.00	--	.040	17	11
03...	--	--	--	--	--	--	--	--
03...	6.0	341	.10	1.00	1.1	.040	4	51

324608099042101 HUBBARD CREEK RESERVOIR SITE P17

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
27...	1223	1.00	976	7.6	16.0	5.1	54
27...	1225	10.0	1240	7.6	15.5	5.0	52
27...	1227	25.0	1360	7.6	15.5	5.4	56
AUG							
03...	1606	1.00	857	7.7	30.0	6.0	83
03...	1608	10.0	980	7.2	29.5	2.4	33
03...	1610	20.0	1360	7.2	30.0	.5	7

## BRAZOS RIVER BASIN

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## HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324541099053601 HUBBARD CREEK RESERVOIR SITE P18

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT									
27...	1300	1.00	1140	7.8	16.0	.30	6.3	66	310
27...	1301	.40	--	--	--	--	--	--	--
27...	1302	10.0	1750	7.9	15.0	--	7.5	77	--
27...	1304	19.0	1880	7.8	15.5	--	7.0	73	470
AUG									
03...	1627	1.00	1070	8.0	31.5	.40	9.1	130	270
03...	1629	10.0	1580	7.0	30.0	--	3.5	49	--
03...	1631	16.0	2090	7.0	30.0	--	1.8	25	470

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- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS S04)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
27...	170	91	20	99	2.6	5.1	140	72	240
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	310	131	35	190	4.1	5.0	160	120	430
AUG									
03...	150	73	22	120	3.4	5.5	120	63	250
03...	--	--	--	--	--	--	--	--	--
03...	340	120	41	250	5.0	5.3	130	140	520

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)
OCT								
27...	12	623	.79	1.00	1.8	.050	<10	160
27...	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--
27...	12	1020	1.4	1.00	2.4	.030	12	190
AUG								
03...	8.0	614	<.10	1.00	--	.030	3	7
03...	--	--	--	--	--	--	--	--
03...	9.5	1160	.30	1.50	1.8	.060	20	550

## BRAZOS RIVER BASIN

## HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324932098575101 HUBBARD CREEK RESERVOIR SITE P1

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO OCTOBER 1981

DATE	OCT 27,81
TIME	0941

TOTAL CELLS/ML	2600
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DIVERSITY: DIVISION	1.1
..CLASS	1.1
...ORDER	1.2
...FAMILY	1.4
....GENUS	1.5

ORGANISM	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)		
..BACILLARIOPHYCEAE		
...EUPODISCALES		
...COSCINODISCACEAE		
....CYCLOTELLA	29	1
..FRAGILARIALES		
...FRAGILARIACEAE		
....SYNEDRA	57	2
..NAVICULALES		
...NAVICULACEAE		
....NAVICULA	14	1
CHLOROPHYTA (GREEN ALGAE)		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...CHLOROCOCCACEAE		
....TETRAEDRON	72	3
...OOCYSTACEAE		
...ANKISTRODESMUS	100	4
....TREUBARIA	14	1
...SCENEDESMACEAE		
...SCENEDESMUS	320	12
CYANOPHYTA (BLUE-GREEN ALGAE)		
..CYANOPHYCEAE		
...OSCILLATORIALES		
...OSCILLATORIACEAE		
....OSCILLATORIA	1900#	73
EUGLENOPHYTA (EUGLENOIDS)		
..EUGLENOPHYCEAE		
...EUGLENALES		
...EUGLENACEAE		
....TRACHELOMONAS	100	4

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

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

BRAZOS RIVER BASIN

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HUBBARD CREEK RESERVOIR NEAR BRECKENRIDGE, TX--Continued

324541099053601 HUBBARD CREEK RESERVOIR SITE P18

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO OCTOBER 1981

DATE	OCT 27,81
TIME	1301
TOTAL CELLS/ML	1500
DIVERSITY: DIVISION	1.4
..CLASS	1.4
...ORDER	2.0
....FAMILY	2.6
.....GENUS	2.9

ORGANISM	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)		
..BACILLARIOPHYCEAE		
...EUPODISCALES		
....COSCINODISCAEAE		
.....CYCLOTELLA	43	3
CHLOROPHYTA (GREEN ALGAE)		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
....HYDRODICTYACEAE		
.....PEDIASTRUM	230#	15
...OOCYSTACEAE		
....ANKISTRODESMUS	29	2
...CLOSTERIOPSIS	14	1
....OOCYSTIS	57	4
...SCENEDESMACEAE		
....SCENEDESMUS	110	8
...TETRASTRUM	86	6
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	430#	29
CYANOPHYTA (BLUE-GREEN ALGAE)		
..CYANOPHYCEAE		
...OSCILLATORIALES		
....OSCILLATORIACEAE		
.....OSCILLATORIA	220	14
EUGLENOPHYTA (EUGLENOIDS)		
..EUGLENOPHYCEAE		
...EUGLENALES		
....EUGLENACEAE		
.....EUGLENA	14	1
....TRACHELOMONAS	270#	18

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

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

## BRAZOS RIVER BASIN

## 08086500 HUBBARD CREEK NEAR BRECKENRIDGE, TX

LOCATION.--Lat 32°50'13", long 98°56'52", Stephens County, Hydrologic Unit 12060105, on downstream side of pier of bridge on U.S. Highway 183, 1.4 mi (2.3 km) downstream from Hubbard Creek Reservoir, 6.8 mi (10.9 km) northwest of Breckenridge, 8.2 mi (13.2 km) upstream from Gonzales Creek, and 11.2 mi (18.0 km) upstream from Clear Fork Brazos River.

DRAINAGE AREA.--1,089 mi<sup>2</sup> (2,821 km<sup>2</sup>), of which 1,085 mi<sup>2</sup> (2,810 km<sup>2</sup>) is above Hubbard Creek Dam.

PERIOD OF RECORD.--April 1955 to current year.

Water-quality records: Chemical analyses: April 1955 to September 1975. Water temperatures: April 1955 to September 1975.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,092.12 ft (332.878 m) National Geodetic Vertical Datum of 1929. Prior to July 16, 1959, at site 300 ft (91 m) upstream at same datum.

REMARKS.--Records good. Flow is regulated by Hubbard Creek Reservoir (station 08086400). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years (water years 1956-62) prior to completion of Hubbard Creek Dam, 170 ft<sup>3</sup>/s (4.814 m<sup>3</sup>/s), 123,200 acre-ft/yr (152 hm<sup>3</sup>/yr); 20 years (water years 1963-82) regulated, 49.4 ft<sup>3</sup>/s (1.399 m<sup>3</sup>/s), 35,790 acre-ft/yr (44.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,500 ft<sup>3</sup>/s (977 m<sup>3</sup>/s) May 26, 1957, gage height, 34.00 ft (10.363 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1925, 34.2 ft (10.42 m) July 20, 1953, from information by local resident and State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,200 ft<sup>3</sup>/s (459 m<sup>3</sup>/s) Oct. 14 at 0230 hours, gage height, 32.06 ft (9.772 m); no flow Oct. 1-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.88	.99	.08	1.4	.31	.28	1.6	3.8	1510	.75	.14
2	.0	4.3	.42	.08	1.9	.25	.28	.42	2.6	8.2	.43	.15
3	.0	.58	.42	.10	1.6	.25	.25	1.0	1.9	4.4	.30	.15
4	.0	.28	.38	.10	.34	.22	.25	.38	1.4	3.1	.29	.16
5	.0	.25	.34	.12	.31	.19	.25	.72	1.1	2.3	.28	.14
6	.1	.22	.31	.12	.28	.16	.25	3.8	.93	1.7	.28	.14
7	.5	.19	.28	.14	.31	.16	.22	.87	.85	1.7	.48	.13
8	.4	.41	.25	.14	.31	.16	.22	.50	.72	1.4	.68	.12
9	.6	.28	.19	.14	.34	.49	.22	.43	.65	1.1	.40	.12
10	.5	.25	.12	.16	.31	.46	.31	.46	.63	.94	.35	.11
11	.4	.22	.08	.19	.31	.36	.22	.50	212	.87	.33	.11
12	133	.19	.05	.19	.34	.28	.22	2.5	131	.80	.34	.10
13	8630	.19	.10	.19	.34	.22	.22	652	9.6	.78	.37	.13
14	16100	.16	.30	.22	.34	12	.19	1470	6.5	.67	.39	.13
15	16000	.14	.32	.58	.34	3.0	.19	1390	8.6	.59	.36	.11
16	15800	.12	.25	1.0	.38	.95	.19	1320	12	.50	.31	.12
17	15100	.10	.22	.81	.38	.57	.19	1250	4.6	.46	.31	.11
18	12600	.08	.22	.95	.34	.42	.19	600	80	.41	.30	.10
19	7660	.07	.22	.95	.38	.34	.19	9.1	40	.37	.31	.11
20	3800	.06	.22	.88	.38	.31	.16	4.6	13	.34	.31	.14
21	2360	.05	.22	.81	.38	.31	.16	2.7	21	.34	.32	.10
22	1490	.04	.22	.63	.38	.31	.16	3.7	7.7	.32	.31	.08
23	1420	.04	.19	.57	.38	.28	.16	70	4.5	.31	.30	.07
24	1350	.03	.19	.42	.34	.28	.22	27	13	.30	.29	.06
25	1260	.02	.16	.34	.57	.28	.16	529	1870	.29	.27	.07
26	543	.01	.14	.28	.69	.25	.14	1480	3830	.48	.27	.06
27	6.9	.01	.14	.22	.34	.71	.14	1720	3430	.44	.27	.05
28	2.7	.01	.12	.22	.34	.53	.14	2620	3170	.38	.25	.04
29	2.0	.06	.10	.16	---	.31	.14	2300	2800	.37	.20	.05
30	1.6	.60	.10	1.7	---	.28	.14	1010	2450	.37	.16	.06
31	1.2	---	.08	.88	---	.28	---	6.8	---	.34	.15	---
TOTAL	104262.9	9.84	7.34	13.37	14.05	24.92	6.05	16478.08	18128.08	1544.57	10.36	3.16
MEAN	3363	.33	.24	.43	.50	.80	.20	532	604	49.8	.33	.11
MAX	16100	4.3	.99	1.7	1.9	12	.31	2620	3830	1510	.75	.16
MIN	.00	.01	.05	.08	.28	.16	.14	.38	.63	.29	.15	.04
AC-FT	206800	20	15	27	28	49	12	32680	35960	3060	21	6.3
CAL YR 1981	TOTAL	104906.45	MEAN	287	MAX	16100	MIN	.00	AC-FT	208100		
WTR YR 1982	TOTAL	140502.72	MEAN	385	MAX	16100	MIN	.00	AC-FT	278700		



## 08087300 CLEAR FORK BRAZOS RIVER AT ELIASVILLE, TX

LOCATION.--Lat 32°57'36", long 98°45'59", Young County, Hydrologic Unit 12060104, on right bank 5 ft (2 m) upstream from old mill dam 180 ft (55 m) upstream from bridge on Farm Road 1974, 400 ft (122 m) northwest of U.S. Post Office at Eliasville, and 13.2 mi (21.2 km) upstream from mouth.

DRAINAGE AREA.--5,697 mi<sup>2</sup> (14,755 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1915 to April 1920, December 1923 to August 1925, July 1928 to September 1951, October 1961 September 1982 (discontinued). Monthly discharge only for some periods published in WSP 1312 as "near Falls".

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,027.77 ft (313.264 m) National Geodetic Vertical Datum of 1929. See WSP 1922 for history of changes prior to Dec. 18, 1961.

REMARKS.--Water-discharge records good. Many small diversions above station for municipal supply and oilfield operations.

AVERAGE DISCHARGE.--27 years (water years 1917-19, 1929-51, 1962) prior to completion of Hubbard Creek Dam, 430 ft<sup>3</sup>/s (12.18 m<sup>3</sup>/s), 311,500 acre-ft/yr (384 hm<sup>3</sup>/yr); 20 years (water years 1963-82) regulated, 310 ft<sup>3</sup>/s (8.779 m<sup>3</sup>/s), 224,600 acre-ft/yr (277 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 68,000 ft<sup>3</sup>/s (1,930 m<sup>3</sup>/s) Aug. 5, 1978, gage height, 37.04 ft (11.290 m), present site and datum, from rating curve extended above 40,000 ft<sup>3</sup>/s (1,130 m<sup>3</sup>/s); no flow at times. Maximum stage since 1877, that of Aug. 5, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1, 1957, reached a stage of 35 ft (10.7 m), present site and datum; flood in September 1900 reached about same stage, from information by State Department of Highways and Public Transportation and local residents. Other floods are reported to have occurred in 1876, Apr. 27, 1890, 1932, 1941, and 1955.

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 14	0430	*26,900 762	31.35 9.555	June 12	0500	10,300 292	18.52 5.645
May 13	1200	9,880 280	18.10 5.517	June 16	0200	6,850 194	14.60 4.450
May 15	1600	7,080 201	14.90 4.542	June 21	0400	10,900 209	19.32 5.889
May 30	1200	11,000 312	19.34 5.895	June 26	1100	16,700 473	24.90 7.590

Minimum discharge, 9.7 ft<sup>3</sup>/s (0.27 m<sup>3</sup>/s) Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	170	73	51	100	52	43	37	3070	7600	155	150
2	15	152	74	49	87	56	37	49	1540	3440	175	111
3	13	139	73	47	77	54	36	53	889	2290	139	77
4	11	128	75	47	81	47	34	43	693	1700	113	71
5	11	116	67	47	72	43	30	47	578	1410	103	60
6	15	107	65	47	68	42	30	138	489	1080	101	55
7	56	99	67	43	66	45	33	504	431	882	102	51
8	87	99	66	43	65	47	30	1260	404	1150	110	49
9	54	91	66	41	68	45	31	710	358	1040	95	47
10	38	85	65	41	65	44	30	340	328	1700	91	39
11	38	83	64	41	64	43	31	213	1870	1230	85	39
12	3780	81	62	41	65	41	28	242	6190	644	196	39
13	21800	76	62	41	66	42	28	8160	817	509	185	34
14	26100	75	62	41	64	274	27	4880	405	637	152	32
15	22700	76	62	41	64	105	27	6420	861	1280	128	37
16	21800	82	60	43	62	62	25	3490	3360	860	104	38
17	21000	82	56	43	60	49	27	2520	860	582	91	35
18	18200	82	55	43	61	45	25	3410	2930	438	78	34
19	13100	80	55	43	59	46	25	4710	8960	357	72	40
20	6510	76	55	45	57	43	25	3610	9700	304	65	40
21	4480	79	55	55	53	39	25	2360	9360	274	60	38
22	3120	77	53	62	56	38	25	1030	3280	240	57	47
23	2930	74	51	59	57	42	24	3200	2290	222	53	46
24	2640	71	51	55	53	50	22	2610	2170	209	50	40
25	2500	72	51	53	57	43	24	1960	13000	197	49	43
26	1970	71	51	52	69	51	26	6690	16300	189	48	40
27	428	71	51	55	58	51	25	7800	15100	177	46	35
28	299	69	51	54	50	51	26	9480	13100	166	55	32
29	245	75	51	55	---	51	42	10600	9200	155	54	31
30	215	78	51	60	---	51	43	10700	8680	154	53	30
31	192	---	51	79	---	48	---	7110	---	141	58	---
TOTAL	174362	2716	1851	1517	1824	1740	884	104376	137213	31257	2923	1460
MEAN	5625	90.5	59.7	48.9	65.1	56.1	29.5	3367	4574	1008	94.3	48.7
MAX	26100	170	75	79	100	274	43	10700	16300	7600	196	150
MIN	11	69	51	41	50	38	22	37	328	141	46	30
AC-FT	345800	5390	3670	3010	3620	3450	1750	207000	272200	62000	5800	2900
CAL YR 1981	TOTAL	264800	MEAN	725	MAX	26100	MIN 11	AC-FT	525200			
WTR YR 1982	TOTAL	462123	MEAN	1266	MAX	26100	MIN 11	AC-FT	916600			

## BRAZOS RIVER BASIN

08087300 CLEAR FORK BRAZOS RIVER AT ELIASVILLE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1961 to September 1982 (discontinued). Pesticide analyses: January 1968 to September 1981.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1961 to September 1982 (discontinued).

WATER TEMPERATURES: October 1961 to September 1982 (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 RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 7,400 micromhos Jan. 9, 1971; minimum daily, 227 micromhos Aug. 5, 1978.

WATER TEMPERATURES: Maximum daily, 38.0°C Aug. 6, 1964; minimum daily, 0.0°C on several days during winter months.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 5,160 micromhos Mar. 7; minimum daily, 370 micromhos May 15.

WATER TEMPERATURES: Maximum daily, 30.0°C on several days during July and August; minimum daily, 2.0°C Jan. 14, 17.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 19...	1300	13000	654	21.0	170	88	48	11	57
NOV 02...	1300	150	1960	15.0	490	340	130	41	220
JAN 26...	1125	54	4240	7.0	1100	950	270	110	510
MAR 09...	1522	44	4970	13.0	1500	1300	340	160	600
MAY 14...	1755	3770	633	18.5	180	81	52	11	53
JUN 26...	0950	16700	583	25.0	180	84	54	12	45

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 19...	2.0	6.1	77	40	140	.3	5.0	354
NOV 02...	4.3	8.1	150	270	390	.3	8.2	1160
JAN 26...	6.6	10	180	750	950	.5	1.9	2710
MAR 09...	6.7	8.7	160	1100	1100	.6	5.2	3410
MAY 14...	1.8	6.0	94	48	110	.2	6.6	343
JUN 26...	1.5	5.6	100	63	82	.2	9.9	332

## 08087300 CLEAR FORK BRAZOS RIVER AT ELIASVILLE, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	174362	745	407	192000	130	63000	83	38800	190
NOV.	1981	2716	2090	1230	9040	390	2890	310	2280	550
DEC.	1981	1851	2850	1750	8750	550	2760	490	2450	760
JAN.	1982	1517	3900	2540	10400	790	3220	800	3270	1100
FEB.	1982	1824	4390	2920	14400	900	4430	960	4740	1200
MAR.	1982	1740	4440	2970	13900	910	4280	980	4620	1300
APR.	1982	884	4290	2840	6780	880	2090	930	2210	1200
MAY	1982	104376	775	433	122000	140	39800	95	26700	200
JUNE	1982	137213	691	374	139000	120	45700	73	27100	170
JULY	1982	31257	1070	599	50500	200	16500	130	11000	270
AUG.	1982	2923	2500	1510	12000	480	3790	410	3230	670
SEPT	1982	1460	4300	2860	11300	880	3470	940	3700	1200
TOTAL		462123	**	**	590000	**	192000	**	130000	**
WTD. AVG.		1266	842	473	**	150	**	100	**	210

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3280	1800	2660	3450	4090	4620	4010	4410	662	685	2510	3630
2	3300	1950	2730	3460	4230	4670	4020	4230	730	755	2250	3580
3	3340	1990	2710	3440	4070	4760	4050	4140	836	788	2050	3600
4	3370	1890	2780	3490	4090	4890	4120	4240	957	892	2030	3770
5	3420	1830	2760	3580	4060	4940	4130	4490	1030	945	2050	3960
6	3510	1820	2750	3650	4180	4980	4170	4270	1110	1040	2220	4110
7	3440	1790	2720	3710	4630	5160	4260	4660	1160	1120	2450	4280
8	3520	1860	2760	3810	4590	5110	4240	4160	1190	1180	2370	4450
9	4100	1950	2870	3820	4290	5000	4260	3480	1220	1240	2250	4600
10	4270	1910	2730	3810	4370	4920	4290	1800	1280	1330	2170	4750
11	4160	1960	2680	3900	4410	4820	4380	2240	850	1500	2140	4870
12	2550	1980	2690	3880	4480	4730	4360	2560	681	1460	2170	4960
13	445	2020	2620	3830	4510	4660	4340	1320	668	1660	2240	4990
14	621	2000	2550	3920	4400	4350	4320	529	787	1370	2320	5000
15	849	2150	2600	3950	4450	4410	4230	370	725	1040	2500	4880
16	898	2250	2670	3900	4460	3820	4250	615	781	1180	2450	4810
17	668	2220	2760	3940	4490	3830	4280	583	988	1200	2540	4710
18	693	2240	2850	4020	4450	4220	4340	773	900	1250	2640	4530
19	644	2280	2790	4010	4490	4370	4360	641	800	1320	2710	4560
20	684	2390	2900	3970	4520	4820	4330	547	683	1630	2740	4490
21	683	2370	2950	4010	4510	4850	4400	446	526	2090	2790	4460
22	761	2250	2960	4070	4530	4760	4430	844	479	2590	2890	4540
23	765	2310	3000	4020	4540	4510	4470	806	1350	2810	2980	4460
24	764	2320	3050	4000	4520	4260	4430	957	1270	2300	3080	4440
25	752	2260	3070	3900	4290	3950	4420	826	765	2000	3210	4480
26	761	2380	3200	4190	4570	3990	4440	746	564	1930	3350	4540
27	839	2500	3250	4070	4620	3700	4450	661	506	1940	3420	4560
28	1050	2430	3210	4040	4560	3920	4410	598	644	2100	3530	4610
29	1270	2450	3280	4130	---	3870	4380	554	740	2550	3570	4680
30	1460	2500	3250	4200	---	3860	4400	566	662	2560	3600	4730
31	1590	---	3220	4230	---	3980	---	588	---	2760	3630	---
MEAN	1890	2140	2870	3880	4410	4480	4300	1860	851	1590	2670	4470

## BRAZOS RIVER BASIN

08087300 CLEAR FORK BRAZOS RIVER AT ELIASVILLE, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

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

## 08088000 BRAZOS RIVER NEAR SOUTH BEND, TX

LOCATION.--Lat 33°01'27", long 98°38'37", Young County, Hydrologic Unit 12060201, on left bank 225 ft (69 m) downstream from bridge on State Highway 67, 1.8 mi (2.9 km) downstream from Clear Fork Brazos River, 2.0 mi (3.2 km) northeast of South Bend, and at mile 758.2 (1,219.9 km).

DRAINAGE AREA.--22,673 mi<sup>2</sup> (58,723 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1938 to current year.

REVISED RECORDS.--WRD TX-74-1: 1973. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,002.98 ft (305.708 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 23, 1939, nonrecording gage at site 255 ft (69 m) upstream. Feb. 23, 1939, to Mar. 9, 1961, water-stage recorder at site 225 ft (69 m) upstream.

REMARKS.--Water-discharge records good. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08080950. Gage-height telemeter at station.

AVERAGE DISCHARGE.--44 years, 850 ft<sup>3</sup>/s (24.07 m<sup>3</sup>/s), 615,800 acre-ft/yr (759 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,400 ft<sup>3</sup>/s (2,480 m<sup>3</sup>/s) May 4, 1941, gage height, 27.35 ft (8.336 m); maximum gage height, 41.50 ft (12.649 m) Aug. 6, 1978, from floodmark; no flow at times. Maximum stage since 1938, that of Aug. 6, 1978.

EXTREME OUTSIDE PERIOD OF RECORD.--Flood in 1876 reached a stage of 36.2 ft (11.03 m), from information by State Department of Highways and Public Transportation and Corps of Engineers. Flood of Sept. 24, 1900, reached a stage of 29.5 ft (8.99 m), and flood of June 16, 1930, reached a stage of 35.5 ft (10.82 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 11,000 ft<sup>3</sup>/s (312 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 15	1500	*40,000 1,130	30.35 9.251	May 29	2045	17,300 490	22.07 6.727
May 14	0430	13,200 374	18.66 5.688	June 21	0715	17,500 496	22.32 6.803
May 19	2130	13,900 394	19.52 5.950	June 27	1900	31,400 889	28.92 8.815
May 24	0800	11,600 329	18.11 5.520				

Minimum discharge, 31 ft<sup>3</sup>/s (0.88 m<sup>3</sup>/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	543	188	127	114	114	112	53	6700	9780	321	181
2	44	493	185	132	116	114	112	64	4680	5500	357	207
3	69	446	181	128	116	116	110	81	3060	3690	367	202
4	57	421	178	126	116	116	110	76	2440	3230	342	167
5	47	393	177	126	116	111	110	79	2030	2750	314	138
6	43	370	167	120	118	108	106	1460	1730	2420	291	121
7	90	352	164	110	118	110	106	8110	1520	2190	382	110
8	143	334	162	110	118	109	108	5280	1340	2090	423	101
9	568	319	163	110	118	108	109	3730	1200	2120	355	98
10	241	310	162	106	120	108	113	2250	1010	1900	312	92
11	138	293	156	100	120	103	103	1690	1340	1850	286	81
12	2690	278	154	98	120	100	91	1600	7120	1310	303	77
13	25300	270	156	96	120	98	84	9040	2400	1120	364	76
14	36300	258	166	94	122	339	83	10900	1340	1040	346	73
15	39100	248	165	100	122	185	80	7750	2110	1500	318	70
16	32900	242	160	92	122	135	74	5210	4360	1270	269	75
17	27400	238	153	94	122	131	66	4200	2090	998	235	74
18	22800	230	154	104	122	129	64	10500	2530	822	213	72
19	17100	210	153	102	125	129	66	13500	9130	703	194	85
20	9290	210	152	108	125	129	64	10400	14500	699	179	131
21	5030	206	151	108	125	127	63	5640	16100	616	165	296
22	3150	199	144	108	125	125	60	3840	11800	543	155	332
23	2730	194	143	112	126	122	58	7320	8480	498	146	346
24	2340	193	143	116	116	122	59	10500	8050	470	140	398
25	2130	194	144	120	112	122	54	7960	20200	448	133	351
26	1920	179	138	120	112	120	52	11300	28600	426	129	301
27	1110	177	141	117	114	118	52	12000	30800	405	116	261
28	850	168	133	112	114	118	55	13500	29200	389	112	210
29	732	177	134	114	---	116	57	16700	21000	369	115	175
30	660	195	135	114	---	116	57	16800	12700	340	111	152
31	606	---	133	114	---	116	---	11500	---	320	107	---
TOTAL	235611	8340	4835	3438	3334	3914	2438	213033	259560	51806	7600	5053
MEAN	7600	278	156	111	119	126	81.3	6872	8652	1671	245	168
MAX	39100	543	188	132	126	339	113	16800	30800	9780	423	398
MIN	33	168	133	92	112	98	52	53	1010	320	107	70
AC-FT	467300	16540	9590	6820	6610	7760	4840	422600	514800	102800	15070	10020
CAL YR 1981	TOTAL	387187	MEAN	1061	MAX	39100	MIN 29	AC-FT	768000			
WTR YR 1982	TOTAL	798962	MEAN	2189	MAX	39100	MIN 33	AC-FT	1585000			



## BRAZOS RIVER BASIN

08088000 BRAZOS RIVER NEAR SOUTH BEND, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: January 1942 to March 1948, October 1968 to September 1969. Chemical and biochemical analyses: November 1977 to current year. Pesticide analyses: March 1968 to September 1982 (discontinued).

## 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, 14,000 micromhos Dec. 4, 1979; minimum daily, 350 micromhos Aug. 6, 1978.

WATER TEMPERATURES: Maximum daily, 36.0°C July 18, 20-23, Aug. 17, 1981; minimum daily, 0.0°C Jan. 10, 11, 18, 21, Feb. 18, 1978.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (FTU)	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- TOCOC- CI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
OCT 16...	1530	32500	1040	7.8	22.5	450	5.8	68	2.0	6500	30000	210
DEC 07...	1500	164	7110	8.2	14.0	6.0	10.5	109	2.0	K3	K13	1200
FEB 08...	1345	118	8120	8.1	5.0	1.5	12.2	103	1.6	K13	41	1400
APR 26...	1400	52	8640	8.3	20.0	20	9.9	116	3.0	23	72	1400
JUN 14...	1230	1200	2450	8.0	25.0	220	6.8	85	2.6	1000	340	430
AUG 23...	1235	146	5000	8.1	29.0	--	7.9	108	2.0	42	120	950

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- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS S04)	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 16...	130	58	16	140	4.5	7.6	79	130	210	.3	6.4	633
DEC 07...	1100	350	91	1100	14	9.9	170	780	2000	.5	6.2	4500
FEB 08...	1200	350	120	1300	15	10	160	1000	2300	.5	3.2	5420
APR 26...	1200	350	130	1500	17	11	180	1100	2500	.5	2.5	5690
JUN 14...	320	120	31	340	7.2	7.9	110	270	540	.3	11	1490
AUG 23...	770	250	80	750	11	9.7	180	690	1200	.4	11	3220

DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA 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- D (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE- D (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 16...	615	--	.38	.240	.88	.080	.110	<.010	1780	156000	47
DEC 07...	4440	.010	<.10	.080	.90	.020	.010	.010	41	18	99
FEB 08...	5180	--	<.10	.120	.58	.200	.150	.140	15	4.8	96
APR 26...	5700	--	<.10	.120	1.10	.030	<.010	.050	42	5.9	100
JUN 14...	1390	--	.15	.100	1.30	.200	.070	<.020	215	697	98
AUG 23...	3100	--	<.10	.100	1.00	.090	.050	.030	70	28	98



## BRAZOS RIVER BASIN

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08088000 BRAZOS RIVER NEAR SOUTH BEND, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDEDED TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDEDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDEDED RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 16...	1530	7	4	3	700	600	110	3	--	<1	30
FEB 08...	1345	3	1	2	200	0	200	<1	--	1	20
APR 26...	1400	2	1	1	200	0	200	<1	--	<1	10
AUG 23...	1235	3	1	2	100	0	100	4	2	2	70

DATE	CHRO- MIUM, SUS- PENDEDED RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDEDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDEDED RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)
OCT 16...	30	0	9	<3	37	32	5	17000	17000	32	45
FEB 08...	10	10	1	<1	10	8	2	300	250	50	2
APR 26...	0	20	2	<1	4	3	1	620	590	30	2
AUG 23...	60	10	1	<1	3	2	1	800	770	30	<1

DATE	LEAD, SUS- PENDEDED RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDEDED RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDEDED RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDEDED RECOV- ERABLE (UG/L AS NI)
OCT 16...	42	3	670	670	5	.1	.1	.0	25	23
FEB 08...	1	1	150	30	120	.1	--	<.1	5	1
APR 26...	0	3	210	70	140	.1	.0	.2	4	2
AUG 23...	--	1	170	110	60	.2	.0	.4	9	8

DATE	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, SUS- PENDEDED TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, SUS- PENDEDED RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDEDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 16...	2	1	1	0	1	1	0	80	70	12
FEB 08...	4	2	0	2	<1	--	<1	20	10	10
APR 26...	2	1	0	1	<1	--	<1	20	0	30
AUG 23...	1	1	0	1	<1	--	<1	20	0	20

## BRAZOS RIVER BASIN

08088000 BRAZOS RIVER NEAR SOUTH BEND, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL (UG/L)
DEC 07...	1500	--	0	--	--	.0	--	.0	--	.0	--
FEB 08...	1345	.00	--	.00	.00	--	.00	--	.00	--	.00
APR 26...	1400	--	<1	--	--	<.1	--	<1.0	--	<.1	--

DATE	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL (UG/L)
DEC 07...	.3	--	.0	--	--	.0	--	--	.0	--
FEB 08...	--	.00	--	.01	.00	--	.00	.00	--	.00
APR 26...	.2	--	<.1	<.01	--	<.1	--	--	<.1	<.01

DATE	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)
DEC 07...	--	.0	--	.0	--	.0	--	--	.0	--
FEB 08...	.00	--	.00	--	.00	--	.00	.00	--	.01
APR 26...	--	<.1	--	<.1	--	<.1	<.01	--	<.1	<.01

DATE	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
DEC 07...	--	--	.0	--	--	.0	--	--	--	--
FEB 08...	.00	.00	--	.05	0	--	.00	.02	.00	.00
APR 26...	<.01	--	<.1	<.01	--	<10	<.01	.06	<.01	<.01

## BRAZOS RIVER BASIN

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08088300 BRIAR CREEK NEAR GRAHAM, TX

LOCATION.--Lat 33°12'43", long 98°37'06", Young County, Hydrologic Unit 12060201, near right bank on downstream side of bridge on Farm Road 1769, 3.7 mi (6.0 km) upstream from mouth, and 7.0 mi (11.3 km) northwest of Graham.

DRAINAGE AREA.--24.2 mi<sup>2</sup> (62.7 km<sup>2</sup>).

PERIOD OF RECORD.--April 1958 to current year. Prior to October 1965, published as Oak Creek near Graham.

REVISED RECORDS.--WSP 2122: 1962. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,090 ft (332 m), from topographic map.

REMARKS.--Records fair. No diversion above station.

AVERAGE DISCHARGE.--24 years (water years 1959-82), 3.74 ft<sup>3</sup>/s (0.106 m<sup>3</sup>/s), 2.10 in/yr (53 mm/yr), 2,710 acre-ft/yr (3.34 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,690 ft<sup>3</sup>/s (105 m<sup>3</sup>/s) May 22, 1982, gage height, 13.54 ft (4.127 m), from rating curve extended above 2,300 ft<sup>3</sup>/s (65.1 m<sup>3</sup>/s); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 15.2 ft (4.63 m) in September 1955. Flood in May 1957 reached a stage of 15.0 ft (4.57 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft<sup>3</sup>/s (5.66 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)	Date	Time	Discharge (ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	Gage height (ft)	(m)
Oct. 13	1200	1,350	38.2	11.42	3.481	June 12	0700	352	9.97	6.05	1.844
May 13	1330	440	12.5	7.10	2.164	June 19	1615	337	9.54	5.86	1.786
May 22	unknown	*3,690	105	13.54	4.127	June 25	0315	373	10.6	6.32	1.926
May 28	1030	224	6.34	4.40	1.341						

Minimum discharge, no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	1.6	.36	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	1.2	.24	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	2.2	.21	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	4.9	.15	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.55	2.6	.09	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	14	1.6	.06	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	3.0	1.0	.04	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	2.1	.67	.03	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.76	.49	.02	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.31	.35	.01	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.14	43	.00	.00	.00
12	4.0	.00	.00	.00	.00	.00	.00	6.7	179	.00	.00	.00
13	699	.00	.00	.00	.00	.00	.00	346	9.4	.00	.00	.00
14	128	.00	.00	.00	.00	.00	.00	34	3.4	.00	.00	.00
15	7.3	.00	.00	.00	.00	.00	.00	2.1	1.8	.00	.00	.00
16	1.6	.00	.00	.00	.00	.00	.00	.07	1.1	.00	.00	.00
17	.48	.00	.00	.00	.00	.00	.00	.00	.77	.00	.00	.00
18	.20	.00	.00	.00	.00	.00	.00	.00	33	.00	.00	.00
19	.15	.00	.00	.00	.00	.00	.00	.00	222	.00	.00	.00
20	.12	.00	.00	.00	.00	.00	.00	.00	37	.00	.00	.00
21	.10	.00	.00	.00	.00	.00	.00	.00	6.1	.00	.00	.00
22	.18	.00	.00	.00	.00	.00	.00	665	3.2	.00	.00	.00
23	.22	.00	.00	.00	.00	.00	.00	345	2.0	.00	.00	.00
24	.14	.00	.00	.00	.00	.00	.00	200	2.0	.00	.00	.00
25	.12	.00	.00	.00	.00	.00	.00	33	245	.00	.00	.00
26	.06	.00	.00	.00	.00	.00	.00	27	21	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	11	3.6	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	169	1.5	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	19	.88	.00	.00	.00
30	.00	.00	.00	.00	.00	.00	.00	4.5	.58	.00	.00	.00
31	.00	.00	.00	.00	.00	.00	.00	2.4	.00	.00	.00	.00
TOTAL	841.67	.00	.00	.00	.00	.00	.00	1885.63	832.94	1.21	.00	.00
MEAN	27.2	.000	.000	.000	.000	.000	.000	60.8	27.8	.039	.000	.000
MAX	699	.00	.00	.00	.00	.00	.00	665	245	.36	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.35	.00	.00	.00
CFSM	1.12	.000	.000	.000	.000	.000	.000	2.51	1.15	.002	.000	.000
IN.	1.29	.00	.00	.00	.00	.00	.00	2.90	1.28	.00	.00	.00
AC-FT	1670	.00	.00	.00	.00	.00	.00	3740	1650	2.4	.00	.00

CAL YR 1981 TOTAL 1339.98 MEAN 3.67 MAX 699 MIN .00 CFMS .15 IN 2.06 AC-FT 2660  
WTR YR 1982 TOTAL 3561.45 MEAN 9.76 MAX 699 MIN .00 CFMS .40 IN 5.47 AC-FT 7060

NOTE.--No gage-height record Aug. 27 to Sept. 30.

## BRAZOS RIVER BASIN

08088400 LAKE GRAHAM NEAR GRAHAM, TX

LOCATION.--Lat 33°08'04", long 98°36'48", Young County, Hydrologic Unit 12060201, near left end of earthen dam on Salt Creek, 2.2 mi (3.5 km) northwest of Graham, 5 mi (8 km) downstream from Briar Creek, and 9.5 mi (15.3 km) upstream from mouth.

DRAINAGE AREA.--221 mi<sup>2</sup> (572 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1958 to September 1963 (unpublished record), October 1963 to current year. Prior to October 1963, monthend contents only.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.30 ft (0.396 m) Salt Creek datum. Prior to October 1963, nonrecording gage at same site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,000 ft (1,500 m) long. Lake Graham was connected with Lake Eddleman in 1959 by a cut channel at a gage height of 1,050.0 ft (320.04 m). Deliberate impoundment began Apr. 28, 1958, and the dam was completed in July 1958. The uncontrolled emergency spillway is a 1,050-foot-wide (320 m) cut at the right end of dam. The spillway is designed to discharge 136,500 ft<sup>3</sup>/s (3,870 m<sup>3</sup>/s) at a gage height of 1,087.5 ft (331.47 m). The dam is the property of the city of Graham and was built to impound water for municipal and industrial uses. In addition, water is used by the Texas Electric Service Co. for operation of their steam generating powerplant. The capacity table is based on an original survey of Lake Eddleman in 1928 and a Salt Creek survey of 1953. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	1,092.0	-
Crest of spillway.....	1,075.0	53,680
Bottom of interconnecting channel.....	1,050.0	8,670
Lowest gated outlet (invert).....	1,050.0	8,670

COOPERATION.--Capacity table was furnished by Freese, Nichols, and Endress, Consulting Engineers. Record of diversions furnished by the city of Graham and the Texas Electric Service Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 61,120 acre-ft (75.4 hm<sup>3</sup>) Apr. 30, 1970, gage height, 1,077.77 ft (328.504 m); minimum, 28,760 acre-ft (35.5 hm<sup>3</sup>) Sept. 30, 1979, gage height, 1,064.09 ft (324.335 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 60,970 acre-ft (75.2 hm<sup>3</sup>) May 23 at 0400 hours, gage height, 1,077.71 ft (328.486 m); minimum, 45,690 acre-ft (56.3 hm<sup>3</sup>) Sept. 30, gage height, 1,071.78 ft (326.679 m).

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

1,071.0	43,820	1,077.0	58,990
1,073.0	48,660	1,079.0	64,670
1,075.0	53,680		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46080	53840	52920	51980	51170	50740	50100	50500	54440	54880	52410	47460
2	45980	53780	52890	52000	51220	50740	51070	50500	54360	54700	52410	47340
3	45960	53760	52890	51950	51090	50670	51420	50470	54540	54520	52310	47290
4	45880	53780	52820	51900	51070	50620	51420	50450	54440	54330	52180	47170
5	45840	53760	52840	51900	50970	50540	51340	50690	54410	54330	52050	47070
6	45840	53710	52790	51800	50940	50470	51270	51980	54330	54230	51980	46980
7	46080	53680	52790	51700	50940	50450	51240	53200	54250	54070	51880	46930
8	46030	53650	52740	51670	50970	50450	51190	53250	54180	54070	51830	46830
9	46050	53580	52710	51670	50840	50420	51140	53220	54120	53970	51750	46730
10	46000	53530	52740	51520	50840	50400	51220	53200	54020	53910	51700	46660
11	46000	53530	52690	51500	50870	50320	51190	53150	56560	53890	51670	46590
12	48000	53500	52640	51520	50820	50370	51220	53840	56190	53810	51550	46460
13	58670	53480	52660	51420	50820	50320	51190	56370	55300	53650	51420	46370
14	57320	53480	52590	51440	50820	50470	51140	55920	55120	53650	51240	46320
15	56060	53450	52590	51420	50870	50540	51120	55400	54930	53530	51040	46320
16	55920	53430	52590	51290	50820	50500	51070	55090	54780	53500	50840	46240
17	55430	53400	52460	51320	50770	50520	50970	57510	54590	53430	50620	46220
18	55040	53430	52410	51390	50720	50450	50940	57400	55120	53350	50420	46120
19	54780	53300	52380	51370	50690	50450	51020	56000	55660	53300	50200	46440
20	54620	53250	52360	51340	50720	50400	50870	55400	56240	53150	50000	46320
21	54570	53220	52380	51320	50670	50320	50740	56400	55980	52970	49750	46220
22	54490	53200	52310	51340	50720	50270	50740	60300	55720	52710	49530	46170
23	54310	53170	52260	51240	50670	50250	50640	59460	55450	52510	49330	46100
24	54200	53120	52230	51320	50620	50250	50590	57180	57070	52280	49080	46050
25	54180	53120	52210	51190	50770	50150	50570	56000	58720	52130	48830	46000
26	54070	53050	52180	51170	50740	50120	50540	55850	57610	52230	48640	45930
27	54020	53020	52280	51220	50720	50150	50520	55350	56530	52180	48370	45840
28	53990	53020	52110	51170	50740	50120	50570	56370	55450	52210	48150	45810
29	53940	52990	52080	51170	---	50150	50520	55770	55270	52380	47900	45740
30	53970	53150	52050	51290	---	50150	50500	55120	55090	52380	47680	45690
31	53890	---	52030	51190	---	50100	---	54700	---	52360	47540	---
MAX	58670	53840	52920	52000	51220	50740	51420	60300	58720	54880	52410	47460
MIN	45840	52990	52030	51170	50620	50100	50100	50450	54020	52130	47540	45690
(+)	1075.08	1074.79	1074.35	1074.02	1073.84	1073.58	1073.74	1075.39	1075.54	1074.48	1072.54	1071.78
(+)	+7740	-740	-1120	-840	-450	-640	+400	+4200	+390	-2730	-4820	-1850
(+)	278	282	321	350	320	313	382	402	419	560	630	440

CAL YR 1981 MAX 58670 MIN 45840 + -1470 †† 4955  
WTR YR 1982 MAX 60300 MIN 45690 + -460 †† 4697

+ Gage height, in feet, at end of month.

+ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by the city of Graham and for use by Texas Electric Service Co. powerplant.

## BRAZOS RIVER BASIN

08088400 LAKE GRAHAM NEAR GRAHAM, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 24...	1240	432	29.5	120	38	37	6.2	33
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)
AUG 24...	1.4	6.5	80	17	73	.2	9.3	230

## BRAZOS RIVER BASIN

08088450 BIG CEDAR CREEK NEAR IVAN, TX

LOCATION.--Lat 32°49'39", long 98°43'25", Stephens County, Hydrologic Unit 12060201, on left bank at downstream side of bridge on Farm Road 717, 3.2 mi (5.1 km) south of Ivan, 8.2 mi (13.2 km) northwest of Caddo, and 11.6 mi (18.7 km) northeast of Breckenridge.

DRAINAGE AREA.--97.0 mi<sup>2</sup> (251.2 km<sup>2</sup>).

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,090 ft (33 m), from topographic map.

REMARKS.--Records fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--17 years (water years 1966-82), 14.6 ft<sup>3</sup>/s (0.413 m<sup>3</sup>/s), 2.04 in/yr (52 mm/yr), 10,580 acre-ft/yr (13.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,700 ft<sup>3</sup>/s (983 m<sup>3</sup>/s) Oct. 13, 1981, gage height, 32.50 ft (9.906 m), from rating curve extended above 30,100 ft<sup>3</sup>/s (852 m<sup>3</sup>/s); no flow at times each year.

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 13	0945	*34,700 983	32.50 9.906	June 16	0100	1,570 44.5	13.40 4.084
May 13	1200	7,540 214	25.40 7.742	June 18	1130	1,290 36.5	12.34 3.761
May 26	1100	1,860 52.7	14.43 4.398	June 21	0900	1,380 39.1	12.70 3.871
June 12	0200	3,140 88.9	18.29 5.575	June 25	0900	7,750 219	25.55 7.788

Minimum discharge, no flow Apr. 24-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.23	3.1	3.3	.15	.15	.15	.20	.02	4.5	16	.47	.07
2	.25	2.4	4.6	.10	.11	.15	.19	.17	2.7	14	.47	.04
3	.28	1.9	4.3	.08	.11	.15	.18	.23	1.9	12	.57	.06
4	.37	1.4	3.8	.08	.11	.15	.17	.25	1.3	11	.45	.08
5	.43	1.3	3.3	.08	.15	.15	.16	.62	.97	9.9	.27	.05
6	117	1.3	2.9	.08	.15	.11	.15	3.8	.56	8.3	.22	.07
7	172	1.4	2.5	.05	.15	.11	.14	.59	.31	8.0	.15	.08
8	33	1.4	2.3	.05	.15	.11	.12	.47	.17	8.0	.15	.07
9	14	1.0	1.9	.05	.15	.11	.11	.32	.07	6.2	.18	.03
10	9.4	.61	1.6	.08	.15	.11	.10	.32	.04	4.9	.13	.03
11	6.4	.43	1.3	.08	.15	.11	.10	.32	315	4.1	.11	.03
12	6270	.39	1.2	.08	.15	.11	.10	1.3	977	3.6	.13	.03
13	16000	.39	.90	.08	.15	.11	.10	3150	36	3.0	.07	.09
14	458	.39	.68	.08	.15	.11	.10	172	19	2.5	.09	.10
15	61	.39	.48	.08	.15	2.3	.09	45	112	2.3	.04	.11
16	38	.48	.48	.08	.15	1.9	.08	11	282	1.7	.03	.08
17	32	.48	.40	.08	.15	1.8	.08	4.5	18	1.4	.05	.07
18	29	.48	.39	.08	.11	1.7	.07	3.7	408	1.1	.06	.05
19	21	.48	.39	.08	.11	1.6	.06	3.3	240	.80	.05	.04
20	17	.48	.39	.11	.11	1.3	.05	2.7	76	.68	.05	.05
21	14	.48	.38	.11	.11	1.0	.05	2.1	410	.64	.09	.05
22	273	.48	.22	.11	.11	.80	.05	1.6	62	.47	.10	.05
23	71	.53	.30	.16	.11	.72	.02	1.2	27	.52	.11	.03
24	29	.75	.31	.25	.11	.60	.00	18	20	.43	.05	.06
25	19	.79	.25	.29	.11	.50	.00	3.5	3210	.43	.09	.07
26	14	.76	.21	.39	.15	.41	.00	592	103	.32	.03	.03
27	10	.55	.15	.33	.15	.37	.00	88	88	.32	.05	.05
28	7.9	.57	.15	.15	.15	.32	.07	32	40	.39	.05	.05
29	6.3	.77	.15	.15	---	.25	.05	14	24	.39	.07	.04
30	5.4	1.4	.13	.15	---	.22	.03	9.8	19	.39	.05	.07
31	4.4	---	.15	.15	---	.21	---	6.7	---	.47	.06	---
TOTAL	23733.36	27.28	39.51	3.87	3.76	45.63	2.62	4169.51	6498.52	124.25	4.49	1.73
MEAN	766	.91	1.27	.12	.13	1.47	.087	135	217	4.01	.14	.058
MAX	16000	3.1	4.6	.39	.15	.28	.20	3150	3210	16	.57	.11
MIN	.23	.39	.13	.05	.11	.11	.00	.02	.04	.32	.03	.03
CFSM	7.90	.009	.01	.001	.001	.02	.001	1.39	2.24	.04	.001	.001
IN.	9.10	.01	.02	.00	.00	.02	.00	1.60	2.49	.05	.00	.00
AC-FT	47080	54	78	7.7	7.5	91	5.2	8270	12890	246	8.9	3.4
CAL YR 1981	TOTAL	24168.04	MEAN	66.2	MAX	16000	MIN	.00	CFSM	.68	IN	9.27
WTR YR 1982	TOTAL	34654.53	MEAN	94.9	MAX	16000	MIN	.00	CFSM	.98	IN	13.29
									AC-FT	47940		
									AC-FT	68740		



## 08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX

LOCATION.--Lat 32°52'20", long 98°25'32", Palo Pinto County, Hydrologic Unit 12060201, at Morris Sheppard Dam on Brazos River, 2.6 mi (4.2 km) upstream from Loving Creek, 11.3 mi (18.2 km) southwest of Grafard, and at mile 687.5 (1,106.2 km).

DRAINAGE AREA.--23,596 mi<sup>2</sup> (61,114 km<sup>2</sup>), approximately, of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1941 to current year. Prior to October 1977, published as Possum Kingdom Reservoir.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 0.10 ft (0.030 m) National Geodetic Vertical Datum of 1929 (levels by Brazos River Authority). Prior to Mar. 19, 1968, mercury U-tube in powerhouse at present site and datum.

REMARKS.--The lake is formed by reinforced concrete dam, Ambursen-type, massive buttress with flat-slab deck, a controlled spillway, two bulkhead sections, and an earthen-dike section. Total length of dam is 2,740 ft (835 m) long. The dam was completed and storage began Mar. 21, 1941. The spillway has nine roof-weir gates (modified bear-trap type) that are 73.66 by 13 ft (22.45 by 4 m) each and are designed to discharge about 100,000 ft<sup>3</sup>/s (2,830 m<sup>3</sup>/s) at a gage height of 1,000.0 ft (304.80 m). The outlet works consist of one controlled 54-inch-diameter (1,372 mm) conduit. Water is used for power development, irrigation, municipal, industrial, and recreational purposes. Two generators located in the powerhouse at dam can produce 22,500 kilowatts at a 1,000-foot (305 m) gage height. Eleven major reservoirs, with a combined capacity of 607,800 acre-ft (749 hm<sup>3</sup>), largely regulate the inflow. The capacity curve is based on recomputation of survey made in 1974. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08080950. Gage-height telemeter was installed at station on Jan. 13, 1981. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Top of dam.....	1,024.0	-
Design flood (top of gates).....	1,000.0	570,200
Crest of spillway.....	987.0	383,300
Invert of penstock.....	911.5	4,560
Lowest gated outlet (invert of 54-inch conduit).....	874.8	0

COOPERATION.--Capacity table 3-C furnished by the Brazos River Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 743,700 acre-ft (917 hm<sup>3</sup>) Oct. 5, 1941, gage height, 1,001.0 ft (305.10 m); maximum gage height, 1,003.60 ft (305.897 m) Oct. 13, 1981; minimum observed, 273,000 acre-ft (337 hm<sup>3</sup>) Feb. 19 to Mar. 17, 1953, gage height, 967.0 ft (294.74 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 652,900 acre-ft (805 hm<sup>3</sup>) Oct. 13 at 1800 hours, gage height, 1,003.60 ft (305.897 m); minimum, 497,100 acre-ft (613 hm<sup>3</sup>) Oct. 5, May 5, gage height, 995.55 ft (303.444 m).

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

995.0	488,800	1,001.0	589,200
997.0	519,800	1,003.0	638,500
999.0	552,800	1,005.0	685,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	499100	544400	524800	523500	515000	503700	499400	498000	548100	553200	533600	523600
2	498700	542400	525600	524600	516100	503700	499400	498000	547600	553200	533200	523600
3	498400	542400	525600	523300	515800	503300	499400	498000	551300	557300	533600	523600
4	497300	542500	525400	523800	514200	502300	499600	497900	551300	557300	533700	521800
5	497100	543000	527000	523900	510300	502200	499400	497100	550000	557800	534100	522000
6	499400	543400	526400	524300	507900	501400	498700	498000	547900	558000	534200	522000
7	502900	543900	527200	523500	507600	501400	498700	504000	545500	559100	534700	521500
8	503700	545000	527200	523800	506700	500500	498700	516100	544500	558700	534200	521400
9	504300	540400	527500	524300	502900	499400	498500	524100	544400	557700	534400	521400
10	505000	538000	527000	520600	501100	500000	499100	528500	543900	556100	535000	520900
11	506000	536700	527000	519800	501700	500300	499400	531400	544700	554700	535000	520700
12	566200	535000	527200	518600	500500	500200	499900	534400	555600	551000	535000	520200
13	646400	534100	527000	516100	500800	500000	499900	548900	557500	549600	535400	519300
14	597900	534100	525900	516700	501300	502300	499900	550800	555300	549300	533400	519100
15	594500	534400	527300	518000	502800	503700	500200	556300	555400	547600	531400	519100
16	554000	533200	527000	515500	503300	504500	500200	562200	556500	546600	531600	519100
17	554200	531600	524300	516300	503900	502900	499700	545500	558400	544900	531400	519000
18	560600	530300	523800	517500	503600	502800	499700	551300	551700	543900	530900	518200
19	559700	529000	522500	517200	503400	503100	500200	550800	556100	542700	531100	518000
20	550500	527800	522700	518600	503700	502900	499400	552200	554200	541700	530800	517700
21	543000	527500	523000	518500	504300	502800	499100	552300	552300	539900	528600	517400
22	553200	527700	522500	518600	504500	502500	499000	547400	547200	538900	527800	517700
23	555400	527500	522800	515500	504600	502800	498800	547900	549400	537700	526000	517800
24	555800	527700	522800	514200	506500	502900	498500	547100	549300	536400	525900	518000
25	555900	528600	523100	513700	505300	502000	498500	547800	558000	535200	525200	518300
26	556300	528000	523000	514500	502200	501300	498800	547800	554700	535700	524900	518000
27	555400	527500	523900	514800	502900	499400	498500	547600	551100	535200	524600	517800
28	553000	527300	523300	515000	503400	499300	499300	547400	551700	535400	524400	518000
29	549800	527300	523500	516100	---	498400	498000	548600	547800	533100	524400	517800
30	547800	526200	523600	517100	---	499000	498200	550600	550100	532600	524400	518200
31	546400	---	523600	515000	---	499000	---	546200	---	532900	524400	---
MAX	646400	545000	527500	524600	516100	504500	500200	562200	558400	559100	535400	523600
MIN	497100	526200	522500	513700	500500	498400	498000	497100	543900	532600	524400	517400
(†)	998.62	997.40	997.24	996.70	995.96	995.67	995.62	998.61	998.84	997.81	997.29	996.90
(‡)	+47300	-20200	-2600	-8600	-11600	-4400	-800	+48000	+3900	-17200	-8500	-6200

CAL YR 1981 MAX 646400 MIN 495300 ‡ -10600  
WTR YR 1982 MAX 646400 MIN 497100 ‡ +19100

† Gage height, in feet, at end of month.

‡ Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

08088500 POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: March 1962 to current year.

325208098254201 POSSUM KINGDOM LAKE SITE AR  
 WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
28...	1243	1.00	1300	7.5	20.0	5.6	64
28...	1245	10.0	1300	7.5	20.0	5.5	63
28...	1247	20.0	1300	7.5	20.0	5.4	61
28...	1249	30.0	1300	7.5	20.0	5.3	60
28...	1251	40.0	1300	7.5	20.0	5.2	59
28...	1253	50.0	1300	7.5	20.0	5.2	59
28...	1255	65.0	1310	7.5	20.0	5.1	58
FEB							
18...	1345	1.00	1560	8.8	9.0	11.6	104
18...	1346	10.0	1560	8.8	8.5	11.0	97
18...	1347	20.0	1570	8.7	8.0	10.7	94
18...	1348	30.0	1580	8.7	8.0	10.7	94
18...	1349	40.0	1580	8.6	8.0	10.4	91
18...	1350	50.0	1590	8.5	8.0	9.7	85
18...	1351	60.0	1600	8.5	7.5	9.5	82
18...	1352	71.0	1800	8.3	6.5	9.0	76
AUG							
04...	1336	1.00	868	8.2	30.5	7.8	107
04...	1338	10.0	910	8.1	30.0	7.6	104
04...	1340	20.0	900	6.9	28.5	.7	9
04...	1342	30.0	880	6.8	27.5	.3	4
04...	1344	40.0	875	6.9	27.5	.3	4
04...	1346	50.0	900	7.0	26.5	.3	4
04...	1348	58.0	920	7.2	26.5	.4	5

325218098254101 POSSUM KINGDOM LAKE SITE AC  
 WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)
OCT										
28...	1155	1.00	1300	7.5	20.0	.50	5.4	61	250	170
28...	1156	.90	--	--	--	--	--	--	--	--
28...	1157	10.0	1300	7.5	20.0	--	5.4	61	--	--
28...	1159	20.0	1300	7.5	20.0	--	5.4	61	--	--
28...	1201	30.0	1300	7.5	20.0	--	5.4	61	--	--
28...	1203	40.0	1300	7.5	20.0	--	5.3	60	--	--
28...	1205	50.0	1300	7.5	20.0	--	5.3	60	--	--
28...	1207	60.0	1300	7.5	20.0	--	5.3	60	--	--
28...	1209	70.0	1300	7.5	20.0	--	5.3	60	--	--
28...	1211	80.0	1310	7.5	20.0	--	5.1	58	--	--
28...	1213	90.0	1420	7.4	20.0	--	4.6	52	--	--
28...	1215	100	1900	7.3	20.0	--	2.6	30	--	--
28...	1217	107	1940	7.2	20.0	--	2.3	26	360	280
FEB										
18...	1300	1.00	1560	8.8	9.0	2.00	11.7	104	280	180
18...	1301	10.0	1560	8.8	8.5	--	11.1	98	--	--
18...	1302	20.0	1570	8.7	8.0	--	10.7	94	--	--
18...	1303	30.0	1570	8.7	8.0	--	10.7	94	--	--
18...	1304	40.0	1570	8.6	8.0	--	10.5	92	--	--
18...	1305	50.0	1580	8.5	8.0	--	9.7	85	--	--
18...	1306	60.0	1590	8.5	7.5	--	9.6	83	--	--
18...	1307	70.0	1790	8.3	7.0	--	9.2	79	--	--
18...	1308	80.0	1990	8.3	6.5	--	7.1	60	--	--
18...	1309	90.0	2100	8.3	6.5	--	5.9	50	--	--
18...	1310	100	2120	8.3	6.5	--	5.4	46	390	280
AUG										
04...	1307	1.00	868	8.3	30.5	1.00	8.1	111	210	110
04...	1309	10.0	868	8.1	30.0	--	6.8	93	--	--
04...	1311	20.0	868	8.1	28.5	--	.8	11	--	--
04...	1313	30.0	870	6.9	28.0	--	.3	4	--	--
04...	1315	40.0	875	6.8	27.0	--	.3	4	--	--
04...	1317	50.0	880	6.8	26.5	--	.3	4	--	--
04...	1319	60.0	885	6.8	26.0	--	.3	4	--	--
04...	1321	70.0	885	6.7	25.5	--	.3	4	--	--
04...	1323	80.0	896	6.7	24.5	--	.3	4	--	--
04...	1325	90.0	896	6.6	24.0	--	.3	4	--	--
04...	1327	96.0	896	6.9	22.5	--	.4	5	210	79

## POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325218098254101 POSSUM KINGDOM LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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									
28...	70	17	170	5.0	5.6	74	150	280	.3
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	98	27	270	6.2	6.7	80	250	420	--
FEB									
18...	78	20	200	5.6	6.3	95	170	350	.3
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	110	28	300	6.6	6.6	110	220	500	--
AUG									
04...	63	12	88	2.8	5.9	92	120	150	.2
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	64	12	99	3.1	5.5	130	85	160	--
DATE	SILICA, DIS- SOLVED (MG/L AS SI02)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)
OCT									
28...	5.6	743	.37	.56	.93	.050	1	120	<1
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	.27	.58	.85	.050	--	--	--
28...	--	--	.31	.60	.91	.060	--	--	--
28...	6.1	1130	.41	.75	1.2	.120	2	200	<1
FEB									
18...	5.7	887	<.10	.99	--	.020	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	.20	.78	.98	.010	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	5.2	1240	.12	.87	.99	.010	--	--	--
AUG									
04...	8.4	503	<.10	.80	--	.060	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	.20	.90	1.1	.030	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	.30	.80	1.1	.050	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	13	517	<.10	2.40	--	.380	--	--	--

## BRAZOS RIVER BASIN

POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325218098254101 POSSUM KINGDOM LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	CHROMIUM, DIS-SOLVED (UG/L AS CR)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGANESE, DIS-SOLVED (UG/L AS MN)	MERCURY, DIS-SOLVED (UG/L AS HG)	SELENIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT									
28...	<10	2	65	2	10	<.1	<1	<1	5
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	20	--	20	--	--	--	--
28...	--	--	70	--	70	--	--	--	--
28...	<10	2	30	<1	100	<.1	<1	<1	10
FEB									
18...	--	--	<10	--	<1	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	40	--	<10	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	<10	--	70	--	--	--	--
AUG									
04...	--	--	<3	--	<1	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	20	--	10	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	30	--	30	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	180	--	470	--	--	--	--

325250098275301 POSSUM KINGDOM LAKE SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)
OCT							
28...	1050	1.00	1220	7.6	19.5	5.8	65
28...	1052	10.0	1230	7.6	19.5	5.8	65
28...	1054	20.0	1230	7.6	19.5	5.8	65
28...	1056	30.0	1230	7.5	19.5	5.6	63
28...	1058	40.0	1210	7.6	19.5	5.7	64
28...	1100	50.0	1230	7.5	19.5	5.6	63
28...	1102	64.0	1240	7.5	19.5	5.3	60
FEB							
18...	1230	1.00	1540	8.7	8.5	11.6	103
18...	1231	10.0	1540	8.6	7.5	10.5	91
18...	1232	20.0	1550	8.5	7.5	10.0	86
18...	1233	30.0	1550	8.4	7.5	9.8	84
18...	1234	40.0	1560	8.4	7.5	9.7	84
18...	1235	50.0	1560	8.4	7.0	9.7	83
18...	1236	60.0	1570	8.4	7.0	9.7	83
18...	1237	71.0	1780	8.3	7.0	9.1	78
AUG							
04...	1245	1.00	863	8.3	31.5	8.0	113
04...	1247	10.0	863	8.0	30.0	6.9	95
04...	1249	20.0	824	6.9	28.5	.3	4
04...	1251	30.0	814	7.0	27.5	.3	4
04...	1253	37.0	814	7.1	27.5	.3	4

## POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325256098275301 POSSUM KINGDOM LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
28...	1105	1.00	1250	7.5	20.0	5.9	67
28...	1107	10.0	1250	7.6	20.0	5.8	66
28...	1109	20.0	1250	7.6	20.0	5.8	66
28...	1111	30.0	1250	7.6	20.0	5.8	66
28...	1113	40.0	1250	7.6	20.0	5.8	66
28...	1115	50.0	1250	7.5	20.0	5.6	64
28...	1117	60.0	1260	7.5	19.5	5.5	62
28...	1119	70.0	1270	7.5	19.5	5.3	60
28...	1121	80.0	1330	7.5	20.0	5.0	57
28...	1123	90.0	2120	7.3	20.5	3.1	36
28...	1125	99.0	2340	7.2	20.5	1.5	17
FEB							
18...	1215	1.00	1540	8.7	8.5	11.6	103
18...	1216	10.0	1540	8.6	7.5	10.4	90
18...	1217	20.0	1550	8.5	7.5	10.1	87
18...	1218	30.0	1550	8.4	7.5	9.8	84
18...	1219	40.0	1560	8.4	7.5	9.7	84
18...	1220	50.0	1560	8.4	7.0	9.7	83
18...	1221	60.0	1570	8.4	7.0	9.6	82
18...	1222	70.0	1700	8.3	7.0	9.2	79
18...	1223	80.0	2340	8.0	6.5	5.2	44
18...	1224	91.0	3040	7.9	6.0	4.3	35
AUG							
04...	1223	1.00	863	8.3	31.0	7.9	110
04...	1225	10.0	863	7.9	29.5	6.5	88
04...	1227	20.0	824	6.9	28.0	.3	4
04...	1229	30.0	814	6.8	27.5	.3	4
04...	1231	40.0	814	6.8	27.0	.3	4
04...	1233	50.0	824	6.8	26.5	.3	4
04...	1235	60.0	860	6.8	26.0	.3	4
04...	1237	70.0	860	6.8	25.5	.3	4
04...	1239	80.0	860	6.8	25.0	.3	4
04...	1241	88.0	900	7.1	24.5	.3	4

325129098311801 POSSUM KINGDOM LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
28...	1010	1.00	1030	7.5	19.0	6.0	67
28...	1012	10.0	1030	7.5	19.0	6.1	68
28...	1014	20.0	1030	7.5	19.0	6.0	67
28...	1016	30.0	1040	7.5	18.5	6.0	66
28...	1018	40.0	1040	7.5	19.0	5.9	66
28...	1020	50.0	1050	7.6	18.5	6.0	66
28...	1022	60.0	1050	7.6	18.5	5.9	65
28...	1024	70.0	990	7.5	18.5	5.7	63
28...	1026	82.0	1170	7.4	18.0	5.1	55
FEB							
18...	1140	1.00	1440	8.7	8.5	10.8	96
18...	1141	10.0	1440	8.8	7.5	10.9	94
18...	1142	20.0	1450	8.7	7.5	10.8	93
18...	1143	30.0	1470	8.6	7.5	10.4	90
18...	1144	40.0	1500	8.5	6.5	9.4	80
18...	1145	50.0	1550	8.5	6.5	9.0	76
18...	1146	60.0	1650	8.4	5.5	8.7	71
18...	1147	70.0	2350	8.1	5.5	6.2	51
18...	1148	76.0	3070	8.0	5.5	5.4	45
AUG							
04...	1127	1.00	863	8.3	30.5	7.5	103
04...	1129	10.0	863	8.0	29.5	6.0	81
04...	1131	20.0	1100	7.0	28.5	.2	3
04...	1133	30.0	1140	7.0	28.0	.2	3
04...	1135	40.0	1230	6.9	28.0	.2	3
04...	1137	50.0	1160	6.9	27.0	.3	4
04...	1139	60.0	960	6.9	26.0	.3	4
04...	1141	72.0	1620	7.0	26.0	.3	4

## BRAZOS RIVER BASIN

POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325327098314001 POSSUM KINGDOM LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

		SPE- CIFIC CON- DUCT- ANCE		PH	TEMPER- ATURE	TRANS- PAR- ENCY (SECCHI DISK)	OXYGEN, DIS- SOLVED	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	HARD- NESS (MG/L AS CACO3)	
DATE	TIME	SAM- PLING DEPTH (FEET)	(UMHOS)	(UNITS)	(DEG C)	(M)	(MG/L)			
OCT										
28...	0930	1.00	965	7.6	19.0	.30	6.2	69	200	
28...	0932	10.0	961	7.6	19.0	--	6.3	70	--	
28...	0934	20.0	951	7.6	18.5	--	6.3	69	--	
28...	0936	30.0	947	7.6	19.0	--	6.3	70	--	
28...	0938	40.0	918	7.6	18.5	--	6.4	70	--	
28...	0940	50.0	815	7.6	17.5	--	6.9	74	--	
28...	0942	60.0	815	7.6	17.5	--	7.1	76	--	
28...	0944	74.0	817	7.6	17.0	--	7.1	76	190	
FEB										
18...	1030	1.00	1380	8.5	7.0	3.00	10.5	90	260	
18...	1031	10.0	1380	8.5	7.0	--	10.5	90	--	
18...	1032	20.0	1390	8.5	7.0	--	10.3	88	--	
18...	1033	30.0	1440	8.4	6.5	--	9.9	84	--	
18...	1034	40.0	1520	8.4	6.0	--	9.4	78	--	
18...	1035	50.0	1610	8.4	5.5	--	9.4	77	--	
18...	1036	60.0	2280	8.1	5.5	--	8.8	73	--	
18...	1037	68.0	2960	7.9	5.5	--	7.9	65	510	
AUG										
04...	1012	1.00	907	8.2	30.0	1.50	6.8	93	220	
04...	1014	10.0	907	8.2	30.0	--	6.7	92	--	
04...	1016	20.0	907	8.1	29.5	--	6.6	89	--	
04...	1018	30.0	1530	7.1	29.0	--	.2	3	--	
04...	1020	40.0	1840	7.1	29.0	--	.2	3	--	
04...	1022	50.0	2200	7.1	29.0	--	.2	3	--	
04...	1024	60.0	2500	7.1	29.0	--	.2	3	--	
04...	1026	65.0	2900	7.1	29.0	--	.3	4	590	
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)	AIKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT										
28...	120	58	14	120	3.9	5.9	79	110	210	
28...	--	--	--	--	--	--	--	--	--	
28...	--	--	--	--	--	--	--	--	--	
28...	--	--	--	--	--	--	--	--	--	
28...	--	--	--	--	--	--	--	--	--	
28...	--	--	--	--	--	--	--	--	--	
28...	110	55	13	90	3.0	6.6	85	73	170	
FEB										
18...	170	74	19	170	4.9	6.0	95	140	300	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	--	--	--	--	--	--	--	--	--	
18...	400	140	39	440	8.5	7.2	110	330	760	
AUG										
04...	120	66	14	91	2.8	6.1	99	120	150	
04...	--	--	--	--	--	--	--	--	--	
04...	--	--	--	--	--	--	--	--	--	
04...	--	--	--	--	--	--	--	--	--	
04...	--	--	--	--	--	--	--	--	--	
04...	--	--	--	--	--	--	--	--	--	
04...	450	160	46	420	7.5	8.1	140	400	710	



## BRAZOS RIVER BASIN

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## POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325327098314001 POSSUM KINGDOM LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
OCT								
28...	6.7	572	.36	.60	.96	.080	130	11
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	--	--	.23	.67	.90	.050	20	<10
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	6.9	466	.28	.59	.87	.070	140	10
FEB								
18...	5.4	772	.12	.90	1.0	.010	<10	<1
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	--	--	.12	.84	.96	.010	10	10
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--
18...	4.0	1790	<.10	1.10	--	.030	40	50
AUG								
04...	9.0	516	<.10	.80	--	.050	<3	2
04...	--	--	--	--	--	--	--	--
04...	--	--	<.10	.70	--	.030	10	20
04...	--	--	<.10	1.20	--	.070	60	280
04...	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--
04...	13	1840	<.10	1.00	--	.100	110	520

325347098265701 POSSUM KINGDOM LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
28...	1430	1.00	830	7.8	17.5	7.3	79
28...	1432	10.0	830	7.8	17.5	7.3	79
28...	1434	20.0	830	7.8	17.0	7.3	78
28...	1436	30.0	950	7.7	16.5	7.3	78
28...	1438	40.0	1150	7.8	16.0	7.4	78
28...	1440	50.0	1350	7.8	16.0	7.4	78
28...	1442	58.0	1380	7.6	16.0	7.2	76
FEB							
18...	1700	1.00	1460	8.7	8.5	10.3	91
18...	1701	10.0	1460	8.7	8.5	10.3	91
18...	1702	20.0	1480	8.8	8.0	10.4	91
18...	1703	30.0	1510	8.7	7.0	10.0	85
18...	1704	40.0	1730	8.7	6.5	9.7	82
18...	1705	50.0	2800	8.3	6.0	8.2	69
18...	1706	54.0	3960	8.1	6.0	5.9	50
AUG							
04...	1431	1.00	1010	8.1	31.0	7.3	101
04...	1433	10.0	1170	7.8	29.5	5.2	70
04...	1435	20.0	1260	7.6	29.5	4.7	64
04...	1437	30.0	1880	7.1	30.0	.7	10
04...	1439	40.0	2340	7.1	30.0	.3	4
04...	1441	51.0	2900	7.2	30.5	.4	5

## BRAZOS RIVER BASIN

POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325557098264401 POSSUM KINGDOM LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
28...	1455	1.00	870	7.9	17.0	7.5	81
28...	1457	10.0	870	7.9	17.0	7.5	81
28...	1459	20.0	880	7.9	16.5	7.5	80
28...	1501	30.0	1790	7.9	15.0	7.7	79
28...	1503	43.0	1810	7.9	15.0	7.7	79
FEB							
18...	1500	1.00	1610	8.8	8.0	10.4	91
18...	1501	10.0	1610	8.8	8.0	10.4	91
18...	1502	20.0	1620	8.8	7.5	10.1	87
18...	1503	30.0	2310	8.7	6.5	9.5	81
18...	1504	40.0	3170	8.4	6.5	8.4	72
AUG							
04...	1610	1.00	1140	8.0	31.0	7.3	101
04...	1612	10.0	1140	7.9	30.0	6.3	86
04...	1614	20.0	1280	7.7	30.0	4.7	64
04...	1616	30.0	1910	7.2	30.0	.3	4
04...	1618	36.0	2160	7.3	30.5	.4	5

325715098250501 POSSUM KINGDOM LAKE SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT									
28...	1515	1.00	982	8.0	16.5	--	7.7	82	200
28...	1517	10.0	982	8.0	16.5	--	7.7	82	--
28...	1519	20.0	1380	7.9	15.5	--	7.6	79	--
28...	1521	33.0	1880	7.9	15.5	--	7.6	79	330
FEB									
18...	1520	1.00	1670	8.8	8.5	1.50	10.3	91	310
18...	1521	10.0	1670	8.8	8.0	--	10.3	90	--
18...	1522	20.0	1850	8.8	7.0	--	10.1	86	--
18...	1523	31.0	4490	8.2	9.0	--	8.2	75	710
AUG									
04...	1503	1.00	1210	8.2	31.5	.50	7.8	110	290
04...	1505	10.0	1210	8.1	31.0	--	7.5	104	--
04...	1507	20.0	1440	7.8	30.5	--	5.3	73	--
04...	1509	32.0	2920	7.4	30.5	--	.7	10	570

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- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
28...	110	58	13	120	3.9	6.0	90	84	210
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	220	94	22	260	6.6	6.6	110	160	470
FEB									
18...	210	87	22	220	5.8	6.4	100	180	390
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	580	190	58	670	11	7.9	130	520	1200
AUG									
04...	180	82	20	140	3.8	6.7	110	180	220
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	430	150	47	400	7.3	8.0	140	400	660

## POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325715098250501 POSSUM KINGDOM LAKE SITE GC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
OCT								
28...	6.4	552	.27	.60	.87	.050	<10	2
28...	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--
28...	7.2	1090	.31	.59	.90	.070	68	8
FEB								
18...	5.2	971	<.10	.87	--	.010	<10	<1
18...	--	--	--	--	--	--	--	--
18...	--	--	<.10	.86	--	.010	40	10
18...	2.8	2730	<.10	.96	--	.040	60	30
AUG								
04...	9.6	724	<.10	1.10	--	.060	<3	4
04...	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--
04...	11	1760	<.10	1.90	--	.080	30	420

325047098291201 POSSUM KINGDOM LAKE SITE P3

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
28...	1320	1.00	1150	--	20.0	6.0	68
28...	1322	10.0	1150	--	19.5	5.7	64
28...	1324	20.0	1150	--	19.0	5.5	61
28...	1326	30.0	1150	--	19.0	5.6	62
28...	1328	40.0	1150	--	19.0	5.6	62
28...	1330	50.0	1150	--	19.0	5.6	62
28...	1332	65.0	1150	--	19.0	5.3	59
AUG							
04...	1200	1.00	860	7.7	30.0	5.4	74
04...	1202	10.0	860	7.6	29.0	4.7	63
04...	1204	20.0	845	6.9	28.5	.3	4
04...	1206	30.0	837	6.9	27.5	.3	4
04...	1208	40.0	837	6.9	27.0	.3	4
04...	1210	50.0	837	6.9	27.0	.3	4
04...	1212	57.0	837	7.1	27.0	.3	4

325125098323701 POSSUM KINGDOM LAKE SITE P5

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
28...	1730	1.00	990	7.7	18.5	6.3	70
28...	1732	10.0	990	7.7	18.5	6.2	69
28...	1734	20.0	984	7.7	18.5	6.1	68
28...	1736	32.0	855	7.6	17.5	5.9	64
FEB							
18...	1130	1.00	1380	8.6	8.0	10.5	92
18...	1131	10.0	1380	8.6	7.5	10.3	89
18...	1132	20.0	1390	8.5	7.5	10.1	87
18...	1133	26.0	1400	8.3	7.0	9.3	79
AUG							
04...	1110	1.00	893	8.0	30.0	6.2	85
04...	1112	10.0	893	7.7	29.5	4.9	66
04...	1114	20.0	950	7.0	28.5	.3	4
04...	1116	32.0	893	7.1	28.0	.3	4

## BRAZOS RIVER BASIN

POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325301098342901 POSSUM KINGDOM LAKE SITE P7

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
28...	1703	1.00	644	7.7	18.5	6.2	69
28...	1705	10.0	673	7.7	18.5	6.1	68
28...	1707	20.0	782	7.7	18.5	6.0	67
28...	1709	30.0	774	7.6	18.0	5.9	65
28...	1711	40.0	812	7.7	18.0	6.0	66
28...	1713	50.0	506	7.7	17.0	5.9	63
28...	1715	66.0	506	7.7	17.0	5.8	62
FEB							
18...	1055	1.00	1340	8.5	7.5	10.0	86
18...	1056	10.0	1340	8.5	7.0	10.0	85
18...	1057	20.0	1380	8.4	7.0	9.8	84
18...	1058	30.0	1440	8.3	6.5	9.0	76
18...	1059	40.0	1540	8.2	6.5	8.1	69
18...	1100	50.0	1650	8.0	6.5	6.3	53
18...	1101	55.0	2210	7.9	6.5	3.2	27
18...	1102	62.0	2750	7.8	6.5	2.2	19
AUG							
04...	1045	1.00	888	8.2	30.0	7.1	97
04...	1047	10.0	888	8.2	30.0	7.4	101
04...	1049	20.0	888	8.1	29.5	6.3	85
04...	1051	30.0	888	8.0	28.5	6.2	83
04...	1053	40.0	888	6.9	27.0	.3	4
04...	1055	50.0	888	6.9	26.5	.3	4
04...	1057	62.0	888	7.1	26.0	.3	4

325915098243001 POSSUM KINGDOM LAKE SITE P9

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
28...	1542	1.00	893	7.9	16.5	7.5	80
28...	1544	10.0	913	7.9	16.5	7.5	80
28...	1546	20.0	913	7.9	16.0	7.4	78
28...	1548	32.0	1680	7.9	15.5	7.3	76
FEB							
18...	1600	1.00	2000	8.6	7.5	10.4	90
18...	1601	10.0	2070	8.6	7.0	9.9	85
18...	1602	20.0	2130	8.4	6.5	9.2	79
18...	1603	25.0	3940	8.1	6.5	6.7	58
18...	1604	28.0	5110	7.7	6.0	2.2	19
AUG							
04...	1530	1.00	1360	8.2	31.5	8.0	113
04...	1532	10.0	1450	8.0	30.5	6.4	88
04...	1534	23.0	1450	7.9	31.0	6.0	83

325725098280301 POSSUM KINGDOM LAKE SITE P10

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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 CAC03)
OCT									
28...	1605	1.00	1870	8.2	17.0	.20	8.5	91	300
28...	1606	.30	--	--	--	--	--	--	--
28...	1607	11.0	2030	8.0	16.0	--	7.8	82	350
FEB									
18...	1615	1.00	2180	8.7	9.5	1.20	10.2	94	390
18...	1616	5.00	2200	8.6	9.5	--	10.2	94	--
18...	1617	12.0	5640	8.2	11.0	--	8.7	84	870
AUG									
04...	1545	1.00	1850	8.2	32.0	.40	8.3	117	370
04...	1547	10.0	2370	7.9	31.0	--	5.8	81	490

## BRAZOS RIVER BASIN

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## POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325725098280301 POSSUM KINGDOM LAKE SITE P10--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	AIKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
28...	200	86	20	230	6.2	6.8	100	140	400
28...	--	--	--	--	--	--	--	--	--
28...	250	99	24	290	6.8	6.9	100	170	490
FEB									
18...	280	110	29	310	6.8	6.8	110	230	540
18...	--	--	--	--	--	--	--	--	--
18...	740	220	79	880	13	7.3	130	680	1500
AUG									
04...	260	100	29	230	5.6	7.4	110	250	380
04...	370	130	39	330	6.5	7.7	120	340	540

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)
OCT								
28...	6.8	950	.29	.61	.90	.050	<10	3
28...	--	--	--	--	--	--	--	--
28...	7.2	1150	.29	.72	1.0	.060	40	10
FEB								
18...	4.2	1300	<.10	.66	--	.020	<10	10
18...	--	--	--	--	--	--	--	--
18...	1.9	3450	<.10	.91	--	.060	40	50
AUG								
04...	9.8	1070	<.10	1.00	--	.060	<3	3
04...	11	1470	<.10	1.30	--	.090	50	50

## BRAZOS RIVER BASIN

POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325218098254101 POSSUM KINGDOM LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO OCTOBER 1981

DATE	OCT 28,81
TIME	1156
TOTAL CELLS/ML	2200
DIVERSITY: DIVISION	1.2
..CLASS	1.2
...ORDER	1.3
...FAMILY	1.6
...GENUS	1.6

ORGANISM	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)		
..BACILLARIOPHYCEAE		
...ACHNANTHALES		
...ACHNANTHACEAE		
...COCCONEIS	43	2
..BACILLARIALES		
...NITZSCHIA		
...NITZSCHIA	29	1
..NAVICULALES		
...NAVICULACEAE		
...NAVICULA	29	1
CHLOROPHYTA (GREEN ALGAE)		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...CHLOROCOCCACEAE		
...TETRAEDRON	140	6
...OOCYSTACEAE		
...OOCYSTIS	230	10
...SCENEDESMACEAE		
...SCENEDESMUS	86	4
CYANOPHYTA (BLUE-GREEN ALGAE)		
..CYANOPHYCEAE		
...OSCILLATORIALES		
...OSCILLATORIA		
...OSCILLATORIA	1600#	71
EUGLENOPHYTA (EUGLENOIDS)		
..EUGLENOPHYCEAE		
...EUGLENALES		
...EUGLENACEAE		
...TRACHELOMONAS	72	3

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

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



BRAZOS RIVER BASIN

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POSSUM KINGDOM LAKE NEAR GRAFORD, TX--Continued

325725098280301 POSSUM KINGDOM LAKE SITE P10

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO OCTOBER 1981

DATE	OCT 28,81
TIME	1606
TOTAL CELLS/ML	5000
DIVERSITY: DIVISION	1.4
..CLASS	1.4
..ORDER	1.9
...FAMILY	2.2
....GENUS	2.2

ORGANISM	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)		
..CHLOROPHYCEAE		
...CHLOROCOCCALES		
...DICTYOSPHAERIACEAE		
....DICTYOSPHAERIUM	130	3
...OOCYSTACEAE		
...ANKISTRODESMUS	32	1
...OOCYSTIS	64	1
...SCENEDESMACEAE		
...SCENEDESMUS	1200#	24
...VOLVOCALES		
...CHLAMYDOMONADACEAE		
...CHLAMYDOMONAS	460	9
CYANOPHYTA (BLUE-GREEN ALGAE)		
..CYANOPHYCEAE		
...CHROOCOCCALES		
...CHROOCOCCACEAE		
....AGMENELLUM	260	5
...OSCILLATORIALES		
...OSCILLATORIA	2200#	45
EUGLENOPHYTA (EUGLENOIDS)		
..EUGLENOPHYCEAE		
...EUGLENALES		
...EUGLENACEAE		
...TRACHELOMONAS	610	12

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

## BRAZOS RIVER BASIN

08088600 BRAZOS RIVER AT MORRIS SHEPPARD DAM NEAR GRAFORD, TX

LOCATION.--Lat 32°52'00", long 98°26'00", Palo Pinto County, Hydrologic Unit 12060201, immediately below Morris Sheppard Dam (formerly Possum Kingdom Dam), 2.6 mi (4.2 km) upstream from Loving Creek, 11.3 mi (18.2 km) southwest of Grafard, and 20 mi (32 km) upstream from gaging station near Palo Pinto.

DRAINAGE AREA.--27,190 mi<sup>2</sup> (70,420 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

PERIOD OF RECORD.--Chemical analyses: January 1942 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1942 to current year.

WATER TEMPERATURES: October 1949 to September 1955, October 1965 to current year.

REMARKS.--Discharges are computed on the basis of releases from Possum Kingdom Lake. 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, 6,110 micromhos Feb. 20, 1961; minimum daily, 494 micromhos May 4, 1957.

WATER TEMPERATURES: Maximum daily, 27.5°C Aug. 12, 17, 21, 28, 1981; minimum daily, 6.5°C Jan. 20, 1978.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,710 micromhos on several days during October; minimum daily, 836 micromhos Aug. 23.

WATER TEMPERATURES: Minimum daily, 10°C Feb. 11, 20.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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...	0819	25300	1580	24.5	280	220	79	21	210
28...	0840	2170	1340	22.0	250	180	69	18	180
JAN									
16...	0820	157	1420	17.0	260	170	74	18	190
MAY									
16...	1500	3990	1700	19.0	300	200	84	21	230
JUN									
22...	0830	18800	1040	26.0	250	160	75	14	110
JUL									
31...	1500	19	871	27.5	210	130	63	12	87

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								
19...	5.4	5.4	64	210	340	.2	4.7	908
28...	5.3	5.4	71	170	280	.3	5.5	771
JAN								
16...	5.1	6.4	87	160	310	.3	5.7	816
MAY								
16...	6.2	5.8	97	160	380	.3	4.9	944
JUN								
22...	3.2	6.2	84	140	190	.2	8.0	594
JUL								
31...	2.8	5.8	79	110	150	.2	8.6	484

## BRAZOS RIVER BASIN

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08088600 BRAZOS RIVER AT MORRIS SHEPPARD DAM NEAR GRAFORD, TX--Continued

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	360064	1940	1110	1079E3	440	426900	220	215400	330
NOV.	1981	18255	1310	739	36400	290	14200	150	7220	230
DEC.	1981	5334	1450	818	11800	320	4600	160	2340	250
JAN.	1982	7574	1600	910	18600	360	7290	180	3700	280
FEB.	1982	10946	1580	899	26600	350	10400	180	5280	280
MAR.	1982	7223	1580	894	17400	350	6830	180	3470	280
APR.	1982	2094	1590	902	5100	350	2000	180	1010	280
MAY	1982	264983	1690	958	686000	380	269200	190	136400	290
JUNE	1982	346147	1150	648	606000	250	235000	130	119900	200
JULY	1982	79897	997	559	121000	220	46700	110	23800	180
AUG.	1982	7398	849	475	9480	180	3650	94	1870	150
SEPT	1982	2709	867	485	3550	190	1370	96	701	150
TOTAL		1112624	**	**	2620000	**	1028000	**	521000	**
WTD. AVG.		3048	1530	872	**	340	**	170	**	270

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2700	1310	1360	1670	1570	1580	1580	1590	1340	1100	880	842
2	2700	1320	1360	1660	1580	1570	1580	1600	1310	1040	862	843
3	2700	1330	1370	1660	1570	1570	1580	1600	1260	1010	867	844
4	2700	1320	1370	1620	1620	1570	1580	1600	1220	999	871	844
5	2710	1320	1380	1620	1600	1580	1580	1590	1190	980	878	845
6	2710	1310	1380	1620	1590	1580	1590	1590	1230	962	857	846
7	2710	1310	1380	1700	1610	1570	1620	1590	1180	945	867	857
8	2710	1310	1400	1630	1580	1570	1590	1590	1170	927	862	867
9	2710	1300	1380	1620	1580	1570	1600	1590	1160	943	857	865
10	2710	1300	1380	1600	1580	1570	1600	1610	1160	960	863	863
11	2700	1300	1330	1610	1580	1570	1590	1610	1160	961	852	861
12	2670	1300	1270	1610	1580	1570	1610	1620	1160	959	848	870
13	2650	1300	1200	1610	1580	1580	1590	1630	1170	959	850	880
14	2530	1300	1400	1600	1580	1570	1590	1620	1190	954	854	875
15	1940	1300	1410	1610	1580	1570	1590	1610	1250	944	856	876
16	1820	1300	1420	1600	1580	1570	1590	1700	1300	1100	853	878
17	1700	1300	1440	1590	1580	1570	1590	1710	1300	1020	855	879
18	1580	1300	1500	1590	1580	1580	1600	1680	1200	939	849	880
19	1580	1300	1500	1590	1580	1580	1590	1680	1160	929	847	889
20	1510	1300	1590	1590	1580	1580	1590	1680	1100	1030	845	888
21	1240	1310	1580	1590	1580	1580	1590	1710	1050	923	843	885
22	1190	1310	1540	1590	1580	1580	1590	1720	1040	910	839	884
23	1220	1310	1630	1590	1580	1580	1590	1730	1040	890	836	887
24	1250	1320	1600	1590	1580	1580	1590	1780	1050	875	842	890
25	1280	1320	1600	1590	1570	1580	1590	1810	1060	879	843	894
26	1300	1320	1600	1590	1560	1580	1590	1780	1090	886	844	892
27	1360	1310	1600	1600	1570	1580	1590	1750	1200	870	845	893
28	1340	1340	1600	1590	1570	1580	1590	1720	1200	868	846	898
29	1330	1340	1620	1590	---	1580	1590	1680	1200	865	845	908
30	1350	1340	1860	1590	---	1580	1590	1560	1150	868	844	928
31	1310	---	1790	1580	---	1570	---	1460	---	871	842	---
MEAN	2000	1310	1480	1610	1580	1580	1590	1650	1180	947	853	875

## BRAZOS RIVER BASIN

08088600 BRAZOS RIVER AT MORRIS SHEPPARD DAM NEAR GRAFORD, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

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

## BRAZOS RIVER BASIN

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## 08089000 BRAZOS RIVER NEAR PALO PINTO, TX

LOCATION.--Lat 32°51'45", long 98°18'08", Palo Pinto County, Hydrologic Unit 12060201, on right bank 100 ft (30 m) upstream from bridge on Farm Road 4, 300 ft (91 m) downstream from Dark Valley Creek, 6.5 mi (10.5 km) north of Palo Pinto, and at mile 667.3 (1,073.7 km).

DRAINAGE AREA.--23,811 mi<sup>2</sup> (61,670 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

PERIOD OF RECORD.--January 1924 to current year. Monthly discharge only for some periods, published in WSP 1312. Published as "near Mineral Wells" 1924-33.

REVISED RECORDS.--WSP 1512: 1924-25, 1929, 1932-34. WSP 1712: 1935-36, 1937-38(M), 1939, 1940(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 831.23 ft (253.359 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 15, 1933, nonrecording gage at site 19 mi (31 km) downstream at datum 38.19 ft (11.640 m) lower.

REMARKS.--Records good. Since 1941, flow largely regulated by Possum Kingdom Lake (station 08088500) 20 mi (32 km) upstream. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--16 years (water years 1925-40) prior to completion of Possum Kingdom Lake, 1,262 ft<sup>3</sup>/s (35.74 m<sup>3</sup>/s), 914,300 acre-ft/yr (1,130 hm<sup>3</sup>/yr); 42 years (water years 1941-82) regulated, 955 ft<sup>3</sup>/s (27.05 m<sup>3</sup>/s), 691,900 acre-ft/yr (853 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,600 ft<sup>3</sup>/s (2,710 m<sup>3</sup>/s) June 16, 1930, at site 19 mi (31 km) downstream from Mineral Wells, gage height, 30 ft (9.1 m), present site and datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage occurred in 1876, from data by Corps of Engineers, and was several feet higher than the flood of June 16, 1930, which reached a stage of about 30 ft (9.1 m) and was the highest since at least 1876.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 69,300 ft<sup>3</sup>/s (1,960 m<sup>3</sup>/s) Oct. 13 at 2100 hours, gage height, 26.53 ft (8.086 m); minimum, 24 ft<sup>3</sup>/s (0.68 m<sup>3</sup>/s) Jan. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	1760	561	27	482	80	53	62	12400	11700	118	39
2	45	1120	506	27	267	142	48	137	10700	11800	106	229
3	156	1260	89	27	75	331	42	65	3050	4070	247	74
4	232	386	47	383	143	314	42	85	2890	5620	110	96
5	55	243	32	101	1370	253	87	138	2860	2740	97	208
6	548	152	30	33	1480	353	270	1010	2840	2720	95	78
7	792	110	28	27	895	171	159	137	2820	4880	93	44
8	171	349	30	27	429	197	56	66	1580	3030	97	123
9	89	1050	28	26	816	610	39	48	1030	2810	199	46
10	61	1710	27	26	1260	511	37	1030	1110	2770	104	40
11	77	1230	27	1190	734	98	39	207	1830	2740	91	36
12	18300	1050	27	281	196	165	37	1150	3620	2720	89	36
13	50100	915	28	1120	380	268	36	4390	3710	2050	89	34
14	56000	410	109	404	86	276	34	6720	4800	2330	188	320
15	41900	188	1090	64	56	90	34	8620	2870	1990	1140	84
16	44200	245	355	43	56	67	33	2970	4030	1900	972	48
17	33800	828	552	105	56	62	30	17500	4180	1710	116	40
18	22200	683	997	43	56	93	32	6560	5670	1160	196	32
19	22700	800	557	30	95	117	30	11800	6590	1170	187	215
20	22100	801	236	30	305	70	30	12200	12200	1050	99	70
21	17000	368	159	32	80	60	30	12400	15900	1490	252	42
22	5810	173	178	32	66	56	30	11300	19500	1030	930	34
23	3490	265	50	656	66	159	32	12600	11600	1100	605	32
24	3200	104	32	1070	63	87	33	15900	12900	974	614	28
25	3080	273	28	421	146	60	33	17700	27200	970	107	28
26	2220	78	27	182	1170	501	110	16200	24500	707	407	40
27	2720	58	27	60	767	986	72	13700	29300	649	95	122
28	2390	653	27	44	102	687	42	12400	29400	409	74	48
29	2690	368	27	42	---	432	548	16500	29200	1040	51	36
30	2150	529	27	51	---	530	211	13500	22800	919	40	32
31	2130	---	27	664	---	82	---	19900	---	386	39	---
TOTAL	360488	18159	5965	7268	11697	7908	2309	236995	313080	80634	7647	2334
MEAN	11630	605	192	234	418	255	77.0	7645	10440	2601	247	77.8
MAX	56000	1760	1090	1190	1480	986	548	19900	29400	11800	1140	320
MIN	45	58	27	26	56	56	30	48	1030	386	39	28
AC-FT	715000	36020	11830	14420	23200	15690	4580	470100	621000	159900	15170	4630
CAL YR 1981	TOTAL	556174	MEAN	1524	MAX	56000	MIN	22	AC-FT	1103000		
WTR YR 1982	TOTAL	1054484	MEAN	2889	MAX	56000	MIN	26	AC-FT	2092000		

## 08090300 LAKE PALO PINTO NEAR SANTO, TX

LOCATION.--Lat 32°38'53", long 98°15'56", Palo Pinto County, Hydrologic Unit 12060201, on left bank near left end of dam on Palo Pinto Creek, 4.0 mi (6.4 km) upstream from bridge on Farm Road 4, 4.4 mi (7.1 km) northwest of Santo, 7.5 mi (12.1 km) upstream from Big Sunday Creek, and 18.7 mi (30.1 km) upstream from mouth.

DRAINAGE AREA.--461 mi<sup>2</sup> (1,194 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1964 to September 1982 (discontinued).

REVISED RECORDS.--WDR TX-76-2: 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 lake is formed by a rock-faced earthfill dam 1,300 ft (400 m) long with a 550-foot (170 m) uncontrolled ogee-crested emergency spillway at right end of dam. The dam was completed and storage began in April 1964. During the summer of 1965, the dam was raised 2 ft (0.6 m) and the spillway crest was raised 4 ft (1.2 m) and lengthened from 500 to 550 ft (150 to 170 m). The lake is the property of Palo Pinto County Municipal Water District No. 1 and was built to impound water for municipal use, principally for the city of Mineral Wells. Water is released to the downstream channel through a 30-inch (762 mm) gated concrete pipe. It then flows 15 mi (24 km) downstream to a diversion lake where it is then pumped to the city of Mineral Wells. In addition, water is circulated through a steam generating powerplant owned by the Brazos Electric Power Co-Operative, Inc. The capacity table is based on a survey completed in 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.....	898.0	-
Design flood.....	893.0	163,200
Crest of spillway.....	867.0	44,090
Lowest gated outlet (invert).....	835.0	1,900

COOPERATION.--Capacity table furnished by Freese and Nichols, Inc., Consulting Engineers, for Palo Pinto Municipal Water District No. 1. Records of diversions furnished by the city of Mineral Wells.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 56,060 acre-ft (69.1 hm<sup>3</sup>) Oct. 31, 1974, elevation, 871.15 ft (265.57 m); minimum since initial filling to present spillway elevation, 18,750 acre-ft (23.1 hm<sup>3</sup>) Jan. 18, 1979, elevation, 854.96 ft (260.592 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 51,460 acre-ft (63.4 hm<sup>3</sup>) Oct. 14 at 0800 hours, elevation, 869.63 ft (265.063 m); minimum observed, 25,010 acre-ft (30.8 hm<sup>3</sup>) Oct. 6, elevation, 858.57 ft (261.692 m).

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

858.0	23,940	867.0	44,090
861.0	29,870	870.0	52,550
864.0	36,570		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25390	45090	43250	42080	41360	41230	40620	39670	43880	43800	42550	39650
2	25350	44550	43230	41930	41280	41250	40520	39670	43830	43720	42500	39520
3	25270	44470	42990	41850	41230	41180	40500	39670	43700	43670	42420	39400
4	25200	44260	43020	41850	41180	41100	40520	39620	43700	43560	42340	39270
5	25100	44170	43020	41800	41130	41030	40370	39770	43640	43540	42210	39180
6	25050	44150	43020	41820	41130	41050	40350	40500	43590	43460	42130	39100
7	25810	44090	43020	41770	41180	41080	40350	40620	43540	43670	42000	38980
8	26330	44070	43020	41610	41130	41080	40300	40600	43490	43720	41930	38930
9	26570	43850	43040	41560	41100	41080	40250	40570	43430	43670	41850	38880
10	26470	43720	42860	41540	41100	41080	40270	40570	43380	43590	41740	38780
11	27480	43700	42810	41480	41150	41030	40270	40550	45310	43490	41670	38690
12	40350	43540	42810	41330	41200	41030	40300	42420	45170	43410	41590	38590
13	48490	43460	42710	41200	41080	41000	40270	46150	44390	43430	41510	38540
14	48650	43380	42630	41050	41150	41100	40220	44690	44070	43410	41380	38470
15	47200	43330	42630	41000	41150	41050	40250	44200	43830	43330	41280	38370
16	47110	43300	42630	40950	41130	39050	40150	43930	43750	43280	41200	38290
17	46670	43230	42630	40950	41130	39080	40100	43930	43670	43200	41080	38250
18	45440	43150	42600	40950	41100	39080	39600	44230	43850	43100	41030	38120
19	45090	43150	42550	40920	41080	39050	39850	44150	44090	43070	40920	38020
20	45070	43150	42500	40750	41080	39800	39600	43930	44090	42990	40850	37930
21	45010	43120	42520	40670	41050	39770	39770	43850	44260	42940	40750	37780
22	44980	43100	42500	40700	41100	39720	39770	44820	44090	42890	40670	37710
23	44770	43150	42470	40650	41080	39650	39570	44710	43930	42840	40570	37710
24	44740	43150	42470	40600	40950	39700	39600	44470	43830	42780	40450	37540
25	44850	43150	42470	40620	41130	40570	39670	44200	47650	42680	40350	37470
26	44850	43150	42390	40600	41150	40520	39600	45500	45230	42780	40250	37380
27	44630	43170	42420	40400	41180	40570	39520	44710	44710	42680	40070	37280
28	44550	43170	42240	40350	41180	40600	39650	45710	44390	42760	40020	37210
29	44500	43330	42130	40320	---	40600	39600	44770	44120	42650	39950	37090
30	44900	43410	42110	40870	---	40620	39620	44340	43880	42600	39820	37020
31	45790	---	42080	41330	---	40570	---	43990	---	42550	39720	---
MAX	48650	45090	43250	42080	41360	41250	40620	46150	47650	43800	42550	39650
MIN	25050	43100	42080	40320	40950	39050	39520	39620	43380	42550	39720	37020
(†)	867.63	866.74	866.23	865.94	865.88	865.64	865.26	866.96	866.92	866.41	865.30	864.19
(+)	+20290	-2380	-1330	-750	-150	-610	-950	+4370	-110	-1330	-2830	-2700
(††)	228	288	224	252	218	238	270	272	250	314	494	460
CAL YR 1981	MAX 48650	MIN 23380	±	+17090	†† 3670							
WTR YR 1982	MAX 48650	MIN 25050	±	+11520	†† 3510							

† Elevation, in feet, at end of month.

± Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal, irrigation, and industrial uses.



BRAZOS RIVER BASIN

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08090300 LAKE PALO PINTO NEAR SANTO, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
JUN 08...	1405	285	26.5	110	13	37	4.9	12

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)
JUN 08...	.5	4.4	100	19	13	.2	5.8	156

## BRAZOS RIVER BASIN

08090800 BRAZOS RIVER NEAR DENNIS, TX

LOCATION.--Lat 32°36'56", long 97°55'32", Parker County, Hydrologic Unit 12060201, at downstream side of bridge on Farm Road 1543, 0.2 mi (0.3 km) south of Dennis, 1.0 mi (1.6 km) upstream from Patrick Creek, and at mile 589.8 (949.0 km).

DRAINAGE AREA.--25,237 mi<sup>2</sup> (65,364 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 697.67 ft (212.650 m) National Geodetic Vertical Datum of 1929 (State Department of Highways and Public Transportation bench marks).

REMARKS.--Water-discharge records good. Flow is largely regulated by releases from storage in Possum Kingdom Lake (station 08088500) and Lake Palo Pinto (station 08090300). Flow is affected at times by discharge from the flood-detention pools of ten floodwater-retarding structures with a combined detention capacity of 11,890 acre-ft (14.7 hm<sup>3</sup>). These structures control runoff from 46.5 mi<sup>2</sup> (120.4 km<sup>2</sup>) in the East Keechi and Pollard Creeks drainage basins. There are many diversions above station for irrigation, municipal supply, and oilfield operations. Gage-height telemeter at station.

AVERAGE DISCHARGE.--14 years (water years 1969-82), 1,040 ft<sup>3</sup>/s (29.45 m<sup>3</sup>/s), 753,500 acre-ft/yr (929 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96,600 ft<sup>3</sup>/s (2,740 m<sup>3</sup>/s) Oct. 14, 1981, gage height, 31.85 ft (9.708 m), from floodmarks; minimum, 0.87 ft<sup>3</sup>/s (0.025 m<sup>3</sup>/s) Aug. 2, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1930, 31.8 ft (9.69 m) in May 1957, from floodmark, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 96,600 ft<sup>3</sup>/s (2,740 m<sup>3</sup>/s) Oct. 14 at 0400 hours, gage height, 31.85 ft (9.708 m); minimum, 42 ft<sup>3</sup>/s (1.19 m<sup>3</sup>/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	610	12800	496	53	423	633	708	283	22900	24000	1130	128
2	597	3820	637	55	772	307	375	492	13400	13200	770	106
3	234	2660	610	52	833	190	234	279	11700	12700	483	90
4	110	2480	521	45	549	135	172	175	4900	5830	371	79
5	62	2620	300	44	305	210	151	168	4040	6090	429	215
6	135	1900	180	53	202	337	112	248	3650	3750	398	163
7	388	1440	141	233	1610	299	103	745	3410	4100	298	167
8	1350	1070	105	153	1650	338	101	918	3290	9930	254	268
9	1150	822	88	104	724	261	284	496	2750	5460	233	171
10	571	924	88	74	543	189	248	312	2140	3790	217	118
11	323	1940	86	59	1350	532	173	209	1970	3600	268	133
12	22000	2040	77	59	1230	507	149	898	3240	3720	348	129
13	61300	1780	75	871	785	248	122	14800	5820	4860	245	99
14	87700	1700	75	464	427	160	105	17900	4080	3960	205	82
15	73600	1580	69	1230	396	222	98	7510	5380	3130	183	67
16	52300	746	182	516	288	472	91	9550	3560	2730	552	96
17	51500	490	710	262	179	295	81	4910	3800	2550	1350	268
18	40400	603	385	168	127	170	76	18900	6230	2330	878	173
19	27300	1200	734	119	101	113	75	11000	6860	2170	434	126
20	26900	1020	1020	129	85	82	65	11800	10600	1730	279	95
21	25600	1110	634	124	76	63	58	13300	17000	1630	400	84
22	21200	879	400	210	106	85	60	14200	22000	1770	271	238
23	9850	496	209	150	175	85	64	17800	22600	1780	575	153
24	5520	394	214	102	111	59	62	16000	20900	1490	815	108
25	4500	378	174	539	92	50	60	19700	29300	1560	972	80
26	4140	206	116	1010	174	55	58	26600	39200	1460	722	66
27	3420	314	89	489	308	103	56	24300	30500	1420	351	55
28	3420	268	72	359	1320	167	60	19100	33300	1360	478	43
29	3200	191	63	219	---	1180	74	22000	33500	995	313	42
30	3240	490	58	256	---	803	147	19500	32700	928	197	72
31	15700	---	56	735	---	628	---	16400	---	1620	146	---
TOTAL	548320	48361	8664	8936	14941	8978	4222	310493	404720	135643	14565	3714
MEAN	17690	1612	279	288	534	290	141	10020	13490	4376	470	124
MAX	87700	12800	1020	1230	1650	1180	708	26600	39200	24000	1350	268
MIN	62	191	56	44	76	50	56	168	1970	928	146	42
AC-FT	1088000	95920	17190	17720	29640	17810	8370	615900	802800	269000	28890	7370

CAL YR 1981 TOTAL 787976 MEAN 2159 MAX 87700 MIN 42 AC-FT 1563000  
WTR YR 1982 TOTAL 1511557 MEAN 4141 MAX 87700 MIN 42 AC-FT 2998000

## BRAZOS RIVER BASIN

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08090800 BRAZOS RIVER NEAR DENNIS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1970 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1970 to current year.

WATER TEMPERATURES: October 1970 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, 4,880 micromhos Aug. 29, 1976; minimum daily, 200 micromhos Oct. 13, 1981.

WATER TEMPERATURES: Maximum daily, 38.5°C July 26, 1976; minimum daily, 0.0°C on several days during winter months 1977-79.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,990 micromhos Oct. 1; minimum daily, 200 micromhos Oct. 13.

WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 10; minimum daily, 0.0°C Jan. 13.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 31...	1548	24000	348	20.0	100	30	33	4.5	26
NOV 11...	1700	2350	1420	14.0	330	220	94	22	160
JAN 31...	1618	672	1040	10.0	230	120	64	16	120
MAR 16...	1623	548	2050	21.5	400	270	110	31	280
MAY 31...	1014	13900	1640	24.0	300	200	85	21	220
AUG 31...	1810	140	1280	33.0	310	160	90	20	140

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 31...	1.2	3.2	71	36	45	.1	5.5	196
NOV 11...	3.9	5.2	110	170	290	.3	6.8	814
JAN 31...	3.7	5.1	110	110	200	.2	5.6	587
MAR 16...	6.1	5.9	130	230	460	.4	3.0	1200
MAY 31...	5.9	5.7	100	170	360	.3	6.1	928
AUG 31...	3.7	6.1	150	150	220	.3	11	728

## BRAZOS RIVER BASIN

08090800 BRAZOS RIVER NEAR DENNIS, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	548320	1410	792	1173E3	300	445300	150	221400	260
NOV.	1981	48361	1150	635	83000	240	31100	120	15400	220
DEC.	1981	8664	1910	1080	25400	410	9700	210	4840	350
JAN.	1982	8936	1410	786	19000	300	7150	150	3550	270
FEB.	1982	14941	1560	874	35300	330	13300	160	6620	290
MAR.	1982	8978	1960	1110	26900	430	10300	210	5150	360
APR.	1982	4222	2190	1250	14300	480	5510	240	2760	400
MAY	1982	310493	1350	751	630000	280	236800	140	117300	260
JUNE	1982	404720	1140	633	691000	240	258100	120	127500	220
JULY	1982	135643	1050	575	211000	210	78100	110	38500	200
AUG.	1982	14565	1200	665	26200	250	9760	120	4820	230
SEPT	1982	3714	1420	790	7930	300	2980	150	1470	270
TOTAL		1511557	**	**	2942000	**	1108000	**	549000	**
WTD. AVG.		4141	1290	721	**	270	**	130	**	240

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2990	494	1770	1950	803	1700	2200	2220	1670	1170	1050	1310
2	2920	742	1790	1790	995	1690	2160	2130	1620	1160	1070	1370
3	2890	1160	1830	1640	1040	1740	2140	2110	1560	1120	1120	1400
4	2920	1330	1840	1470	1380	1800	2120	2180	1580	1100	1210	1440
5	2890	1410	1850	1310	1400	1840	2140	2230	1600	1180	1260	1460
6	2830	1480	1870	1250	1480	1950	2170	2040	1900	1110	1280	1450
7	1870	1520	1910	983	1590	1940	2180	2050	1910	1150	1300	1420
8	2140	1500	1940	1000	1660	1950	2190	2120	1950	978	1330	1370
9	2110	1540	1970	1030	1620	1940	2180	2070	1940	511	1350	1350
10	1970	1510	2010	1200	1680	1930	2240	2040	1940	931	1390	1380
11	1720	1420	2030	1350	1700	1940	2220	2050	1880	1020	1420	1390
12	256	1350	2050	1420	1670	2050	2200	2020	1620	1000	1410	1410
13	200	1380	2070	1330	1700	2080	2190	680	816	933	1400	1430
14	1170	1400	2080	2050	1720	2030	2160	377	1040	740	1410	1440
15	2200	1450	2090	703	1730	2020	2140	715	1510	882	1420	1460
16	2010	1520	2050	1140	1750	2060	2170	1050	1380	976	1430	1470
17	1880	1590	1960	1730	1760	2090	2190	1140	1710	980	1290	1480
18	1690	1660	1880	1760	1770	2080	2200	1590	1290	1000	1130	1450
19	1680	1570	1900	1780	1800	2070	2200	1400	1270	1020	1140	1420
20	1630	1550	1990	1810	1820	2080	2210	1670	662	1060	1160	1380
21	1490	1600	1900	1820	1830	2070	2230	1720	1140	1040	1150	1420
22	1230	1530	1900	1530	1850	2080	2220	1650	1110	1060	1180	1430
23	1050	1600	1940	1630	1860	2030	2210	1400	1050	1030	1220	1440
24	973	1670	1980	1730	1870	1970	2200	1430	855	1040	1130	1420
25	1340	1720	2010	1520	1830	1910	2240	1560	718	1030	1140	1410
26	1500	1770	2020	1730	1700	1790	2210	1390	531	1040	1090	1420
27	1490	1790	2040	1780	1590	1730	2230	1240	1070	1020	1120	1440
28	1510	1820	2070	1770	1650	1630	2270	1360	1160	951	1160	1460
29	1490	1850	2080	1770	---	1910	2240	1280	1220	1040	1180	1470
30	1450	1800	2090	1590	---	2110	2230	1630	1230	1080	1220	1480
31	348	---	2110	1040	---	2180	---	1640	---	1050	1280	---
MEAN	1740	1490	1970	1500	1620	1950	2200	1620	1360	1010	1240	1420

## BRAZOS RIVER BASIN

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08090800 BRAZOS RIVER NEAR DENNIS, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.0	18.0	13.5	10.0	9.5	13.5	19.5	21.0	23.0	27.0	30.0	33.0
2	27.0	18.0	13.0	11.5	9.0	15.5	---	24.5	24.0	28.0	28.0	32.5
3	26.0	17.5	13.5	12.5	8.0	7.0	20.0	26.5	25.0	28.0	29.0	32.0
4	30.0	18.0	12.5	11.0	5.5	17.0	21.5	28.0	---	29.5	33.0	30.0
5	29.0	17.0	11.5	11.0	2.0	11.0	22.0	25.0	25.0	28.0	31.5	29.5
6	24.5	18.5	13.5	14.0	2.5	10.5	19.0	21.5	26.0	29.0	34.0	30.5
7	19.0	17.0	16.0	8.0	4.0	12.0	14.0	22.0	25.0	22.0	34.0	31.0
8	18.0	18.5	16.5	8.0	4.5	11.0	19.5	18.5	28.0	26.0	32.0	29.0
9	20.0	---	18.0	9.0	5.0	10.5	16.0	24.0	27.0	27.0	29.0	30.5
10	19.5	14.5	17.5	4.0	5.0	14.0	14.0	24.5	27.0	28.5	35.0	30.5
11	21.0	14.0	16.0	3.0	6.0	20.0	19.0	23.5	26.5	30.0	33.0	31.0
12	21.5	14.5	13.0	2.0	6.5	20.5	22.0	22.5	26.0	29.0	31.0	29.0
13	20.0	16.0	11.5	.0	6.5	19.0	24.0	19.5	25.5	29.0	31.0	28.0
14	22.0	15.0	11.0	1.0	---	21.0	27.0	20.0	24.0	29.0	33.0	30.0
15	23.0	17.0	12.0	4.5	12.0	22.0	24.0	20.0	25.5	31.0	33.0	28.0
16	23.0	17.5	14.0	2.0	14.5	22.0	29.0	19.0	26.5	30.0	32.0	30.5
17	23.0	18.0	9.0	3.5	14.0	24.5	24.0	21.5	26.5	31.0	32.0	29.0
18	19.0	19.5	8.0	7.5	15.0	25.0	---	18.0	25.5	31.0	32.0	31.0
19	21.0	16.0	6.0	8.0	16.0	24.0	26.5	20.5	26.0	29.5	---	26.0
20	21.0	15.0	6.5	9.0	16.5	22.0	19.0	20.5	25.0	32.5	---	28.0
21	21.0	13.5	9.0	11.0	17.5	19.0	17.0	21.0	25.0	33.0	32.0	26.0
22	19.0	13.0	10.0	14.5	19.0	19.5	17.0	21.0	26.5	33.0	32.0	24.0
23	17.5	15.0	8.0	11.0	19.0	18.0	20.0	21.0	27.0	33.0	31.5	25.5
24	16.0	15.5	8.5	11.0	16.0	22.0	17.0	22.0	25.0	32.0	32.0	---
25	16.0	18.0	7.0	10.0	11.0	18.0	22.0	23.0	26.0	32.5	31.5	25.0
26	16.5	17.0	---	10.0	---	15.5	24.0	22.0	24.0	29.0	30.0	24.0
27	18.0	13.5	10.0	12.5	10.0	12.0	21.5	23.0	26.0	30.5	33.0	22.0
28	18.0	15.0	9.5	---	11.0	15.0	22.0	24.0	26.0	30.0	28.0	---
29	19.0	15.0	9.0	14.0	---	16.0	19.5	24.0	28.0	30.5	30.5	26.5
30	19.0	15.5	7.5	12.0	---	18.0	22.0	25.0	26.5	28.5	32.5	26.0
31	20.0	---	10.5	10.0	---	19.0	---	24.0	---	31.0	32.5	---
MEAN	21.0	16.0	11.5	8.5	10.0	17.0	21.0	22.5	26.0	29.5	31.5	28.5

## BRAZOS RIVER BASIN

## 08090900 LAKE GRANBURY NEAR GRANBURY, TX

LOCATION.--Lat 32°22'27", long 97°41'20", Hood County, Hydrologic Unit 12060201, at right end of spillway of DeCordova Bend Dam on Brazos River, 2.6 mi (4.2 km) upstream from Fall Creek, 7.5 mi (12.1 km) southeast of Granbury, and at mile 542.5 (872.9 km).

DRAINAGE AREA.--25,679 mi<sup>2</sup> (66,509 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--The lake is formed by an Ambursen-type concrete and earthfill dam 2,256 ft (688 m) long, including a 932-foot (284 m) concrete spillway. The dam was completed on Aug. 30, 1969, and deliberate impoundment began Sept. 15, 1969. The spillway consists of sixteen 36- by 35-foot (11.0 by 10.7 m) tainter gates and two 7- by 8-foot (2.1 by 2.4 m) sluice gates. The outflow from the sluice gates discharges into a bay where it is then controlled by two 4- by 4.5-foot (1.2 by 1.4 m) sluice gates with invert at 625.8 ft (190.74 m). Stage telemeter located at station. Flow is affected at times by discharge from the flood-detention pools of 11 floodwater-retarding structures with a combined detention capacity of 13,360 acre-ft (16.5 hm<sup>3</sup>). These structures control runoff from 52.7 mi<sup>2</sup> (136 km<sup>2</sup>) in the East Keetchi, Kickapoo, and Ruckers Creeks drainage basins. The lake was built by the Brazos River Authority for the conservation of water for irrigation, municipal, and industrial uses. Total monthly diversions given in the table below were furnished by the Brazos River Authority and by Texas Utilities Generating Co. Records furnished by the city of Granbury show that 431 acre-ft (531,400 m<sup>3</sup>) of sewage effluent was returned above station during the current 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.....	706.5	-
Top of tainter gates (design flood).....	693.0	153,500
Crest of spillway.....	658.0	15,440
Lowest gated outlet (invert).....	640.0	2,200

COOPERATION.--The capacity curve, based on data prepared by the Ambursen Engineering Corporation, was furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 158,800 acre-ft (196 hm<sup>3</sup>) Mar. 27, 1977, elevation, 693.60 ft (211.409 m); minimum since first filling in October 1969, 97,600 acre-ft (120 hm<sup>3</sup>) Aug. 9, 1978, elevation, 685.28 ft (208.873 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 153,100 acre-ft (189 hm<sup>3</sup>) Feb. 24 at 1300 hours, elevation, 692.95 ft (211.211 m); minimum, 127,000 acre-ft (157 hm<sup>3</sup>) June 27, elevation, 689.70 ft (210.221 m).

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

689.0	121,900	692.0	145,000
690.0	129,200	693.0	153,500
691.0	136,900		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149800	147400	147300	150600	147800	147800	148200	149300	133300	136400	146700	149000
2	149500	147100	147600	151000	148700	148800	148500	150100	134300	138700	146200	149100
3	148800	146300	147900	151000	148700	149900	147700	150600	143700	139500	146000	148900
4	149300	147100	148200	150800	149000	150100	147600	150300	146200	140600	146400	147800
5	149600	147800	147800	151300	148800	148800	148000	150500	147700	145000	146900	147400
6	150100	147500	147200	152300	147800	145700	147900	147600	148200	145900	147500	147500
7	150300	147300	147500	151900	149200	145600	148300	147900	147300	145200	147900	147500
8	149300	149400	147800	151300	150600	146600	148100	149700	147400	144600	148200	147700
9	150100	148000	148200	151200	148400	147200	148300	150600	146700	146700	148300	147900
10	150300	148400	148700	149400	147200	147900	149000	149500	145900	147800	148300	148000
11	149400	149500	149100	148700	147800	149200	149100	148200	147800	146700	148000	148000
12	146700	148700	149400	148500	148900	150400	149400	149300	147100	147500	148300	148100
13	140500	148200	149700	148600	149400	150700	149900	142900	145200	147100	148700	147600
14	137600	148000	149900	149100	149200	149200	150100	136500	138000	146300	148700	147500
15	136100	147800	149900	150400	149500	148300	149700	133300	140500	146700	148900	147700
16	133300	147600	149200	149000	149600	148300	149900	138400	143100	147500	148800	147700
17	133100	147600	149700	148900	150200	148200	149400	134000	142800	147500	149600	147500
18	135000	147900	149900	149500	150600	147300	149500	135600	142000	146200	150200	147800
19	134100	148400	149900	149800	150900	147200	150000	134900	138400	146300	150000	147900
20	135500	148400	151100	150200	151200	147200	150000	135400	140200	146200	149500	148200
21	136300	148500	150500	151100	151400	148000	150000	135400	139600	145800	149000	147900
22	136600	148700	149900	151300	151800	148200	150200	137700	134000	145400	148300	147900
23	141800	148700	149000	151400	152100	148600	149900	137500	134700	145700	147500	147900
24	146600	148600	148400	152000	152300	148800	149100	138300	134800	145800	147800	147400
25	144700	148100	149800	151200	151100	149200	149500	136300	129100	146100	147800	147500
26	144300	148200	149100	150700	148000	148700	149500	134600	128000	146300	148100	147300
27	144700	147900	149800	150100	145700	148500	149500	135000	128000	146000	147800	147100
28	145500	147600	149900	148400	146700	148000	150000	133200	130700	146300	148300	147100
29	146100	147200	149900	149600	---	147800	149200	136000	132200	145700	148800	147100
30	147200	147300	149900	148900	---	148200	148800	136400	135000	145300	148900	147100
31	148700	---	150400	148500	---	148100	---	130700	---	147200	149000	---
MAX	150300	149500	151100	152300	152300	150700	150200	150600	148200	147800	150200	149100
MIN	133100	146300	147200	148400	145700	145600	147600	130700	128000	136400	146000	147100
(†)	692.44	692.28	692.64	692.42	692.20	692.37	692.45	690.20	690.76	692.27	692.48	692.25
(‡)	+1000	-1400	+3100	-1900	-1800	+1400	+700	-18100	+4300	+12200	+1800	-1900
(††)	400	204	277	363	139	169	388	193	415	1200	2180	1010
CAL YR 1981	MAX	152100	MIN	133100	+	-200	††	14700				
WTR YR 1982	MAX	152300	MIN	128000	+	-2600	††	6940				

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal, irrigation, and industrial uses.



## BRAZOS RIVER BASIN

259

08090900 LAKE GRANBURY NEAR GRANBURY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: September 1970 to current year.

322227097412101 LAKE GRANBURY SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANSPARENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED SATURATION (%)	HARDNESS (MG/L AS CaCO3)	HARDNESS, NONCARBONATE (MG/L CaCO3)
OCT										
29...	1130	1.00	1510	7.6	18.5	.30	7.1	77	290	210
29...	1131	.50	--	--	--	--	--	--	--	--
29...	1132	10.0	1510	7.6	18.5	--	7.2	78	--	--
29...	1134	20.0	1510	7.6	18.0	--	7.3	78	--	--
29...	1136	30.0	1510	7.6	18.0	--	7.3	78	--	--
29...	1138	40.0	1520	7.6	18.0	--	7.2	77	--	--
29...	1140	50.0	1520	7.6	18.0	--	7.3	78	--	--
29...	1142	60.0	1520	7.6	18.0	--	7.1	76	--	--
29...	1144	68.0	1520	7.7	18.0	--	7.1	76	290	210
JAN										
20...	1305	1.00	1070	8.1	8.0	.50	11.7	100	240	130
20...	1307	10.0	1070	8.1	7.5	--	11.9	101	--	--
20...	1309	20.0	1070	8.1	7.0	--	11.9	99	--	--
20...	1311	30.0	1080	8.1	7.0	--	12.1	101	--	--
20...	1313	40.0	1080	8.1	7.0	--	12.1	101	--	--
20...	1315	50.0	1080	8.1	6.5	--	11.9	98	--	--
20...	1317	60.0	1080	8.1	6.5	--	12.1	100	--	--
20...	1319	68.0	1080	8.1	6.5	--	11.5	95	230	120
AUG										
16...	1600	1.00	935	8.2	30.0	1.50	7.6	103	230	120
16...	1602	10.0	935	8.1	29.0	--	7.3	96	--	--
16...	1604	20.0	935	8.0	28.5	--	6.7	88	--	--
16...	1606	30.0	935	7.6	28.0	--	4.0	52	--	--
16...	1608	40.0	905	7.2	27.5	--	.2	3	--	--
16...	1610	50.0	890	7.2	26.5	--	.1	1	--	--
16...	1612	60.0	960	7.2	25.5	--	.1	1	--	--
16...	1614	69.0	994	7.1	25.0	--	.1	1	240	100

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)
OCT									
29...	81	21	200	5.5	5.7	75	190	330	.3
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	81	21	200	5.5	5.7	77	190	330	--
JAN									
20...	68	16	120	3.6	4.4	110	120	210	.2
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	67	16	120	3.6	4.4	110	120	220	--
AUG									
16...	68	14	97	3.0	5.4	110	120	160	.2
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	74	14	100	2.9	5.3	140	100	170	--

## BRAZOS RIVER BASIN

## LAKE GRANBURY NEAR GRANBURY, TX--Continued

322227097412101 LAKE GRANBURY SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM DIS- SOLVED (UG/L AS CD)
OCT									
29...	5.4	879	.27	.76	1.0	.040	1	120	<1
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	.16	.72	.88	.050	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	5.4	880	.27	.91	1.2	.040	1	120	<1
JAN									
20...	5.6	610	.26	.46	.72	.020	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	.27	.59	.86	.010	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	5.7	619	.26	.43	.69	.010	--	--	--
AUG									
16...	8.2	539	<.10	1.10	--	.040	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	<.10	.80	--	.040	--	--	--
16...	--	--	<.10	1.00	--	.040	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	13	562	<.10	2.10	--	.160	--	--	--

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT									
29...	<10	2	<10	0	1	<.1	<1	<1	5
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	40	--	<10	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	10	8	11	4	4	<.1	<1	<1	7
JAN									
20...	--	--	12	--	<1	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	60	--	10	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	15	--	<1	--	--	--	--
AUG									
16...	--	--	8	--	8	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	90	--	80	--	--	--	--
16...	--	--	60	--	390	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	520	--	1200	--	--	--	--

## LAKE GRANBURY NEAR GRANBURY, TX--Continued

322231097412001 LAKE GRANBURY SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	1220	1.00	1510	7.6	18.0	7.0	75
29...	1222	10.0	1510	7.6	18.5	7.0	76
29...	1224	20.0	1510	7.6	18.5	7.0	76
29...	1226	30.0	1510	7.6	18.5	7.0	76
29...	1228	38.0	1510	7.6	18.5	6.9	75
JAN							
20...	1335	1.00	1070	8.1	8.0	11.6	99
20...	1337	10.0	1070	8.1	8.0	11.7	100
20...	1339	25.0	1070	8.0	7.5	11.5	97
AUG							
16...	1625	1.00	940	8.2	31.5	6.9	96
16...	1627	10.0	940	8.2	30.5	6.9	93
16...	1629	20.0	940	8.1	30.0	6.5	88
16...	1631	30.0	940	7.6	29.5	2.9	39
16...	1633	36.0	940	7.6	29.5	2.7	36

322345097421901 LAKE GRANBURY SITE BR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	1105	1.00	1510	7.7	18.5	8.2	89
29...	1107	10.0	1500	7.7	18.5	8.2	89
JAN							
20...	1245	1.00	1070	8.1	9.0	11.6	102
20...	1247	13.0	1090	8.0	8.0	11.5	98
AUG							
16...	1520	1.00	935	8.3	31.5	7.7	107
16...	1521	10.0	935	8.2	31.0	7.0	96
16...	1522	16.0	935	7.7	30.5	3.7	50

322341097420601 LAKE GRANBURY SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	1047	1.00	1500	7.7	18.5	8.3	90
29...	1049	10.0	1500	7.7	18.5	8.4	91
29...	1051	20.0	1500	7.7	18.0	8.4	90
29...	1053	30.0	1470	7.7	18.0	7.8	84
29...	1055	40.0	1460	7.7	18.0	8.4	90
29...	1057	50.0	1440	7.7	17.5	8.6	91
29...	1059	60.0	1390	7.7	17.5	8.3	88
29...	1101	65.0	1400	7.7	17.5	8.8	94
JAN							
20...	1225	1.00	1080	8.1	9.0	11.3	99
20...	1227	10.0	1090	8.0	7.5	11.8	100
20...	1229	20.0	1100	8.0	7.0	12.0	100
20...	1231	30.0	1110	8.0	7.0	11.9	99
20...	1233	40.0	1110	8.0	7.0	11.9	99
20...	1235	50.0	1110	8.0	7.0	11.8	98
20...	1237	60.0	1110	8.0	7.0	12.1	101
20...	1239	65.0	1110	8.0	7.5	11.8	100
AUG							
16...	1525	1.00	935	8.3	31.5	7.7	107
16...	1527	10.0	935	8.1	30.5	6.3	85
16...	1529	20.0	928	7.3	29.5	.5	7
16...	1530	30.0	923	7.2	29.0	.2	3
16...	1532	40.0	910	7.2	29.0	.2	3
16...	1534	50.0	895	7.2	28.0	.2	3
16...	1536	60.0	925	7.1	27.5	.2	3
16...	1538	66.0	972	7.1	26.5	.2	3

## BRAZOS RIVER BASIN

## LAKE GRANBURY NEAR GRANBURY, TX--Continued

## 322337097415401 LAKE GRANBURY SITE BL

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	1114	1.00	1490	7.7	18.5	8.0	87
29...	1116	10.0	1490	7.7	18.0	7.9	85
29...	1118	23.0	1490	7.7	18.0	7.9	85
JAN							
20...	1252	1.00	1080	8.1	8.5	11.6	101
20...	1254	10.0	1080	8.1	7.5	11.8	100
20...	1256	23.0	1080	8.0	8.0	11.5	98
AUG							
16...	1545	1.00	935	8.3	31.5	7.7	107
16...	1547	10.0	935	8.1	30.0	4.7	64
16...	1549	23.0	935	7.6	29.5	3.2	43

## 322537097414501 LAKE GRANBURY SITE CC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	1027	1.00	1360	8.0	18.0	8.8	95
29...	1029	9.00	1360	7.9	18.0	8.6	92
JAN							
20...	1400	1.00	1110	8.2	9.5	10.9	97
20...	1402	10.0	1090	8.1	9.0	10.9	96

## 322422097423901 LAKE GRANBURY SITE DC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	0950	1.00	1290	7.7	17.5	8.2	87
29...	0952	10.0	1270	7.7	17.0	8.3	87
29...	0954	20.0	1270	7.6	17.0	8.3	87
29...	0956	30.0	1230	7.6	17.0	8.5	89
29...	0958	40.0	1200	7.6	17.0	8.8	93
29...	1000	50.0	1180	7.6	16.5	8.8	92
29...	1002	59.0	1170	7.6	16.5	8.9	93
JAN							
20...	1130	1.00	1120	7.9	9.0	11.3	99
20...	1132	10.0	1120	7.9	8.0	11.8	101
20...	1134	20.0	1130	7.9	7.0	11.8	98
20...	1136	30.0	1150	8.0	7.0	11.9	99
20...	1138	40.0	1250	8.0	6.5	12.1	100
20...	1140	50.0	1310	8.0	6.0	12.1	98
20...	1142	60.0	1320	8.0	6.5	11.7	97
AUG							
16...	1430	1.00	954	7.9	32.5	5.6	79
16...	1432	10.0	954	8.2	31.0	6.9	95
16...	1434	20.0	1010	7.2	30.0	.2	3
16...	1435	25.0	1020	7.2	29.5	.2	3
16...	1436	30.0	1040	7.2	29.5	.2	3
16...	1438	40.0	976	7.2	29.0	.2	3
16...	1440	50.0	895	7.1	28.0	.2	3
16...	1442	59.0	895	7.1	27.5	.2	3

## LAKE GRANBURY NEAR GRANBURY, TX--Continued

322437097423901 LAKE GRANBURY SITE DL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	1010	1.00	1290	7.7	17.5	8.5	90
29...	1012	13.0	1330	7.7	17.5	8.5	90
JAN							
20...	1155	1.00	1120	8.0	10.0	11.7	105
20...	1157	10.0	1120	8.0	7.5	11.9	101
20...	1159	18.0	1120	7.9	8.0	11.7	100
AUG							
16...	1500	1.00	960	8.0	32.0	6.7	93
16...	1502	10.0	960	8.0	31.0	6.2	85
16...	1504	20.0	1010	7.2	30.0	.2	3
16...	1505	26.0	1020	7.2	29.5	.2	3

322458097443101 LAKE GRANBURY SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	0925	1.00	1140	7.7	17.0	8.6	91
29...	0927	10.0	1140	7.7	16.5	8.6	90
29...	0929	20.0	1140	7.6	16.5	8.5	89
29...	0931	30.0	1120	7.6	16.5	8.5	89
29...	0933	40.0	1080	7.6	16.0	8.6	89
29...	0935	50.0	1080	7.6	16.0	8.4	87
29...	0937	57.0	1080	7.6	16.0	8.4	87
JAN							
20...	1110	1.00	1130	7.8	9.0	11.3	99
20...	1112	10.0	1130	7.8	8.5	11.3	98
20...	1114	20.0	1170	7.9	7.0	11.6	97
20...	1116	30.0	1280	8.1	6.0	11.7	95
20...	1118	40.0	1380	8.1	5.5	11.7	94
20...	1120	50.0	1440	8.2	5.0	11.6	92
20...	1122	55.0	1450	8.2	5.0	11.4	90
AUG							
16...	1420	1.00	960	8.0	32.0	6.8	94
16...	1421	10.0	960	7.9	31.5	5.8	81
16...	1422	20.0	1000	7.4	30.0	1.5	20
16...	1423	30.0	1030	7.2	29.5	.1	1
16...	1424	40.0	1030	7.2	29.0	.1	1
16...	1425	54.0	900	7.1	27.5	.1	1

322619097463301 LAKE GRANBURY SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT									
29...	1252	1.00	1090	7.7	17.0	.30	7.4	78	230
29...	1254	10.0	1090	7.7	16.5	--	7.2	75	--
29...	1256	20.0	1130	7.6	16.0	--	7.3	75	--
29...	1258	30.0	1130	7.7	16.0	--	7.3	75	--
29...	1300	44.0	1130	7.8	17.0	--	7.2	76	240
JAN									
20...	1435	1.00	1220	8.1	8.0	.50	11.9	102	280
20...	1437	10.0	1240	8.2	7.0	--	12.2	102	--
20...	1438	20.0	1470	8.3	6.0	--	12.6	102	--
20...	1440	30.0	1710	8.3	5.0	--	12.5	99	--
20...	1442	43.0	1770	8.2	6.0	--	11.5	93	390
AUG									
16...	1715	1.00	960	8.3	31.5	1.10	8.6	119	240
16...	1717	10.0	962	8.0	30.5	--	6.5	88	--
16...	1719	20.0	980	7.8	30.0	--	4.8	65	--
16...	1721	30.0	1060	7.4	29.5	--	1.6	21	--
16...	1723	35.0	1060	7.4	29.5	--	1.2	16	--
16...	1725	42.0	1060	7.3	29.5	--	.7	9	260

## BRAZOS RIVER BASIN

## LAKE GRANBURY NEAR GRANBURY, TX--Continued

322619097463301 LAKE GRANBURY SITE FC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	AIKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
29...	130	68	15	130	3.9	4.7	98	110	230
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	140	71	16	130	3.8	5.0	100	120	230
JAN									
20...	160	81	18	140	3.9	4.7	120	130	240
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	230	110	27	210	4.9	5.2	160	200	370
AUG									
16...	130	70	15	100	3.0	5.5	110	140	160
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	130	76	16	120	3.4	5.6	130	150	180

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT								
29...	7.4	624	.39	.86	1.3	.050	14	2
29...	--	--	--	--	--	--	--	--
29...	--	--	.40	.59	.99	.060	50	<10
29...	--	--	--	--	--	--	--	--
29...	7.7	640	.39	.71	1.1	.030	<10	1
JAN								
20...	5.1	691	.21	.61	.82	.020	<10	<1
20...	--	--	--	--	--	--	--	--
20...	--	--	.14	.74	.88	.020	20	10
20...	--	--	--	--	--	--	--	--
20...	4.9	1020	.11	.55	.66	.010	<10	2
AUG								
16...	8.6	565	<.10	1.10	--	.040	<3	2
16...	--	--	--	--	--	--	--	--
16...	--	--	<.10	1.20	--	.050	60	20
16...	--	--	<.10	1.40	--	.050	60	80
16...	--	--	--	--	--	--	--	--
16...	9.9	636	<.10	1.20	--	.050	<3	260

322703097451401 LAKE GRANBURY SITE GC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	1426	1.00	1170	7.8	17.5	7.7	82
29...	1428	10.0	1150	7.8	17.0	7.3	77
29...	1430	23.0	1250	7.7	17.0	6.6	69



## BRAZOS RIVER BASIN

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## LAKE GRANBURY NEAR GRANBURY, TX--Continued

322834097470801 LAKE GRANBURY SITE HC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
OCT							
29...	1400	1.00	1400	7.6	17.5	.20	7.6
29...	1402	10.0	1400	7.6	17.0	--	7.6
29...	1404	20.0	1380	7.6	17.0	--	7.5
29...	1406	34.0	1380	7.8	17.0	--	7.3
JAN							
20...	1720	1.00	1570	8.3	5.5	.60	12.9
20...	1722	10.0	1820	8.3	4.0	--	13.2
20...	1724	20.0	1850	8.2	4.5	--	13.1
20...	1726	34.0	1910	8.1	5.5	--	12.2
AUG							
16...	1945	1.00	970	8.4	31.5	.60	9.4
16...	1947	10.0	1020	7.8	30.0	--	5.3
16...	1949	20.0	1060	7.6	30.0	--	3.4
16...	1951	34.0	1080	7.5	29.5	--	1.3

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT							
29...	80	.30	.63	.93	.070	10	10
29...	79	--	--	--	--	--	--
29...	78	.30	.62	.92	.050	20	<10
29...	76	.29	.57	.86	.050	<10	<10
JAN							
20...	104	.12	.65	.77	.020	50	10
20...	102	--	--	--	--	--	--
20...	103	--	--	--	--	--	--
20...	98	.10	.68	.78	--	50	20
AUG							
16...	131	<.10	1.00	--	.060	70	10
16...	72	<.10	1.30	--	.040	60	30
16...	46	--	--	--	--	--	--
16...	17	<.10	1.40	--	.070	60	250

322819097483201 LAKE GRANBURY SITE IC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	1505	1.00	1210	7.8	16.5	7.9	83
29...	1507	10.0	1210	7.7	15.5	7.1	72
29...	1509	19.0	1210	7.7	15.5	6.2	63
AUG							
16...	1820	1.00	1020	8.4	31.0	9.2	126
16...	1822	10.0	1030	7.9	30.0	5.7	77
16...	1824	20.0	1040	7.4	29.5	1.4	19

## BRAZOS RIVER BASIN

## LAKE GRANBURY NEAR GRANBURY, TX--Continued

323318097480101 LAKE GRANBURY SITE JC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
29...	1523	1.00	1520	7.7	18.5	7.6	82
29...	1525	10.0	1520	7.7	18.5	7.6	82
29...	1527	24.0	1520	7.7	18.5	7.3	78
JAN							
20...	1650	1.00	1930	8.1	7.5	12.2	103
20...	1652	10.0	1980	8.0	5.0	12.5	99
20...	1654	23.0	2060	7.8	6.0	12.1	98
AUG							
16...	1840	1.00	1170	8.2	29.5	12.9	172
16...	1842	10.0	1330	7.6	29.0	5.9	78
16...	1844	20.0	1210	7.3	29.5	.1	1
16...	1846	25.0	1210	7.4	29.0	.1	1

323435097492001 LAKE GRANBURY SITE KC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT									
29...	1545	1.00	1570	7.6	19.0	.30	7.5	82	320
29...	1546	.50	--	--	--	--	--	--	--
29...	1547	10.0	1570	7.7	19.0	--	7.6	83	--
29...	1549	18.0	1570	7.7	19.0	--	7.3	79	320
JAN									
20...	1630	1.00	1770	7.8	5.5	1.10	12.6	102	350
20...	1632	10.0	1780	7.8	5.5	--	12.6	102	--
20...	1634	18.0	1980	7.7	6.0	--	12.2	99	390
AUG									
16...	1910	1.00	1410	8.0	32.5	.80	9.2	130	350
16...	1912	10.0	1430	7.8	31.0	--	7.3	100	--
16...	1914	17.0	1430	7.4	30.0	--	1.1	15	350

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- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT									
29...	220	93	22	200	5.1	5.4	100	200	330
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	220	91	22	200	5.2	5.5	100	190	330
JAN									
20...	220	98	25	220	5.5	5.6	130	190	390
20...	--	--	--	--	--	--	--	--	--
20...	250	110	28	250	5.9	5.4	140	210	440
AUG									
16...	170	99	25	160	4.0	5.6	180	180	250
16...	--	--	--	--	--	--	--	--	--
16...	170	99	26	160	3.9	5.7	180	200	250

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT								
29...	7.0	918	.48	.66	1.1	.040	<10	13
29...	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--
29...	6.9	906	.50	.63	1.1	.040	<10	13
JAN								
20...	5.6	1010	.24	.66	.90	.010	<10	29
20...	--	--	--	--	--	--	--	--
20...	4.6	1130	.11	.54	.65	.020	<10	62
AUG								
16...	12	840	<.10	1.00	--	.050	<3	5
16...	--	--	--	--	--	--	--	--
16...	13	862	<.10	1.30	--	.080	<3	480

## LAKE GRANBURY NEAR GRANBURY, TX--Continued

322227097412101 LAKE GRANBURY SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO OCTOBER 1981

DATE	OCT 29, 81
TIME	1131

TOTAL CELLS/ML	17000
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DIVERSITY: DIVISION	0.3
..CLASS	0.3
...ORDER	0.3
...FAMILY	0.3
....GENUS	0.3

ORGANISM	CELLS /ML	PER- CENT
----------	--------------	--------------

## BACILLARIOPHYTA (DIATOMS)

.BACILLARIOPHYCEAE		
..FRAGILARIALES		
...FRAGILARIACEAE		
....SYNEDRA	*	0
..NAVICULALES		
...CYMBELLACEAE		
....CYMBELLA	91	1

## CHLOROPHYTA (GREEN ALGAE)

.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...CHLOROCOCCACEAE		
....SCHROEDERIA	*	0
...OOCYSTACEAE		
....OOCYSTIS	270	2
...SCENEDESMACEAE		
....CRUCIGENIA	110	1

## CYANOPHYTA (BLUE-GREEN ALGAE)

.CYANOPHYCEAE		
..OSCILLATORIALES		
...OSCILLATORIACEAE		
....OSCILLATORIA	16000#	96

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

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

323435097492001 LAKE GRANBURY SITE KC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO OCTOBER 1981

DATE	OCT 29, 81
TIME	1546

TOTAL CELLS/ML	13000
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DIVERSITY: DIVISION	0.4
..CLASS	0.4
...ORDER	0.5
...FAMILY	0.5
....GENUS	0.6

ORGANISM	CELLS /ML	PER- CENT
----------	--------------	--------------

## BACILLARIOPHYTA (DIATOMS)

.BACILLARIOPHYCEAE		
..NAVICULALES		
...NAVICULACEAE		
....NAVICULA	150	1

## CHLOROPHYTA (GREEN ALGAE)

.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...CHLOROCOCCACEAE		
....SCHROEDERIA	150	1
...OOCYSTACEAE		
....SELENASTRUM	*	0
...SCENEDESMACEAE		
....CRUCIGENIA	*	0
...SCENEDESMUS	270	2
....TETRASTRUM	160	1

## CYANOPHYTA (BLUE-GREEN ALGAE)

.CYANOPHYCEAE		
..NOSTOCALES		
...NOSTOCACEAE		
....ANABAENA	220	2
..OSCILLATORIALES		
...OSCILLATORIACEAE		
....OSCILLATORIA	12000#	92

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

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

## 08091000 BRAZOS RIVER NEAR GLEN ROSE, TX

LOCATION.--Lat 32°16'18", long 97°39'48", Somervell County, Hydrologic Unit 12060201, at downstream side of bridge on U.S. Highway 67, 600 ft (180 m) downstream from Georges Creek, 4.1 mi (6.6 km) upstream from Paluxy River, 6 mi (10 km) northeast of Glen Rose, and at mile 511.2 (822.5 km).

DRAINAGE AREA.--25,818 mi<sup>2</sup> (66,869 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year.

REVISED RECORDS.--WSP 1058: 1932. WSP 1512: 1946-47, 1949. WSP 1712: 1928(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 567.82 ft (173.072 m) National Geodetic Vertical Datum of 1929. Prior to May 7, 1931, nonrecording gage at site 2.5 mi (4.0 km) downstream at same datum. May 7, 1931, to Sept. 30, 1957, water-stage recorder at site 2.4 mi (3.9 km) downstream at same datum, used as supplementary gage Oct. 1, 1957, to Apr. 1, 1959. Apr. 27, 1950, to Sept. 30, 1957, water-stage recorder, present gage, used as supplementary gage.

REMARKS.--Water-discharge records good. Flow is largely regulated since September 1969 by Lake Granbury (station 08090900) 31 mi (50 km) upstream. Many diversions above station for irrigation, municipal supply, and oilfield operation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--46 years (water years 1924-69) prior to regulation by Lake Granbury, 1,567 ft<sup>3</sup>/s (44.38 m<sup>3</sup>/s), 1,135,000 acre-ft/yr (1.40 km<sup>3</sup>/yr); 13 years (water years 1970-82) regulated, 1,069 ft<sup>3</sup>/s (30.27 m<sup>3</sup>/s), 774,500 acre-ft/yr (955 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 97,600 ft<sup>3</sup>/s (2,760 m<sup>3</sup>/s) May 18, 1935, gage height, 23.68 ft (7.218 m), site then in use, from floodmarks; maximum gage height, 35.19 ft (10.726 m), present site, Oct. 15, 1981; no flow at times prior to construction of Morris Sheppard Dam (1941) on the Brazos River forming Possum Kingdom Lake.

Maximum stage since at least 1876, that of Oct. 15, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May 1908 reached a stage of 27 ft (8.2 m), and flood in May 1922 reached a stage of 29.5 ft (8.99 m), each at site 2.4 mi (3.9 km) downstream, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 86,400 ft<sup>3</sup>/s (2,450 m<sup>3</sup>/s) Oct. 15 at 2100 hours, gage height, 35.19 ft (10.726 m); minimum, 12 ft<sup>3</sup>/s (0.34 m<sup>3</sup>/s) Sept. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268	26600	568	78	912	580	543	316	18900	30900	722	29
2	580	7570	565	102	917	253	551	97	19800	17300	1320	25
3	580	3780	551	60	670	82	553	53	9970	12900	528	22
4	361	2720	549	41	533	57	542	37	5970	10300	312	36
5	80	1620	551	41	527	46	274	204	3480	3880	84	444
6	35	1500	554	53	529	2350	90	2270	3440	3710	42	214
7	68	1430	553	39	525	820	59	1250	3410	3390	30	68
8	1100	783	255	32	598	241	48	197	3380	9090	26	39
9	1450	1310	101	108	1760	86	95	64	3360	9440	24	31
10	680	649	67	509	1280	58	101	40	3140	3280	22	26
11	598	599	53	522	1220	47	60	874	2020	3900	49	23
12	3320	2070	46	520	576	42	45	517	1490	3930	202	18
13	46600	2170	44	520	521	40	39	9840	5760	4330	65	17
14	71700	1520	44	524	521	690	35	28200	7990	5550	39	129
15	81800	1520	42	523	531	1560	31	15600	7080	3270	30	95
16	76500	1450	261	515	542	629	104	8150	2450	2340	27	49
17	55700	635	532	520	259	555	276	8390	3740	2290	163	34
18	50500	580	278	523	97	548	85	13500	5400	2810	454	146
19	34300	582	197	250	65	550	47	20600	11200	2310	464	90
20	26100	889	537	92	53	548	33	9790	7480	1740	464	44
21	26100	897	581	60	44	276	25	14700	13200	1720	336	31
22	25400	904	1290	48	37	113	28	15400	21600	1710	498	23
23	15300	891	639	39	33	77	29	22700	23600	1680	490	20
24	4080	597	534	36	32	64	147	17700	23000	1390	484	15
25	6480	567	532	39	442	52	333	18500	28200	1260	488	246
26	6450	565	250	550	1990	46	108	28400	33500	1270	475	84
27	3730	559	92	911	1950	280	52	26800	41400	1220	475	36
28	3550	555	59	908	1040	589	36	24500	30200	1230	340	26
29	2850	562	47	908	---	583	111	19200	32600	1230	99	19
30	3190	578	40	957	---	1320	477	22100	32900	1170	49	15
31	4250	---	38	975	---	606	---	20000	---	518	34	---
TOTAL	553700	66652	10450	11003	18204	13788	4957	349989	409660	151058	8835	2094
MEAN	17860	2222	337	355	650	445	165	11290	13660	4873	285	69.8
MAX	81800	26600	1290	975	1990	2350	553	28400	41400	30900	1320	444
MIN	35	555	38	32	32	40	25	37	1490	518	22	15
AC-FT	1098000	132200	20730	21820	36110	27350	9830	694200	812600	299600	17520	4150
CAL YR 1981	TOTAL	810858	MEAN	2222	MAX	81800	MIN	10	AC-FT	1608000		
WTR YR 1982	TOTAL	1600390	MEAN	4385	MAX	81800	MIN	15	AC-FT	3174000		

BRAZOS RIVER BASIN

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08091000 BRAZOS RIVER NEAR GLEN ROSE, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

									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 (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)			
DEC 09...	1500	93	1240	8.3	19.0	5	3.4	11.8	128	.8	280
JAN 18...	1220	536	1100	8.2	5.0	10	6.7	11.6	94	.8	250
APR 15...	1140	31	1510	8.2	23.0	5	--	8.5	101	.6	360
MAY 21...	1150	14900	1060	8.0	20.5	40	41	8.1	92	.9	220
JUN 24...	1300	20600	1090	8.0	27.0	30	39	7.6	97	1.2	230
AUG 05...	1100	138	1040	8.3	30.0	20	2.2	7.2	97	1.4	260
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)
DEC 09...	170	81	18	140	3.9	4.5	110	140	250	.3	5.6
JAN 18...	140	75	16	120	3.5	4.5	110	120	210	.2	5.5
APR 15...	210	100	27	170	4.2	4.5	150	170	290	.3	3.1
MAY 21...	120	63	14	130	4.1	5.1	94	110	220	.3	6.3
JUN 24...	130	68	15	130	3.9	5.6	98	120	210	.2	7.6
AUG 05...	130	78	15	110	3.1	5.0	130	120	180	.3	9.2

## BRAZOS RIVER BASIN

08091000 BRAZOS RIVER NEAR GLEN ROSE, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
DEC 09...	706	8	2	--	<.020	.30	<.070	--	.42	<.010	4.4
JAN 18...	617	14	2	--	<.020	.28	.110	.69	.80	.020	3.9
APR 15...	855	--	--	--	<.020	.10	.110	.36	.47	<.010	3.7
MAY 21...	605	44	3	--	<.020	.20	.100	1.3	1.40	.050	5.7
JUN 24...	615	43	11	.19	.030	.22	.140	1.3	1.40	.050	6.4
AUG 05...	596	12	7	--	<.020	<.10	.080	.62	.70	.040	5.6

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 09...	1500	1	100	<1	<10	1	<10
APR 15...	1140	1	120	<3	<10	2	<9
AUG 05...	1100	2	110	<1	<10	1	6

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 09...	<1	22	<.1	<1	<1	<3
APR 15...	<1	<3	<.1	<1	<1	<12
AUG 05...	<1	15	<.1	1	<1	<3



## BRAZOS RIVER BASIN

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08091500 PALUXY RIVER AT GLEN ROSE, TX

LOCATION.--Lat 32°13'53", long 97°46'37", Somervell County, Hydrologic Unit 12060202, on left bank at downstream side of remaining pier of dismantled highway bridge, 500 ft (152 m) upstream from bridge on U.S. Highway 67, 1.0 mi (1.6 km) upstream from Cross Branch, 1.2 mi (1.9 km) southwest of Glen Rose, and 5.1 mi (8.2 km) upstream from mouth.

DRAINAGE AREA.--410 mi<sup>2</sup> (1,062 km<sup>2</sup>).

PERIOD OF RECORD.--October 1923 to September 1925, May 1947 to current year. Prior to October 1965, published as Paluxy Creek at Glen Rose.

REVISED RECORDS.--WSP 1392: 1949, 1952. WSP 2122: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 609.66 ft (185.824 m) National Geodetic Vertical Datum of 1929. Oct. 27, 1923, to Sept. 30, 1925, nonrecording gage at bridge 1.8 mi (2.9 km) downstream at datum 13.62 ft (4.151 m) lower.

REMARKS.--Records good. Flow is affected at times by discharge from flood-dentention pools of eight floodwater-retarding structures with combined detention capacity of 14,080 acre-ft (17.4 hm<sup>3</sup>). These structures control runoff from 62.0 mi<sup>2</sup> (160.6 km<sup>2</sup>). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--36 years (water years 1925, 1948-82), 66.1 ft<sup>3</sup>/s (1.872 m<sup>3</sup>/s), 2.19 in/yr (56 mm/yr), 47,890 acre-ft/yr (59.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft<sup>3</sup>/s (1,420 m<sup>3</sup>/s) Oct. 4, 1959, gage height, 25.4 ft (7.74 m), from rating curve extended above 32,000 ft<sup>3</sup>/s (906 m<sup>3</sup>/s); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1877, 27.2 ft (8.29 m) Apr. 17, 1908, present site and datum, discharge 59,000 ft<sup>3</sup>/s (1,670 m<sup>3</sup>/s), from rating curve extended as explained above. Flood of May 21, 1922, reached a stage of 26.0 ft (7.92 m), present site and datum, discharge 53,000 ft<sup>3</sup>/s (1,500 m<sup>3</sup>/s), from rating curve extended as explained above. Flood in November 1918 reached about the same stage as flood of May 21, 1922, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Oct. 13	2400	5,850	166	10.26	3.127
May 22	2000	*24,800	702	19.15	5.837

Minimum discharge, 0.03 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Oct. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.11	1010	14	12	26	26	26	129	157	230	31	7.1		
2	.10	106	15	13	26	25	26	53	148	129	30	6.9		
3	.09	50	15	13	22	24	25	43	135	110	27	6.6		
4	.07	36	14	12	26	21	25	35	124	97	24	6.2		
5	.05	29	13	11	22	21	23	33	112	85	23	5.9		
6	.07	25	13	12	20	24	20	1780	104	76	21	6.0		
7	2.0	22	13	11	17	23	21	355	95	74	20	5.7		
8	2.4	41	13	11	17	23	20	184	85	130	20	5.8		
9	2.1	53	13	11	17	20	20	118	78	104	20	5.8		
10	2.1	37	13	11	16	19	23	88	74	78	19	5.6		
11	2.5	26	13	12	16	19	22	71	84	65	21	5.6		
12	2.6	23	12	12	15	18	22	67	306	83	20	5.4		
13	992	22	13	12	14	18	21	737	164	205	18	5.5		
14	1300	21	14	12	14	37	21	362	115	112	17	5.5		
15	97	20	13	13	14	67	20	144	92	95	17	5.5		
16	102	19	13	13	14	42	20	102	95	69	15	5.6		
17	141	18	12	13	14	33	18	112	92	57	14	7.7		
18	69	17	12	13	14	29	17	444	264	51	14	10		
19	46	15	12	13	14	27	17	279	200	48	14	7.8		
20	28	14	12	13	14	24	17	124	154	43	13	6.7		
21	24	14	13	13	14	29	16	104	354	40	13	6.2		
22	45	14	13	14	14	30	21	4700	221	38	12	6.0		
23	44	14	12	13	14	29	20	3650	129	35	11	5.7		
24	36	14	12	20	13	27	22	976	1090	34	11	5.7		
25	26	14	12	16	29	25	23	664	1310	33	9.9	5.6		
26	21	14	12	15	53	24	19	888	636	35	9.4	5.6		
27	19	13	12	14	38	31	19	522	319	33	8.8	5.4		
28	17	13	12	14	33	29	21	397	236	34	8.1	5.1		
29	16	14	12	14	---	30	35	268	197	30	8.4	4.9		
30	16	17	12	17	---	29	41	214	182	31	8.1	4.8		
31	17	---	12	22	---	27	---	180	---	32	7.6	---		
TOTAL	3070.19	1745	396	415	560	850	661	17823	7352	2316	505.3	181.9		
MEAN	99.0	58.2	12.8	13.4	20.0	27.4	22.0	575	245	74.7	16.3	6.06		
MAX	1300	1010	15	22	53	67	41	4700	1310	230	31	10		
MIN	.05	13	12	11	13	18	16	33	74	30	7.6	4.8		
CFSM	.24	.14	.03	.03	.05	.07	.05	1.40	.60	.18	.04	.02		
IN.	.28	.16	.04	.04	.05	.08	.06	1.62	.67	.21	.05	.02		
AC-FT	6090	3460	785	823	1110	1690	1310	35350	14580	4590	1000	361		
CAL YR 1981	TOTAL	8049.07	MEAN	22.1	MAX	1300	MIN	.00	CFSM	.05	IN	.73	AC-FT	15970
WTR YR 1982	TOTAL	35875.39	MEAN	98.3	MAX	4700	MIN	.05	CFSM	.24	IN	3.26	AC-FT	71160

## BRAZOS RIVER BASIN

08091730 SQUAW CREEK RESERVOIR NEAR GLEN ROSE, TX

LOCATION.--Lat 32°18'00", long 97°47'12", Somervell County, Hydrologic Unit 12060202, on upstream side of intake structure near power house, 1.8 mi (2.9 km) upstream from dam, 3.9 mi (6.3 km) north of Glen Rose, and 6.1 mi (9.8 km) upstream from mouth.

DRAINAGE AREA.--64.0 mi<sup>2</sup> (166 km<sup>2</sup>).

PERIOD OF RECORD.--February 1977 to current year.

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

REMARKS.--The reservoir is formed by a rolled earthfill dam 4,360 ft (1,330 m) long. Deliberate impoundment began in February 1977, and the dam was completed in June 1977. The flood-control outlet works consist of an ungated 100-foot-long (30 m) concrete ogee spillway located at right end of dam. The low-flow outlet works consist of a concrete outlet tower with three 4- by 6-foot (1 by 2 m) slide gates and a 6- by 6-foot (2 by 2 m) slide gate, which feed into a 6-foot (2 m) inside diameter concrete conduit that extends through the dam. Records furnished by the Texas Utilities Generating Co. show 949 acre-ft (1.17 hm<sup>3</sup>) was diverted by pipeline from Lake Granbury into the reservoir. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following tables:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	796.0	228,100
Crest of spillway.....	783.0	178,100
Crest of spillway (normal operating level).....	775.0	151,100
Invert of slide gate (No. 1).....	764.0	117,300
Invert of slide gate (No. 2).....	715.0	24,670
Invert of slide gate (No. 3).....	666.5	380
Lowest gated outlet (invert).....	653.0	0

COOPERATION.--The capacity table, furnished by Texas Utilities Services Inc., was prepared by Freese and Nichols Inc., Consulting Engineers. Record of water diverted from Lake Granbury was furnished by the Texas Utilities Generating Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 154,800 acre-ft (191 hm<sup>3</sup>) May 26, 1982, elevation, 776.16 ft (236.574 m); minimum since initial filling of reservoir on May 3, 1979, 143,700 acre-ft (177 hm<sup>3</sup>) June 1, 1981, elevation, 772.76 ft (235.537 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 154,800 acre-ft (191 hm<sup>3</sup>) May 26 at 1600 hours, elevation, 776.16 ft (236.574 m); minimum, 146,500 acre-ft (181 hm<sup>3</sup>) Sept. 30, elevation, 773.64 ft (235.805 m).

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

773.0	144,500	776.0	154,200
774.0	147,700	777.0	157,600
775.0	151,000		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148300	150500	149700	148500	148000	148000	148800	149200	152800	152800	150900	148700
2	148200	150400	149700	148600	148000	148000	148800	149200	152600	152600	150800	148700
3	148100	150400	149600	148500	148000	148000	148800	149200	152400	152400	150700	148600
4	148100	150400	149600	148500	147900	148000	148800	149200	152300	152300	150600	148500
5	148000	150300	149500	148400	147900	148000	148700	149600	152200	152100	150600	148400
6	148300	150300	149500	148400	147800	148000	148700	150800	152000	152000	150600	148400
7	148600	150300	149500	148300	147700	148000	148700	150900	152000	152000	150500	148300
8	148600	150500	149500	148300	147800	148000	148600	150900	151900	151900	150400	148200
9	148500	150400	149500	148200	147700	148000	148600	150800	151800	151800	150400	148100
10	148500	150400	149400	148100	147700	148000	148700	150800	151800	151700	150300	148100
11	148500	150300	149400	148000	147700	148000	148700	150800	151800	151700	150300	148000
12	148500	150300	149400	148000	147600	148000	148600	151000	151800	151800	150200	147900
13	150000	150300	149400	148000	147600	148000	148600	151400	151800	151900	150100	147900
14	150100	150300	149400	148000	147600	148000	148600	151500	151600	151800	150000	147800
15	150100	150200	149400	147900	147600	148500	148700	151400	151600	151700	150000	147800
16	150600	150200	149300	147900	147600	148500	148700	151400	151500	151600	150000	147700
17	151000	150200	149200	147800	147600	148600	148600	151500	151500	151500	149900	147700
18	150900	150200	149100	147800	147600	148600	148600	153200	151900	151400	149800	147600
19	150900	150000	149100	147800	147600	148600	148600	153100	151900	151300	149700	147500
20	150800	150000	149000	147800	147600	148600	148500	152900	151900	151200	149700	147400
21	150900	149900	149100	147900	147600	148700	148400	152900	152300	151200	149600	147300
22	151100	149900	149000	147900	147600	148700	148600	154100	152200	151100	149600	147200
23	151000	149900	148900	147800	147500	148700	148600	154100	152100	151100	149500	147100
24	150900	149800	148900	147800	147500	148700	148600	154100	153600	151000	149300	147000
25	150800	149900	148900	147700	148000	148600	148600	153800	153800	151000	149300	147000
26	150700	149800	148800	147700	148000	148700	148600	154600	153500	151000	149200	146800
27	150600	149700	148800	147700	148000	148800	148600	154200	153200	151000	149100	146700
28	150600	149700	148700	147700	148000	148800	148700	154100	152900	151000	149000	146600
29	150600	149800	148600	147700	---	148800	148700	153800	152700	151000	149000	146600
30	150500	149800	148600	148000	---	148800	149000	153400	152700	150900	148900	146500
31	150600	---	148600	148000	---	148800	---	153100	---	150800	148800	---
MAX	151100	150500	149700	148600	148000	148800	149000	154600	153800	152800	150900	148700
MIN	148000	149700	148600	147700	147500	148000	148400	149200	151500	150800	148800	146500
(†)	774.88	774.65	774.28	774.10	774.10	774.34	774.39	774.65	775.54	774.96	774.35	773.64
(‡)	+2300	-800	-1200	-600	0	+800	+200	+4100	-400	-1900	-2000	-2300
CAL YR 1981	MAX	151100	MIN	143800	‡	+2600						
WTR YR 1982	MAX	154600	MIN	146500	‡	-1800						

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

## BRAZOS RIVER BASIN

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08091750 SQUAW CREEK NEAR GLEN ROSE, TX

LOCATION.--Lat 32°16'12", long 97°43'56", Somervell County, Hydrologic Unit 12060202, on left bank at downstream side of bridge on State Highway 144, 2.1 mi (3.4 km) upstream from mouth, 2.5 mi (4.0 km) downstream from Squaw Creek Dam, and 2.8 mi (4.5 km) northeast of Glen Rose.

DRAINAGE AREA.--70.3 mi<sup>2</sup> (182.1 km<sup>2</sup>).

PERIOD OF RECORD.--October 1973 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 599.00 ft (182.575 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversions between Squaw Creek Reservoir and this station. Flow regulated since Feb. 15, 1977, by Squaw Creek Reservoir. During the year, low flows sustained by releases from pipeline used to divert water from Lake Granbury (station 08090900) to Squaw Creek Reservoir (station 08091730). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years (water years 1978-82), 8.81 ft<sup>3</sup>/s (0.249 m<sup>3</sup>/s), 6,370 acre-ft/yr (7.87 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,030 ft<sup>3</sup>/s (256 m<sup>3</sup>/s) Apr. 8, 1975, gage height, 11.90 ft (3.627 m), from rating curve extended above 1,000 ft<sup>3</sup>/s (283 m<sup>3</sup>/s) on basis of velocity-area study; minimum, 0.02 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Aug. 28, 29, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1934, about 20.5 ft (6.25 m) in May 1957, from information by State Department of Highways and Public Transportation (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 486 ft<sup>3</sup>/s (13.8 m<sup>3</sup>/s) May 26 at 0630 hours, gage height, 5.23 ft (1.594 m); minimum, 2.1 ft<sup>3</sup>/s (0.059 m<sup>3</sup>/s) Aug. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	9.0	6.0	4.9	4.8	3.4	4.9	14	120	119	4.6	4.0
2	3.4	3.2	4.1	4.6	4.8	3.4	4.8	6.5	95	105	4.6	4.0
3	3.4	3.2	4.0	6.1	4.8	3.4	4.4	6.5	80	90	4.5	4.0
4	3.4	3.2	3.7	5.2	4.6	3.4	4.2	6.6	68	76	4.3	4.0
5	3.4	3.2	3.7	4.6	4.6	3.7	4.5	6.6	54	64	4.3	4.0
6	2.8	3.2	4.0	4.6	4.6	3.7	4.6	67	44	51	4.3	4.0
7	6.1	2.9	4.0	4.6	4.3	3.4	4.6	12	36	46	4.3	4.0
8	2.9	9.5	4.0	4.6	4.3	3.4	5.1	8.8	31	47	4.3	4.0
9	2.9	11	4.0	4.6	4.3	3.4	5.0	8.9	25	39	4.0	4.2
10	2.9	3.7	4.0	4.3	4.1	3.2	5.1	8.9	22	30	4.0	4.3
11	3.2	2.9	3.7	4.3	2.9	3.2	4.6	8.9	22	26	4.0	4.3
12	3.1	3.2	3.7	4.3	2.9	3.2	4.6	10	57	25	3.9	4.3
13	35	3.2	3.8	4.3	2.9	3.2	4.6	29	52	33	3.7	4.3
14	2.8	3.2	4.0	4.3	2.9	4.7	4.6	22	42	27	3.6	4.3
15	2.5	3.2	4.3	4.3	2.9	3.1	4.6	21	31	22	3.6	4.3
16	18	3.2	4.3	4.3	2.9	2.9	4.3	20	33	17	3.7	4.0
17	58	3.2	4.3	4.3	2.7	2.9	4.3	22	26	12	3.9	4.0
18	7.9	3.2	4.3	4.3	2.7	2.9	4.3	115	42	9.1	3.7	4.0
19	3.2	6.6	4.3	4.3	2.7	2.7	4.3	195	46	7.4	3.7	4.0
20	2.9	3.5	4.3	4.3	2.7	4.2	4.0	174	42	6.9	3.6	3.9
21	2.9	3.3	4.3	4.6	2.8	5.6	4.3	163	64	6.3	3.7	3.7
22	11	3.4	6.5	4.6	2.9	4.9	5.7	170	75	5.9	3.7	3.7
23	4.3	3.4	4.8	4.6	3.2	4.9	5.0	313	65	5.7	3.7	3.7
24	3.2	3.4	4.6	4.6	3.2	4.9	5.7	284	163	5.3	3.7	3.7
25	7.4	3.4	4.6	4.6	6.5	4.9	5.0	261	226	5.3	3.7	3.7
26	7.4	3.4	4.8	4.6	7.6	4.6	5.0	353	213	7.0	3.4	3.4
27	3.4	3.7	4.6	4.6	3.9	5.5	4.9	311	182	5.3	3.4	3.4
28	3.2	3.7	4.6	4.6	3.4	4.9	5.3	269	151	5.3	3.7	3.4
29	3.2	3.7	4.9	4.6	---	4.9	6.5	234	122	5.3	4.0	3.4
30	3.2	6.3	4.9	5.8	---	4.9	7.3	186	100	5.0	4.0	3.4
31	4.3	---	4.9	6.4	---	4.9	---	154	---	4.9	4.0	---
TOTAL	224.7	125.2	136.0	144.7	106.9	122.3	146.1	3460.7	2329	913.7	121.6	117.4
MEAN	7.25	4.17	4.39	4.67	3.82	3.95	4.87	112	77.6	29.5	3.92	3.91
MAX	58	11	6.5	6.4	7.6	5.6	7.3	353	226	119	4.6	4.3
MIN	2.5	2.9	3.7	4.3	2.7	2.7	4.0	6.5	22	4.9	3.4	3.4
AC-FT	446	248	270	287	212	243	290	6860	4620	1810	241	233
CAL YR 1981	TOTAL	1904.6	MEAN	5.22	MAX	58	MIN	2.5	AC-FT	3780		
WTR YR 1982	TOTAL	7948.3	MEAN	21.8	MAX	353	MIN	2.5	AC-FT	15770		

## BRAZOS RIVER BASIN

## 08091900 LAKE PAT CLEBURNE NEAR CLEBURNE, TX

LOCATION.--Lat 32°17'20", long 97°24'54", Johnson County, Hydrologic Unit 12030109, at side of walkway from dam to outlet structure, near left end of Cleburne Dam on Nolan River, 2.2 mi (3.5 km) upstream from Buffalo Creek, 4.3 mi (6.9 km) south of Cleburne, and 21.4 mi (34.4 km) upstream from mouth.

DRAINAGE AREA.--100 mi<sup>2</sup> (259 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Homer Hunter Associates, Consulting Engineers bench mark).

REMARKS.--The lake is formed by a rock-faced earthfill dam 5,050 ft (1,540 m) long, including a 150-foot-wide (46 m) uncontrolled concrete service spillway at left end of dam. An emergency spillway, 500 ft (150 m) wide, is cut in natural ground on the right bank about 400 ft (120 m) from right end of dam. Storage began Aug. 4, 1964. Lake is the property of city of Cleburne and was built to impound water for municipal use. Capacity table based on survey of 1958 from Geological Survey topographic maps. Records furnished by city of Cleburne indicate that 3,120 acre-ft (3.85 hm<sup>3</sup>) of sewage effluent was returned to a tributary of Nolan River which enters below this 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.....	753.0	-
Top of design flood pool.....	752.3	66,700
Crest of spillway.....	744.0	45,430
Crest of spillway (top of conservation pool).....	733.5	25,560
Lowest gated outlet (invert).....	690.0	115

COOPERATION.--Records of diversions furnished by the city of Cleburne. Capacity table furnished by Homer Hunter Associates, Consulting Engineers for the city of Cleburne.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 39,850 acre-ft (49.1 hm<sup>3</sup>) May 3, 1979, elevation, 741.41 ft (225.982 m); minimum, 13,870 acre-ft (17.1 hm<sup>3</sup>) Jan. 16-17, 1979, elevation, 724.23 ft (220.745 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 27,030 acre-ft (33.3 hm<sup>3</sup>) June 24 at 1800 hours, elevation, 734.43 ft (223.854 m); minimum, 18,670 acre-ft (23.0 hm<sup>3</sup>) Jan 20, elevation, 728.52 ft (222.053 m).

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

728.0	18,030	732.0	23,320
729.0	19,270	734.0	26,340
730.0	20,560	736.0	29,630

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19030	19460	19270	18870	18910	19700	21090	21630	26110	26040	25130	23840
2	18970	19450	19260	18870	18960	19720	21170	21680	26060	25990	25070	23800
3	18920	19430	19240	18860	18930	19750	21180	21700	26040	25950	25020	23760
4	18890	19410	19220	18830	18930	19770	21190	21700	26110	25820	24980	23700
5	18860	19400	19210	18820	18890	19810	21210	21820	26090	25850	24930	23670
6	18860	19380	19210	18810	18880	19840	21180	23100	26040	25810	24900	23580
7	18930	19360	19210	18820	18870	19840	21180	23220	26010	25790	24820	23550
8	18890	19510	19190	18820	18890	19840	21210	23250	25960	25780	24790	23490
9	18910	19500	19190	18810	18880	19860	21170	23270	25930	25750	24780	23380
10	18890	19490	19210	18720	18880	19900	21230	23300	25920	25710	24730	23430
11	18860	19470	19190	18700	18880	19920	21230	23320	26040	25680	24690	23360
12	18860	19460	19180	18680	18870	19950	21250	23390	26150	25790	24640	23320
13	19330	19460	19170	18700	18870	19970	21270	24750	26120	25790	24580	23320
14	19360	19460	19150	18680	18870	20150	21290	24950	26040	25760	24520	23270
15	19340	19460	19130	18680	18870	20240	21290	25020	26120	25710	24480	23230
16	19340	19460	19130	18680	18870	20270	21290	25070	26090	25680	24430	23200
17	19430	19450	19080	18680	18870	20300	21260	25330	26040	25640	24390	23170
18	19400	19450	19070	18680	18870	20300	21250	26440	26370	25590	24330	23130
19	19360	19410	19040	18680	18870	20350	21250	26420	26310	25540	24270	23100
20	19320	19380	19040	18670	18870	20350	21230	26330	26220	25480	24230	23060
21	19360	19370	19040	18720	18860	20500	21220	26290	26150	25430	24180	22990
22	19610	19340	19030	18730	18840	20570	21290	26230	26110	25390	24120	22940
23	19610	19340	19010	18720	18830	20600	21290	26180	26060	25340	24080	22890
24	19580	19330	19010	18710	18830	20620	21340	26280	26980	25310	23990	22860
25	19590	19330	18980	18710	19210	20620	21360	26260	26850	25280	23950	22820
26	19560	19320	18960	18700	19550	20640	21360	26840	26600	25250	23890	22760
27	19520	19280	18930	18680	19630	20790	21360	26600	26420	25230	23830	22700
28	19510	19270	18930	18680	19680	20890	21410	26550	26290	25200	23990	22680
29	19500	19280	18910	18710	---	20950	21410	26440	26180	25170	23960	22650
30	19500	19310	18880	18890	---	21020	21440	26290	26110	25130	23920	22600
31	19500	---	18880	18890	---	21060	---	26180	---	25110	23870	---
MAX	19610	19510	19270	18890	19680	21060	21440	26840	26980	26040	25130	23840
MIN	18860	19270	18880	18670	18830	19700	21090	21630	25920	25110	23830	22600
(†)	729.18	729.03	728.69	728.70	729.32	730.38	730.66	733.90	733.85	733.21	732.38	731.50
(+)	+440	-190	-430	+10	+790	+1380	+380	+4740	-70	-1000	-1240	-1270
(††)	266	209	211	221	195	233	253	272	271	409	489	375
CAL YR 1981	MAX	21680	MIN	18000	+	-40	††	3150				
WTR YR 1982	MAX	26980	MIN	18670	+	+3540	††	3400				

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by city of Cleburne.

BRAZOS RIVER BASIN

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08091900 LAKE PAT CLEBURNE NEAR CLEBURNE, TX--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
OCT 05...	1050	279	24.5	120	6	40	4.0	9.9

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)
OCT 05...	.4	4.3	110	13	9.8	.3	6.4	154



## BRAZOS RIVER BASIN

08092000 NOLAN RIVER AT BLUM, TX

LOCATION.--Lat 32°09'02", long 97°24'09", Hill County, Hydrologic Unit 12060202, on right bank 60 ft (18 m) upstream from bridge on Farm Road 933, 0.6 mi (1.0 km) northwest of Blum, 2.8 mi (4.5 km) downstream from Mustang Creek, 3.0 mi (4.8 km) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 3.2 mi (5.1 km) upstream from Rock Creek, and 8.5 mi (13.7 km) upstream from mouth.

DRAINAGE AREA.--282 mi<sup>2</sup> (730 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1924 to September 1925, November 1947 to current year.

REVISED RECORDS.--WSP 1312: 1925(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 551.48 ft (168.091 m) National Geodetic Vertical Datum of 1929. July 29, 1924, to Sept. 30, 1925, and Nov. 14, 1947, to May 28, 1949, nonrecording gage at railway bridge (now abandoned) 0.5 mi (0.8 km) upstream at datum 5.00 ft (1.524 m) higher. May 29 to July 7, 1949, nonrecording gage at present site and datum then in use, 5.00 ft (1.524 m) higher than present datum.

REMARKS.--Water-discharge records good. Since August 1964, flow from 100 mi<sup>2</sup> (259 km<sup>2</sup>) affected by storage in Lake Pat Cleburne (station 08091900) located 13 mi (21 km) upstream. Records furnished by the city of Cleburne show that during the current year 3,400 acre-ft (4.19 hm<sup>3</sup>) was diverted from Lake Pat Cleburne and 3,120 acre-ft (3.85 hm<sup>3</sup>) of sewage effluent was returned to a tributary upstream from the gage.

AVERAGE DISCHARGE.--18 years (water years 1925, 1949-64) prior to regulation by Lake Pat Cleburne, 66.1 ft<sup>3</sup>/s (1.872 m<sup>3</sup>/s), 47,890 acre-ft/yr (59.0 hm<sup>3</sup>/yr); 18 years (water years 1965-82) regulated, 92.0 ft<sup>3</sup>/s (2.606 m<sup>3</sup>/s), 66,650 acre-ft/yr (82.2 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,200 ft<sup>3</sup>/s (1,760 m<sup>3</sup>/s) May 7, 1969, gage height, 31.23 ft (9.519 m), from rating curve extended above 22,200 ft<sup>3</sup>/s (629 m<sup>3</sup>/s) on basis of contracted-opening measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, 35.0 ft (10.67 m) May 8, 1922, present site and datum, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,060 ft<sup>3</sup>/s (86.7 m<sup>3</sup>/s) May 6 at 0730 hours, gage height, 7.08 ft (2.158 m), no peak above base of 5,000 ft<sup>3</sup>/s (142 m<sup>3</sup>/s); minimum daily, 0.24 ft<sup>3</sup>/s (0.007 m<sup>3</sup>/s) Sept. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	11	14	6.3	30	39	21	26	79	44	4.0	.87
2	2.2	9.8	8.9	5.9	15	34	21	23	63	33	4.8	.97
3	2.5	9.7	7.7	5.3	12	31	24	14	54	27	3.4	1.2
4	2.5	9.2	7.0	6.0	9.3	28	19	12	73	23	2.8	.93
5	1.7	9.5	6.8	6.0	8.1	27	19	11	87	19	1.9	.75
6	2.8	9.7	6.9	6.1	7.3	41	17	1250	58	16	2.7	.66
7	4.9	9.4	7.0	5.9	6.8	33	17	193	46	15	2.2	.76
8	13	32	6.9	6.2	7.0	28	17	73	39	14	2.1	.77
9	6.2	34	6.6	6.2	7.3	25	17	51	33	14	2.1	.83
10	4.8	17	6.5	5.7	6.9	24	17	44	29	12	2.2	.88
11	4.2	14	6.7	5.4	6.4	24	24	40	28	11	2.2	.83
12	3.6	12	6.3	5.8	6.2	23	18	41	90	10	2.4	.69
13	235	11	6.6	6.8	6.0	23	16	382	66	11	2.1	1.0
14	201	10	7.1	8.2	6.3	31	15	322	52	12	1.8	.83
15	27	10	7.2	7.2	6.3	53	14	82	41	10	1.8	.83
16	17	9.9	6.6	10	6.0	30	14	54	75	8.9	1.8	1.1
17	21	9.6	5.9	7.8	6.1	25	11	125	57	7.6	1.5	.95
18	35	9.4	5.6	7.2	5.9	22	10	602	128	8.0	1.8	.50
19	20	9.1	5.6	8.0	5.6	20	11	448	160	6.9	1.6	.30
20	13	8.8	5.4	8.6	5.7	21	11	183	96	6.2	1.4	.24
21	12	8.9	5.2	8.6	5.8	36	14	157	74	6.7	1.4	.66
22	102	8.6	5.7	14	5.8	55	14	152	58	6.0	1.4	1.2
23	75	8.8	5.6	7.5	5.5	31	23	247	47	5.6	1.5	1.2
24	24	8.8	5.0	4.8	5.2	24	15	136	510	4.8	.93	1.2
25	17	8.5	4.7	4.3	85	21	20	136	457	5.3	.93	.85
26	15	8.5	4.8	3.9	684	19	14	993	258	4.8	.62	.26
27	13	8.3	4.8	3.7	97	41	12	463	174	4.5	.50	.28
28	11	8.5	6.1	4.0	49	47	12	225	108	3.6	.94	.37
29	11	8.2	6.4	4.0	---	31	18	179	77	3.1	8.4	.34
30	9.9	11	5.7	8.4	---	27	18	132	60	3.5	2.4	.27
31	11	---	6.3	70	---	25	---	101	---	3.8	1.6	---
TOTAL	920.1	343.2	201.6	267.8	1107.5	939	493	6897	3177	360.3	67.22	22.52
MEAN	29.7	11.4	6.50	8.64	39.6	30.3	16.4	222	106	11.6	2.17	.75
MAX	235	34	14	70	684	55	24	1250	510	44	8.4	1.2
MIN	1.7	8.2	4.7	3.7	5.2	19	10	11	28	3.1	.50	.24
AC-FT	1830	681	400	531	2200	1860	978	13680	6300	715	133	45
CAL YR 1981	TOTAL	20664.85	MEAN	56.6	MAX	8840	MIN	.85	AC-FT	40990		
WTR YR 1982	TOTAL	14796.24	MEAN	40.5	MAX	1250	MIN	.24	AC-FT	29350		



## 08092500 LAKE WHITNEY NEAR WHITNEY, TX

LOCATION.--Lat 31°51'55", long 97°22'18", Bosque County, Hydrologic Unit 12060202, on State Highway 22, in intake structure of Whitney Dam on Brazos River, 2.4 mi (3.9 km) upstream from Coon Creek, 3.5 mi (5.6 km) upstream from Iron Creek, 7.4 mi (11.9 km) southwest of Whitney, and at mile 442.4 (712.0 km).

DRAINAGE AREA.--27,189 mi<sup>2</sup> (70,420 km<sup>2</sup>), approximately, of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1951 to current year. Prior to October 1970, published as Whitney Reservoir. Prior to October 1980, published as Whitney Lake.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--The lake is formed by a concrete-gravity and rolled earthfill dam 17,695 ft (5,393 m) long, including spillway. The dam was completed in April 1951 and deliberate impoundment began Dec. 10, 1951. The concrete spillway is 680 ft (210 m) long and includes 17 tainter gates 38.0 by 40.0 ft (11.6 by 12.2 m) each. The outlet works are comprised of 16 gate-operated conduits that are 5.0 by 9.0 ft (1.5 by 2.7 m) each. The space between elevations 522.0 and 571.0 ft (159.11 and 174.04 m) is reserved for flood-control storage. At a maximum design elevation of 573.0 ft (174.65 m), the spillway is designed to discharge 684,000 ft<sup>3</sup>/s (19,400 m<sup>3</sup>/s). The capacity table is based on a survey made in April and May 1959. Flow is affected at times by discharge from flood-detention pools of four floodwater-retarding structures with combined detention capacity of 2,690 acre-ft (3.32 hm<sup>3</sup>). These structures control runoff from 12.2 mi<sup>2</sup> (31.6 km<sup>2</sup>) in the Paluxy River drainage basin. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	584.0	-
Design flood.....	573.0	2,100,000
Top of gates.....	571.0	1,999,500
Crest of spillway (sill of gates).....	533.0	627,100
Top of conservation pool (top of designated power storage).....	522.0	411,100
Lowest controlled outlet (invert).....	448.83	4,270

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,980,000 acre-ft (2.44 km<sup>3</sup>) May 29, 1957, elevation, 570.25 ft (173.812 m); minimum daily since power pool elevation first reached in April 1954, 250,200 acre-ft (308 hm<sup>3</sup>) Nov. 1, 1956, elevation, 509.52 ft (155.302 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 1,047,000 acre-ft (1.29 km<sup>3</sup>) Oct. 22, elevation, 547.81 ft (166.972 m); minimum daily, 529,300 acre-ft (653 hm<sup>3</sup>) Oct. 5, elevation, 528.59 ft (161.114 m).

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

528.0	517,100	536.0	700,700	544.0	925,500
530.0	559,200	539.0	779,700	546.0	987,900
533.0	627,090	542.0	865,200	548.0	1,052,800

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	532400	789600	632800	610400	575100	568300	554700	546100	667900	824100	628000	583500
2	532200	783800	630000	611800	577500	567800	556200	545700	663000	821000	627800	583300
3	531200	747500	627300	611500	575100	568500	556200	544600	655900	801500	627300	582800
4	530300	709700	625200	609700	573800	567600	555600	544200	652200	781300	626600	581500
5	529300	682300	626400	610100	571100	565600	555600	541600	651700	747700	625000	581300
6	529500	669600	626900	612000	566500	564500	553900	555100	650800	713500	623400	581300
7	531800	663700	628800	608800	565600	565400	554300	560300	649600	684600	622700	580600
8	532000	663000	629700	603900	565400	562300	554700	562100	648400	672300	622700	580400
9	534300	655700	630000	604100	564700	558600	554300	562700	647200	671100	622200	580600
10	535500	650800	629700	600700	565200	557300	555100	559700	645700	670600	621500	580100
11	536500	642900	627600	596000	566300	556600	554700	560800	642600	670400	620100	579300
12	537800	639500	627300	596600	566500	554300	554900	561600	643100	669900	618300	578800
13	593700	640500	627300	595100	567200	552600	555400	567800	643600	668200	616400	577100
14	697700	639800	624300	594600	567800	553900	552600	607100	649600	669100	612500	576400
15	803700	639800	619200	596000	569100	556900	553400	636400	661500	666900	609200	575300
16	902100	638100	617300	593700	570700	558800	553400	642600	657400	661800	608700	573500
17	965300	635900	613600	589600	571300	559900	553900	652700	655700	656100	608500	571600
18	1015000	632600	610100	590800	570900	558800	553900	670900	655700	652700	607600	569100
19	1040000	630000	607400	590800	568900	561600	554100	687600	671600	650300	608100	568700
20	1037000	626400	606000	588900	568500	563000	553900	671800	677500	645700	607600	566900
21	1035000	627600	605700	586200	568500	566500	554300	669100	679000	641200	604800	564900
22	1047000	629000	607800	582400	568300	564900	554700	672100	676000	640200	602300	562700
23	1031000	630400	609200	577300	567200	563000	552100	698900	678500	639000	600300	561000
24	987600	630900	609700	573500	566900	562100	553000	706400	684100	637100	599100	559200
25	952100	629200	610400	572000	567400	558600	553600	696900	699200	636200	598700	557100
26	913700	633800	611300	571300	567400	554500	552600	698200	723300	634500	597800	555800
27	873000	632600	611500	572700	568900	552100	550000	705600	757300	632600	596000	553900
28	833000	632600	612000	573300	568700	552100	548700	706400	778600	630000	595300	553000
29	792700	634000	611500	572700	---	550400	545300	701200	791600	627600	592600	551300
30	763000	634500	611100	576000	---	552600	546100	689600	807600	627100	589400	548900
31	755700	---	612200	575100	---	553900	---	682300	---	627600	586200	---
MAX	1047000	789600	632800	612000	577500	568500	556200	706400	807600	824100	628000	583500
MIN	529300	626400	605700	571300	564700	550400	545300	541600	642600	627100	586200	548900
(†)	538.11	533.31	532.36	530.72	530.43	529.75	529.39	535.27	540.01	533.02	531.22	529.52
(+)	+223500	-121200	-22300	-37100	-6400	-14800	-7800	+136200	+125300	-180000	-41400	-37300
CAL YR 1981	MAX	1047000	MIN	529300	+	+2300						
WTR YR 1982	MAX	1047000	MIN	529300	+	+16700						

† Elevation, in feet, at end of month.

+ Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

08092500 LAKE WHITNEY NEAR WHITNEY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: November 1961 to current year.

315203097222601 LAKE WHITNEY SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT										
30...	1125	1.00	1550	7.6	19.0	.50	7.1	76	K8	K20
30...	1126	.90	--	--	--	--	--	--	--	--
30...	1127	10.0	1550	7.6	19.0	--	7.0	74	--	--
30...	1129	20.0	1550	7.6	19.0	--	7.0	74	--	--
30...	1131	30.0	1550	7.6	19.0	--	7.0	74	--	--
30...	1133	40.0	1550	7.6	19.0	--	7.0	74	--	--
30...	1135	50.0	1580	7.5	19.0	--	7.0	74	--	--
30...	1137	60.0	1620	7.5	19.0	--	6.9	73	--	--
30...	1139	70.0	1670	7.5	19.0	--	6.8	72	--	--
30...	1141	80.0	1680	7.5	19.0	--	6.8	72	--	--
30...	1143	90.0	1690	7.5	19.0	--	6.8	72	--	--
30...	1145	100	1690	7.5	19.0	--	6.8	72	--	--
30...	1147	109	1700	7.4	19.0	--	7.1	76	--	--
JAN										
18...	1340	1.00	1650	8.0	8.5	1.50	11.9	104	<1	22
18...	1341	2.40	--	--	--	--	--	--	--	--
18...	1342	10.0	1650	8.2	8.0	--	12.1	104	--	--
18...	1344	20.0	1650	8.1	8.0	--	12.1	104	--	--
18...	1346	30.0	1650	8.1	8.0	--	12.2	105	--	--
18...	1348	40.0	1650	7.9	8.0	--	12.2	108	--	--
18...	1350	50.0	1650	7.9	7.5	--	12.4	106	--	--
18...	1352	60.0	1660	8.0	7.5	--	12.5	107	--	--
18...	1354	70.0	1660	7.9	7.5	--	12.5	107	--	--
18...	1356	80.0	1660	8.0	7.5	--	12.4	106	--	--
18...	1358	90.0	1660	8.1	7.0	--	12.4	104	--	--
18...	1400	98.0	1660	8.3	7.0	--	12.5	105	--	--
AUG										
17...	0925	1.00	1140	8.1	30.0	2.00	6.3	85	K6	75
17...	0927	10.0	1140	8.1	30.0	--	6.3	85	--	--
17...	0931	20.0	1140	8.0	30.0	--	6.2	84	--	--
17...	0933	30.0	1140	7.9	29.0	--	5.3	70	--	--
17...	0935	40.0	1140	7.8	28.5	--	4.8	63	--	--
17...	0937	50.0	1140	7.7	28.5	--	4.3	57	--	--
17...	0939	55.0	1140	7.3	28.0	--	.1	1	--	--
17...	0941	60.0	1140	7.2	28.0	--	.1	1	--	--
17...	0943	70.0	1140	7.2	27.5	--	.1	1	--	--
17...	0945	80.0	1140	7.1	27.5	--	.1	1	--	--
17...	0947	90.0	1150	7.1	27.0	--	.1	1	--	--
17...	0951	104	1170	7.0	26.0	--	.1	1	--	--

## BRAZOS RIVER BASIN

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## LAKE WHITNEY NEAR WHITNEY, TX--Continued

315203097222601 LAKE WHITNEY SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT										
30...	290	200	82	20	200	5.5	5.5	87	180	340
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	320	230	89	23	220	5.7	6.0	89	210	380
JAN										
18...	310	210	87	22	210	5.5	5.8	93	210	350
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	310	210	89	21	210	5.5	5.8	96	210	350
AUG										
17...	250	150	76	15	130	3.8	5.9	100	140	220
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	260	110	76	16	140	4.0	5.7	150	110	220

BRAZOS RIVER BASIN  
LAKE WHITNEY NEAR WHITNEY, TX--Continued

315203097222601 LAKE WHITNEY SITE AC--Continued  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
OCT									
30...	.3	5.7	886	.34	.71	1.1	.040	<10	<1
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	.25	.61	.86	.050	40	10
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	6.0	988	.34	.82	1.2	.050	18	10
JAN									
18...	.3	5.1	946	.19	.55	.74	.010	<10	1
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	.19	.56	.75	.010	50	<10
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	5.1	949	.19	.60	.79	.010	<10	14
AUG									
17...	.2	7.6	655	<.10	1.00	--	.040	120	33
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	<.10	1.30	--	<.010	30	210
17...	--	--	--	<.10	.90	--	.100	40	260
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	14	674	<.10	4.70	--	.770	170	2000

315214097222001 LAKE WHITNEY SITE AL  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
30...	1200	1.00	1550	7.6	19.5	7.0	75
30...	1202	10.0	1550	7.5	19.5	6.9	74
30...	1204	20.0	1550	7.6	19.5	7.0	75
30...	1206	30.0	1550	7.6	19.5	7.0	75
30 ..	1208	40.0	1560	7.5	19.5	7.0	75
30...	1210	53.0	1560	7.5	19.5	6.8	73
JAN							
18...	1510	1.00	1650	8.1	8.0	12.3	105
18...	1512	10.0	1650	8.1	8.0	12.5	107
18...	1514	20.0	1650	8.1	8.0	12.6	108
18...	1516	30.0	1650	8.1	8.0	12.7	109
18...	1518	40.0	1660	8.0	8.0	12.7	109
AUG							
17...	1000	1.00	1150	8.1	30.0	6.3	85
17...	1002	10.0	1150	8.1	30.0	6.4	86
17...	1004	20.0	1150	8.2	29.5	6.9	92
17...	1006	30.0	1150	8.0	29.0	5.4	71
17...	1008	40.0	1150	7.9	29.0	5.1	67
17...	1010	48.0	1150	7.9	29.0	4.8	63

## BRAZOS RIVER BASIN

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## LAKE WHITNEY NEAR WHITNEY, TX--Continued

315432097234601 LAKE WHITNEY SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
OCT							
30...	1053	1.00	1580	7.6	19.0	7.8	83
30...	1055	10.0	1580	7.6	19.0	7.8	83
30...	1057	20.0	1590	7.6	19.0	7.9	84
30...	1059	30.0	1590	7.6	19.0	8.0	85
30...	1101	40.0	1590	7.6	19.0	8.0	85
30...	1103	50.0	1740	7.5	19.0	8.1	86
30...	1105	60.0	1740	7.5	18.5	8.2	86
30...	1107	70.0	1740	7.5	18.5	8.2	86
30...	1109	80.0	1750	7.5	18.5	8.1	85
30...	1111	90.0	1750	7.5	18.5	8.3	87
30...	1113	99.0	1750	7.5	18.5	8.2	86
JAN							
18...	1634	1.00	1650	8.0	7.0	12.3	102
18...	1636	10.0	1650	8.0	7.0	12.3	102
18...	1638	20.0	1650	8.0	7.0	12.6	105
18...	1640	30.0	1650	8.0	7.0	12.6	105
18...	1642	40.0	1650	8.0	6.5	12.6	104
18...	1644	50.0	1650	8.0	6.5	12.5	103
18...	1646	60.0	1650	8.0	6.5	12.4	102
18...	1648	70.0	1650	8.0	6.5	12.4	102
18...	1650	80.0	1650	8.0	6.5	12.4	102
18...	1652	92.0	1650	8.0	6.5	12.3	102
AUG							
17...	1040	1.00	1140	8.3	30.0	7.1	96
17...	1042	10.0	1140	8.3	29.5	7.1	95
17...	1044	20.0	1140	7.9	29.0	4.9	64
17...	1046	30.0	1140	7.9	29.0	4.8	63
17...	1048	40.0	1140	7.3	28.5	.6	8
17...	1050	50.0	1140	7.3	28.5	.1	1
17...	1052	60.0	1140	7.3	28.0	.1	1
17...	1054	70.0	1140	7.2	28.0	.1	1
17...	1056	80.0	1140	7.2	27.5	.1	1
17...	1057	80.0	1150	7.1	27.0	.1	1
17...	1059	95.0	1160	7.1	27.0	.1	1

315722097240201 LAKE WHITNEY SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT										
30...	1015	1.00	1590	7.6	18.5	.50	8.4	89	K12	K10
30...	1017	10.0	1610	7.6	18.5	--	8.3	88	--	--
30...	1019	20.0	1630	7.6	18.5	--	8.2	87	--	--
30...	1021	30.0	1670	7.6	18.5	--	8.1	86	--	--
30...	1023	40.0	1740	7.6	18.5	--	7.9	84	--	--
30...	1025	50.0	1750	7.6	18.5	--	7.9	84	--	--
30...	1027	60.0	1750	7.6	18.0	--	8.3	87	--	--
30...	1029	70.0	1760	7.6	18.0	--	8.3	87	--	--
30...	1031	80.0	1760	7.6	18.0	--	8.1	85	--	--
30...	1033	89.0	1760	7.6	18.0	--	7.2	76	--	--
JAN										
18...	1710	1.00	1580	8.0	6.0	.90	12.1	98	<1	K550
18...	1712	10.0	1580	8.0	6.0	--	12.2	99	--	--
18...	1714	20.0	1580	8.0	6.0	--	12.3	100	--	--
18...	1716	30.0	1580	8.0	6.0	--	12.2	99	--	--
18...	1718	40.0	1580	8.1	6.0	--	12.8	104	--	--
18...	1720	50.0	1580	8.1	6.0	--	12.7	103	--	--
18...	1722	60.0	1600	8.1	6.0	--	12.8	104	--	--
18...	1724	70.0	1600	8.1	6.0	--	12.8	104	--	--
18...	1726	81.0	1600	8.0	6.5	--	12.1	100	--	--
AUG										
17...	1120	1.00	1150	8.3	30.5	1.50	7.0	95	<1	42
17...	1122	10.0	1150	8.2	30.0	--	6.6	89	--	--
17...	1124	20.0	1150	8.0	29.5	--	5.6	75	--	--
17...	1126	30.0	1150	7.8	29.0	--	4.3	57	--	--
17...	1128	40.0	1150	7.5	29.0	--	1.8	24	--	--
17...	1130	45.0	1160	7.3	29.0	--	.1	1	--	--
17...	1132	50.0	1160	7.3	28.5	--	.1	1	--	--
17...	1134	60.0	1160	7.2	28.0	--	.1	1	--	--
17...	1136	70.0	1160	7.2	27.5	--	.1	1	--	--
17...	1138	85.0	1160	7.3	27.5	--	.1	1	--	--

BRAZOS RIVER BASIN  
LAKE WHITNEY NEAR WHITNEY, TX--Continued

315722097240201 LAKE WHITNEY SITE DC--Continued  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
OCT									
30...	300	210	85	21	210	5.6	5.7	87	200
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	330	240	93	24	230	5.9	5.9	89	230
JAN									
18...	310	210	88	22	200	5.3	5.6	100	200
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	320	220	91	22	200	5.2	5.7	100	200
AUG									
17...	260	150	76	16	130	3.7	5.9	110	140
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	260	130	79	15	130	3.7	5.8	130	130

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)
OCT									
30...	350	5.8	930	.34	.68	1.0	.030	<10	1
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	.31	.62	.93	.030	40	10
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	380	6.0	1020	.26	.78	1.0	.040	<10	10
JAN									
18...	330	4.7	910	.16	.68	.84	.010	<10	<1
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	.16	.67	.83	.010	20	10
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	340	4.8	924	.17	.52	.69	.010	<10	<1
AUG									
17...	220	7.5	662	<.10	.80	--	.030	4	7
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	<.10	.90	--	.050	30	70
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	<.10	1.30	--	.070	40	700
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	210	11	660	<.10	1.50	--	.120	270	900



## BRAZOS RIVER BASIN

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LAKE WHITNEY NEAR WHITNEY, TX--Continued

320122097260901 LAKE WHITNEY SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

		SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	
DATE	TIME			(UNITS)				
OCT								
30...	1330	1.00	1690	7.5	18.0	.40	7.3	
30...	1332	10.0	1690	7.5	18.0	--	7.2	
30...	1334	20.0	1690	7.5	18.0	--	7.2	
30...	1336	30.0	1690	7.5	18.0	--	7.1	
30...	1338	40.0	1690	7.5	18.0	--	7.2	
30...	1340	50.0	1690	7.5	18.0	--	7.2	
30...	1342	62.0	1690	7.5	18.0	--	7.1	
JAN								
19...	0910	1.00	1470	8.3	4.5	1.10	13.3	
19...	0912	10.0	1470	8.3	4.0	--	13.2	
19...	0914	20.0	1480	8.2	4.0	--	13.1	
19...	0916	30.0	1490	8.3	4.0	--	12.6	
19...	0918	40.0	1500	8.3	4.0	--	12.2	
19...	0920	50.0	1510	8.3	4.0	--	11.6	
19...	0922	57.0	1510	8.3	4.5	--	10.8	
AUG								
17...	1245	1.00	1140	8.4	30.5	.90	7.7	
17...	1247	10.0	1140	8.3	30.5	--	7.7	
17...	1249	20.0	1140	7.9	29.5	--	4.4	
17...	1251	30.0	1140	7.8	29.5	--	4.2	
17...	1253	40.0	1140	7.5	29.5	--	2.2	
17...	1255	50.0	1140	7.5	29.5	--	1.4	
17...	1257	57.0	1140	7.4	29.5	--	.3	
		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								
OCT								
30...	76	.15	.93	1.1	.060	<10	10	
30...	75	--	--	--	--	--	--	
30...	75	--	--	--	--	--	--	
30...	74	.14	.60	.74	.050	50	10	
30...	75	--	--	--	--	--	--	
30...	75	--	--	--	--	--	--	
30...	74	.26	.60	.86	.050	<10	10	
JAN								
19...	104	.14	.54	.68	.010	50	<10	
19...	102	--	--	--	--	--	--	
19...	101	--	--	--	--	--	--	
19...	97	.14	.60	.74	.010	50	10	
19...	94	--	--	--	--	--	--	
19...	89	--	--	--	--	--	--	
19...	84	.15	.55	.70	.010	40	10	
AUG								
17...	104	<.10	.90	--	.030	20	10	
17...	104	--	--	--	--	--	--	
17...	59	<.10	1.50	--	.030	10	20	
17...	56	--	--	--	--	--	--	
17...	29	--	--	--	--	--	--	
17...	19	<.10	1.70	--	.060	10	180	
17...	4	<.10	1.70	--	.040	40	500	

BRAZOS RIVER BASIN  
LAKE WHITNEY NEAR WHITNEY, TX--Continued

315907097222801 LAKE WHITNEY SITE P7

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
OCT							
30...	1300	1.00	1720	7.6	19.0	.50	7.3
30...	1302	10.0	1730	7.5	19.0	--	7.0
30...	1304	20.0	1730	7.5	19.0	--	6.9
30...	1306	30.0	1770	7.5	18.5	--	7.2
30...	1308	40.0	1770	7.6	18.5	--	7.2
30...	1310	50.0	1770	7.6	18.5	--	7.3
30...	1312	60.0	1770	7.6	18.5	--	7.2
JAN							
18...	1745	1.00	1600	8.1	6.5	1.00	12.4
18...	1747	10.0	1600	8.1	6.5	--	12.5
18...	1749	20.0	1600	8.1	6.0	--	12.5
18...	1751	30.0	1600	8.1	6.0	--	12.5
18...	1753	44.0	1600	8.0	6.5	--	12.3
AUG							
17...	1200	1.00	1140	8.2	30.0	1.10	6.6
17...	1202	10.0	1140	8.2	30.0	--	6.3
17...	1204	20.0	1140	7.7	29.5	--	3.6
17...	1206	30.0	1140	7.6	29.5	--	2.3
17...	1208	40.0	1140	7.3	29.0	--	.1
17...	1210	51.0	1150	7.3	29.0	--	.1

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT							
30...	78	.26	.76	1.0	.030	20	10
30...	74	--	--	--	--	--	--
30...	73	--	--	--	--	--	--
30...	76	--	--	--	--	--	--
30...	76	--	--	--	--	--	--
30...	77	--	--	--	--	--	--
30...	76	.27	.66	.93	.040	30	20
JAN							
18...	102	.16	.59	.75	.010	40	10
18...	104	--	--	--	--	--	--
18...	102	--	--	--	--	--	--
18...	102	--	--	--	--	--	--
18...	102	.16	.64	.80	.020	50	<10
AUG							
17...	89	<.10	1.60	--	.020	70	40
17...	85	--	--	--	--	--	--
17...	48	--	--	--	--	--	--
17...	31	--	--	--	--	--	--
17...	1	--	--	--	--	--	--
17...	1	<.10	1.00	--	.060	60	480

320401097291301 LAKE WHITNEY SITE P11

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
OCT										
30...	1400	1.00	1630	7.6	18.0	.30	7.5	79	K110	70
30...	1401	.60	--	--	--	--	--	--	--	--
30...	1402	10.0	1630	7.6	18.0	--	7.5	79	--	--
30...	1404	20.0	1630	7.6	18.0	--	7.3	77	--	--
30...	1406	31.0	1630	7.6	18.5	--	7.1	76	--	--
JAN										
19...	0945	1.00	1220	8.1	5.0	1.20	13.0	102	<1	52
19...	0946	2.00	--	--	--	--	--	--	--	--
19...	0947	10.0	1230	8.2	4.5	--	13.3	104	--	--
19...	0949	20.0	1230	8.1	4.5	--	13.5	105	--	--
19...	0951	28.0	1230	8.1	5.0	--	13.2	104	--	--
AUG										
17...	1320	1.00	1080	8.1	31.0	.50	7.6	104	K3	240
17...	1322	10.0	1080	7.8	30.5	--	5.5	74	--	--
17...	1324	20.0	1080	7.3	30.0	--	.5	7	--	--
17...	1326	30.0	1090	7.3	30.0	--	.2	2	--	--

## BRAZOS RIVER BASIN

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## LAKE WHITNEY NEAR WHITNEY, TX--Continued

320401097291301 LAKE WHITNEY SITE P11--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
OCT									
30...	310	220	88	22	210	5.5	5.6	87	210
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	310	220	88	22	210	5.5	5.9	91	210
JAN									
19...	280	150	82	18	130	3.6	4.3	130	130
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	290	160	83	19	140	3.8	4.4	130	140
AUG									
17...	250	140	75	16	120	3.5	5.7	110	130
17...	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--
17...	260	140	76	16	120	3.4	5.6	120	130

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)
OCT									
30...	350	6.0	944	.29	.76	1.1	.060	<10	2
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	.28	.59	.87	.040	20	10
30...	350	6.1	947	.27	.67	.94	.040	<10	2
JAN									
19...	230	4.8	677	.19	.59	.78	.010	<10	1
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	.19	.54	.73	.010	20	10
19...	--	--	--	--	--	--	--	--	--
19...	240	4.8	709	.19	.54	.73	.010	<10	1
AUG									
17...	190	9.4	612	<.10	1.40	--	.050	<3	4
17...	--	--	--	<.10	1.00	--	.040	20	30
17...	--	--	--	<.10	1.40	--	.070	30	100
17...	190	9.8	620	<.10	1.30	--	.070	51	420

BRAZOS RIVER BASIN  
LAKE WHITNEY NEAR WHITNEY, TX--Continued

315500097204001 LAKE WHITNEY SITE P15  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
OCT							
30...	1223	1.00	1540	7.7	19.0	.60	7.6
30...	1225	10.0	1540	7.7	19.0	--	7.4
30...	1227	20.0	1550	7.6	19.0	--	7.2
30...	1229	32.0	1590	7.4	19.0	--	6.4
JAN							
18...	1600	1.00	1660	8.1	7.0	1.40	12.3
18...	1602	10.0	1660	8.1	7.0	--	12.4
18...	1604	20.0	1660	8.2	7.0	--	12.4
18...	1606	26.0	1660	8.1	8.0	--	12.1
AUG							
17...	1025	1.00	1150	8.0	29.0	.13	5.3
17...	1027	10.0	1150	7.6	29.0	--	3.0
17...	1029	20.0	1150	7.6	29.0	--	2.9
17...	1031	31.0	1150	7.4	29.5	--	1.2

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
OCT							
30...	81	.19	.63	.82	.050	<10	10
30...	79	--	--	--	--	--	--
30...	77	--	--	--	--	--	--
30...	68	<.09	.89	--	.060	10	20
JAN							
18...	102	.18	.55	.73	.010	40	<10
18...	103	--	--	--	--	--	--
18...	103	--	--	--	--	--	--
18...	103	.18	.53	.71	.010	10	10
AUG							
17...	71	<.10	1.20	--	.020	10	<10
17...	39	--	--	--	--	--	--
17...	38	--	--	--	--	--	--
17...	16	<.10	.80	--	.030	20	120

## BRAZOS RIVER BASIN

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WHITNEY LAKE NEAR WHITNEY, TX--Continued

315203097222601 WHITNEY LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	OCT 30, 81 1126	JAN 18, 82 1341	AUG 17, 82 0926
TOTAL CELLS/ML	5800	980	170000
DIVERSITY: DIVISION	0.5	1.1	0.2
..CLASS	0.5	1.1	0.2
...ORDER	0.9	1.4	1.7
...FAMILY	0.9	2.1	1.9
...GENUS	1.1	2.9	2.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...ACHNANTHALES						
...ACHNANTHACEAE						
...COCCONEIS	72	1	--	-	--	-
..BACILLARIALES						
...NITZSCHIA	--	-	43	4	--	-
...EUPODISCALES						
...COSCINODISCALES						
...CYCLOTILLA	--	-	110	12	--	-
..FRAGILARIALES						
...FRAGILARIACEAE						
...SYNEDRA	*	0	--	-	1200	1
..NAVICULALES						
...NAVICULACEAE						
...NAVICULA	72	1	29	3	*	0
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
...TETRAEDRON	57	1	--	-	--	-
...DICTYOSPHAERIALES						
...DICTYOSPHAERIUM	--	-	--	-	*	0
...OOCYSTACEAE						
...ANKISTRODESMUS	--	-	14	1	--	-
...OOCYSTIS	--	-	160#	16	*	0
...SELENASTRUM	--	-	57	6	*	0
...SCENEDESMACEAE						
...COELASTRUM	--	-	--	-	1600	1
...CRUCIGENIA	--	-	110	12	--	-
...SCENEDESMUS	110	2	290#	29	*	0
...TETRASTRUM	--	-	57	6	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
...CHROOMONAS	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
...AGMENELLUM	--	-	--	-	15000	9
...ANACYSTIS	57	1	--	-	22000	13
..NOSTOCALES						
...HAMMATOIDEACEAE						
...RAPIDIOPSIS	--	-	--	-	14000	9
...NOSTOCACEAE						
...ANABAENA	170	3	--	-	--	-
...ANABAENOPSIS	--	-	--	-	1800	1
...CYLINDROSPERMUM	57	1	--	-	25000	15
..OSCILLATORIALES						
...OSCILLARIACEAE						
...LYNGBYA	140	2	--	-	43000#	26
...OSCILLATORIA	4900#	85	--	-	40000#	24
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
...TRACHELOMONAS	130	2	100	10	--	-

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

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

## BRAZOS RIVER BASIN

WHITNEY LAKE NEAR WHITNEY, TX--Continued

320401097291301 WHITNEY LAKE SITE P11

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	OCT 30,81 1401	JAN 19,82 0946	AUG 17,82 1321			
TOTAL CELLS/ML	11000	170	280000			
DIVERSITY: DIVISION	1.0	0.7	0.4			
..CLASS	1.0	0.7	0.4			
...ORDER	1.3	1.0	1.8			
...FAMILY	1.4	1.0	1.9			
....GENUS	1.4	1.0	2.8			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
....NITZSCHIAEAE						
....NITZSCHIA	57	1	29# 17		2800	1
...EUPODISCALES						
...COSCINODISCAEAE						
....CYCLOTELLA	320	3	--	-	*	0
...FRAGILARIALES						
...FRAGILARIAEAE						
....SYNEDRA	--	-	--	-	*	0
...NAVICULALES						
...NAVICULACEAE						
....NAVICULA	--	-	--	-	*	0
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
....CHLOROCOCCACEAE						
....SCHROEDERIA	--	-	--	-	*	0
....TETRAEDRON	*	0	--	-	--	-
...DICTYOSPHAERIAEAE						
...DICTYOSPHAERIUM	110	1	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	*	0	130# 75		*	0
....KIRCHNERIELLA	--	-	--	-	*	0
...SELENASTRUM	--	-	--	-	*	0
...SCENEDESMACEAE						
....COELASTRUM	--	-	--	-	*	0
...CRUCIGENIA	--	-	--	-	*	0
...SCENEDESMUS	110	1	--	-	*	0
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	*	0
....CHLAMYDOMONAS	--	-	14	8	*	0
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
....CHROOCOCCACEAE						
....AGMENELLUM					39000	14
...ANACYSTIS	460	4	--	-	57000#	20
...NOSTOCALES						
...HAMMATOIDEACEAE						
...RAPHIDIOPSIS	--	-	--	-	32000	11
...NOSTOCACEAE						
....ANABAENOPSIS	--	-	--	-	3100	1
...CYLINDROSPERMUM	--	-	--	-	3800	1
...OSCILLATORIALES						
...OSCILLATORIAEAE						
....LYNGBYA	--	-	--	-	60000#	21
...OSCILLATORIA	7800#	74	--	-	73000#	26
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
....PHACUS					*	0
...TRACHELOMONAS	1600#	15	--	-	*	0
PYRRHOPHYTA (FIRE ALGAE)						
..PYRRHOPHYCEAE						
...DINOKONTAE						
...GLENODINIACEAE						
....GLENODINIUM	--	-	--	-	*	0
...PERIDINIACEAE						
....PERIDINIUM	57	1	--	-	--	-

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

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



## BRAZOS RIVER BASIN

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08092600 BRAZOS RIVER AT WHITNEY DAM NEAR WHITNEY, TX

LOCATION.--Lat 31°52'00", long 97°22'00", Hill County, Hydrologic Unit 12060202, immediately below Whitney Dam, 3.4 mi (5.5 km) upstream from gaging station near Whitney, 4.0 mi (6.4 km) upstream from Iron Creek, and 7.4 mi (11.9 km) southwest of Whitney.

DRAINAGE AREA.--26,190 mi<sup>2</sup> (67,830 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (23,930 km<sup>2</sup>), revised, probably is noncontributing.

PERIOD OF RECORD.--Chemical analyses: October 1947 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1947 to current year.

WATER TEMPERATURES: October 1947 to current year.

REMARKS.--Records of discharge are given for gaging station 08093100. No appreciable inflow between dam and gaging station except during periods of heavy local rains. 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, 3,620 micromhos Aug. 24, 1978; minimum daily, 203 micromhos May 23, 1952.

WATER TEMPERATURES: Maximum daily, 33.5°C July 3, 1973; minimum daily, 0.0°C Jan. 28, 29, 1948.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,980 micromhos Oct. 3, 18; minimum daily, 1,120 micromhos July 18.

WATER TEMPERATURES: Maximum daily, 28.0°C Sept. 24; minimum daily, 7.0°C Feb. 6, 7, 13.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 26...	0850	25000	1550	19.5	290	200	82	20	200
DEC 31...	0855	30	1840	13.5	320	220	93	21	210
JAN 31...	0800	1190	1660	9.0	310	220	88	22	220
MAY 31...	0800	25600	1250	24.0	260	150	75	18	150
JUL 31...	0800	762	1130	26.0	250	150	74	16	130

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)
OCT 26...	5.5	5.8	84	190	330	.2	5.7	884
DEC 31...	5.4	5.8	94	200	350	.3	5.3	942
JAN 31...	5.8	6.5	95	210	360	.2	4.9	969
MAY 31...	4.3	4.9	110	130	260	.2	4.6	709
JUL 31...	3.8	5.7	100	140	220	.3	7.7	654

## BRAZOS RIVER BASIN

08092600 BRAZOS RIVER AT WHITNEY DAM NEAR WHITNEY, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	381413	1750	986	101500	370	380600	190	192100	320
NOV.	1981	148874	1650	925	372000	340	138300	170	69500	310
DEC.	1981	21798	1830	1030	60900	390	22900	200	11600	340
JAN.	1982	31502	1670	938	79700	350	29700	180	15000	310
FEB.	1982	32402	1650	925	80900	340	30100	170	15100	310
MAR.	1982	30206	1620	905	73800	340	27400	170	13800	300
APR.	1982	13947	1580	881	33200	330	12300	160	6160	300
MAY	1982	299021	1420	791	638000	290	234200	140	116900	270
JUNE	1982	351100	1300	717	680000	260	247200	130	122800	250
JULY	1982	251405	1220	671	456000	240	164800	120	81700	240
AUG.	1982	23989	1130	624	40400	220	14500	110	7170	220
SEPT	1982	15005	1160	637	25800	230	9300	110	4600	220
TOTAL		1600662	**	**	3556000	**	1311000	**	656000	**
WTD. AVG.		4385	1470	823	**	300	**	150	**	280

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1970	1640	1670	1670	1660	1630	1600	1570	1250	1350	1130	1150
2	1970	1640	1820	1670	1650	1640	1600	1570	1230	1330	1130	1150
3	1980	1630	1840	1670	1650	1640	1590	1570	1240	1310	1130	1150
4	1970	1630	1840	1680	1660	1630	1600	1560	1240	1270	1130	1150
5	1970	1640	1850	1670	1660	1630	1590	1570	1240	1200	1130	1150
6	1970	1640	1840	1680	1650	1630	1580	1550	1250	1180	1130	1150
7	1930	1670	1840	1680	1650	1620	1580	1540	1260	1190	1130	1150
8	1960	1690	1840	1670	1650	1630	1590	1560	1260	1190	1130	1150
9	1970	1660	1840	1670	1660	1630	1580	1560	1270	1180	1130	1150
10	1970	1670	1840	1670	1660	1630	1580	1560	1270	1170	1130	1150
11	1960	1660	1840	1680	1650	1620	1580	1560	1270	1160	1130	1140
12	1960	1660	1840	1670	1650	1620	1580	1560	1260	1150	1130	1150
13	1960	1660	1840	1670	1650	1620	1580	1550	1270	1140	1130	1150
14	1960	1670	1840	1670	1650	1600	1580	1550	1270	1150	1140	1160
15	1960	1680	1840	1670	1650	1620	1580	1540	1280	1130	1130	1150
16	1960	1680	1840	1670	1650	1620	1580	1540	1270	1140	1130	1150
17	1970	1680	1840	1670	1650	1620	1580	1540	1280	1130	1130	1160
18	1980	1680	1840	1670	1650	1620	1580	1540	1270	1120	1140	1160
19	1920	1680	1840	1670	1650	1620	1580	1530	1280	1130	1140	1160
20	1800	1680	1860	1670	1650	1620	1570	1530	1280	1130	1140	1160
21	1880	1670	1840	1670	1650	1560	1570	1520	1280	1130	1130	1160
22	1830	1680	1840	1670	1650	1610	1550	1500	1280	1130	1130	1160
23	1780	1670	1840	1670	1650	1600	1570	1490	1290	1130	1140	1160
24	1580	1670	1840	1670	1650	1600	1550	1490	1300	1130	1130	1160
25	1590	1680	1840	1670	1650	1610	1570	1460	1320	1130	1140	1160
26	1550	1670	1840	1670	1640	1590	1570	1420	1330	1130	1140	1160
27	1570	1670	1840	1670	1640	1600	1570	1420	1330	1130	1140	1160
28	1540	1670	1840	1670	1630	1590	1570	1340	1350	1130	1140	1170
29	1590	1670	1840	1670	---	1610	1560	1320	1380	1130	1140	1170
30	1630	1670	1840	1660	---	1600	1570	1280	1400	1140	1140	1170
31	1680	---	1840	1660	---	1600	---	1250	---	1130	1140	---
MEAN	1850	1670	1830	1670	1650	1610	1580	1500	1280	1170	1130	1160

## BRAZOS RIVER BASIN

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08092600 BRAZOS RIVER AT WHITNEY DAM NEAR WHITNEY, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

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

## BRAZOS RIVER BASIN

## 08093100 BRAZOS RIVER NEAR AQUILLA, TX

LOCATION.--Lat 31°48'44", long 97°17'51". Bosque County, Hydrologic Unit 12060202, on right bank at downstream side of bridge on Farm Road 2114, 2.0 mi (3.2 km) downstream from Tener Creek, 4.9 mi (7.9 km) downstream from Iron Creek, 5.4 mi (8.7 km) southwest of Aguilla, 9.0 mi (14.5 km) downstream from Whitney Dam, and at mile 434.0 (698.3 km).

DRAINAGE AREA.--27,244 mi<sup>2</sup> (70,560 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>), revised, probably is noncontributing.

PERIOD OF RECORD.--October 1938 to current year. Prior to October 1974, published as Brazos River near Whitney.

REVISED RECORDS.--WRD TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 404.29 ft (123.228 m), National Geodetic Vertical Datum of 1929. Prior to Oct. 1 1948, nonrecording gage at site 13.9 mi (22.4 km) upstream at datum 27.77 ft (8.464 m) higher. Oct. 1, 1948, to Feb. 12, 1975, at site 5.6 mi (9.0 km) upstream at datum 13.10 ft (3.993 m) higher.

REMARKS.--Records fair. Most of flow is released from storage in Lake Whitney (station 08092500). Brazos River at Whitney Dam (station 08092600) uses the discharge record at this station for publication of water-quality records. Several observations of water temperature were made at this site during the year.

AVERAGE DISCHARGE.--13 years (water years 1939-51) prior to regulation by Lake Whitney, 1,802 ft<sup>3</sup>/s (51.03 m<sup>3</sup>/s), 1,306,000 acre-ft/yr (1.61 km<sup>3</sup>/yr); 31 years (water-years 1952-82) regulated, unadjusted, 1,480 ft<sup>3</sup>/s (41.91 m<sup>3</sup>/s), 1,072,000 acre-ft/yr (1.32 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,800 ft<sup>3</sup>/s (2,030 m<sup>3</sup>/s) May 18, 1949, gage height, 31.03 ft (9.458 m), site and datum in use from Oct. 1, 1948, to Feb. 12, 1975; minimum daily, 0.4 ft<sup>3</sup>/s (0.011 m<sup>3</sup>/s) May 9, 1953. Maximum discharge since construction of Whitney Dam in 1951, 58,200 ft<sup>3</sup>/s (1,650 m<sup>3</sup>/s) May 28, 1957, gage height, 27.34 ft (8.333 m), site and datum in use from Oct. 1, 1948, to Feb. 12, 1975.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1853, 45 ft (13.7 m) May 9, 1922, at site and datum in use Oct. 1, 1948, to Feb. 12, 1975, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26,460 ft<sup>3</sup>/s (749 m<sup>3</sup>/s) May 25 at 1830 hours, gage height, 22.69 ft (6.916 m); maximum gage-height; 23.47 ft (7.154 m) Oct. 16 at 1745 hours; minimum discharge, 27 ft<sup>3</sup>/s (0.76 m<sup>3</sup>/s) Dec. 25, 26, 30, gage height, 5.96 ft (1.817 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	5380	1070	35	1130	810	600	610	25200	21800	433	1120
2	48	12600	2260	35	909	201	450	1010	23800	21900	454	358
3	662	24100	2220	223	1660	804	350	610	16900	22200	830	54
4	786	24100	1330	522	1150	826	250	639	12000	21800	618	169
5	752	18600	322	38	2670	1620	350	683	7000	21600	802	307
6	1940	9920	37	188	2720	1380	500	814	5500	21400	676	53
7	228	5180	35	640	649	1300	900	67	5300	18900	370	241
8	61	5180	35	1960	1430	2660	400	48	5200	13700	145	72
9	44	5130	41	155	1920	2370	130	48	5100	11200	548	48
10	208	5120	42	2200	1190	1480	40	1890	5000	4640	378	46
11	83	5020	1270	600	947	965	150	74	4900	4130	410	227
12	48	3830	363	80	1050	1510	450	318	4000	4690	1050	211
13	2280	2320	44	2100	325	912	320	3090	4600	5340	755	440
14	4830	2140	1250	800	59	351	100	3350	4800	5320	1190	547
15	12400	2820	2570	200	73	202	450	4410	4800	5300	1780	464
16	23400	2720	1170	130	84	84	538	4460	4800	5280	466	763
17	23000	2560	2310	1400	370	80	122	4660	4800	5240	57	916
18	18900	2720	1570	800	568	551	48	4540	4800	4520	499	1210
19	21700	2450	1230	1900	1280	100	187	10700	4800	4000	74	495
20	24700	2730	1110	1500	541	80	350	19800	4800	3980	324	358
21	24700	433	757	2150	120	355	79	16900	5200	3970	1380	638
22	18700	138	263	2660	109	679	57	13400	19000	2060	1150	643
23	22000	642	237	2820	652	1590	1180	13300	20300	2450	1400	717
24	24200	468	38	2430	876	1110	359	16300	20800	2500	520	897
25	24700	112	30	938	2240	1730	61	24000	20500	2180	794	687
26	25000	110	30	171	3120	1840	730	25600	20500	2070	576	643
27	25000	630	30	211	2030	996	1340	25500	20700	2340	1130	378
28	24800	755	40	596	2530	900	1430	25400	21400	2260	1030	620
29	25000	414	36	1540	---	720	1940	25600	22400	2720	1420	774
30	21400	552	28	1290	---	1200	86	25600	22200	1460	1290	909
31	9780	---	30	1190	---	800	---	25600	---	455	1440	---
TOTAL	381413	148874	21798	31502	32402	30206	13947	299021	351100	251405	23989	15005
MEAN	12300	4962	703	1016	1157	974	465	9646	11700	8110	774	500
MAX	25000	24100	2570	2820	3120	2660	1940	25600	25200	22200	1780	1210
MIN	44	110	28	35	59	80	40	48	4000	455	57	46
AC-FT	756500	295300	43240	62480	64270	59910	27660	593100	696400	498700	47580	29760
CAL YR 1981	TOTAL	851325	MEAN	2332	MAX	25000	MIN	21	AC-FT	1689000		
WTR YR 1982	TOTAL	1600662	MEAN	4385	MAX	25600	MIN	28	AC-FT	3175000		

## BRAZOS RIVER BASIN

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08093250 HACKBERRY CREEK AT HILLBORO, TX

LOCATION.--Lat 32°00'20", long 97°08'59", Hill County, Hydrologic Unit 12060202, at downstream side of highway embankment near right end of bridge on State Highway 22, 0.1 mi (0.2 km) upstream from Little Hackberry Creek and 1.2 mi (1.9 km) west of county courthouse in Hillsboro.

DRAINAGE AREA.--57.9 mi<sup>2</sup> (150 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 546.00 ft (166.421 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. No known diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,050 ft<sup>3</sup>/s (341 m<sup>3</sup>/s) June 16, 1981, gage height, 18.95 ft (5.776 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1936, 18.3 ft (5.58 m) September 1936, from information by State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 800 ft<sup>3</sup>/s (22.7 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge		Gage height	
		(ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	(ft)	(m)
May 18	1500	1,210	34.3	13.56	4.133
June 24	1345	1,410	39.9	13.81	4.209
June 25	1345	*1,440	40.8	13.84	4.218

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	2.0	5.6	.65	7.3	6.4	3.0	41	16	27	.00	.00
2	.00	1.5	3.3	.93	4.9	5.0	2.7	16	14	23	.00	.00
3	.00	1.3	2.2	1.3	3.7	3.9	2.6	8.6	13	18	.00	.00
4	.00	.93	1.3	.93	2.3	2.7	1.8	5.6	11	16	.00	.00
5	.00	.76	.44	.65	1.8	1.8	1.2	9.4	11	12	.00	.00
6	.00	.25	.18	2.3	1.5	1.5	2.2	215	10	8.6	.00	.00
7	4.8	.10	.18	.93	1.3	2.0	2.0	57	10	7.5	.00	.00
8	2.7	6.5	1.7	.44	.93	1.5	1.7	26	10	6.2	.00	.00
9	.65	13	.93	.65	1.3	.93	1.4	14	10	4.6	.00	.00
10	.18	2.7	.10	.44	1.6	1.5	2.3	16	10	1.5	.00	.00
11	.10	.44	.10	.44	1.3	1.8	2.2	16	10	.44	.00	.00
12	.30	.29	1.8	.44	.99	2.0	1.9	17	19	.44	.00	.00
13	.10	.29	2.3	.44	2.2	2.7	1.5	110	13	7.8	.00	.00
14	3.0	.29	1.8	.29	1.3	3.6	.95	55	13	5.0	.00	.00
15	5.0	.44	3.0	1.3	1.8	3.6	1.8	20	12	1.8	.00	.00
16	3.0	.65	2.0	.65	2.5	3.0	1.5	9.1	29	.93	.00	.00
17	2.0	1.3	.65	.93	2.0	3.0	2.0	86	23	.44	.00	.00
18	.93	1.5	.44	1.3	1.8	3.0	2.0	480	32	.18	.00	.00
19	.65	2.0	.44	1.5	1.3	3.0	1.8	100	26	.05	.00	.00
20	.65	1.8	.44	1.3	1.3	2.8	3.0	37	18	.00	.00	.00
21	.44	1.5	.93	.93	1.3	15	4.3	64	99	.00	.00	.00
22	11	.65	1.3	.93	1.8	12	7.8	42	23	.00	.00	.00
23	14	1.3	.44	.65	2.0	7.7	8.3	20	14	.00	.00	.00
24	2.3	1.3	.29	.65	1.5	6.3	8.9	52	608	.00	.00	.00
25	.93	.65	.44	.65	11	6.2	9.7	38	813	.00	.00	.00
26	.44	.65	.65	.44	123	5.2	6.9	250	138	.00	.00	.00
27	.44	.50	.93	.44	21	15	7.2	64	271	.00	.00	.00
28	.38	.57	.65	.65	10	13	6.2	40	64	.00	.00	.00
29	1.3	1.5	.44	1.5	---	7.7	13	32	42	.00	.00	.00
30	1.5	5.0	.65	5.0	---	6.2	24	23	30	.00	.00	.00
31	3.1	---	1.5	13	---	4.7	---	19	---	.00	.00	---
TOTAL	59.89	51.66	37.12	42.65	214.72	154.73	135.85	1982.7	2412	141.48	.00	.00
MEAN	1.93	1.72	1.20	1.38	7.67	4.99	4.53	64.0	80.4	4.56	.000	.000
MAX	14	13	5.6	13	123	15	24	480	813	27	.00	.00
MIN	.00	.10	.10	.29	.93	.93	.95	5.6	10	.00	.00	.00
AC-FT	119	102	74	85	426	307	269	3930	4780	281	.00	.00
CAL YR 1981	TOTAL	9885.41	MEAN	27.1	MAX	5620	MIN	.00	AC-FT	19610		
WTR YR 1982	TOTAL	5232.80	MEAN	14.3	MAX	813	MIN	.00	AC-FT	10380		



## BRAZOS RIVER BASIN

08093250 HACKBERRY CREEK AT HILLSBORO, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 27...	0928	.45	890	8.3	13.0	30	20	12.3	118	2.1	300
DEC 07...	1645	.17	1030	8.4	17.5	20	19	11.0	117	3.0	360
JAN 19...	1050	1.5	1120	8.2	4.0	10	8.3	12.2	95	2.1	320
MAR 01...	1620	6.4	859	7.4	15.0	20	48	9.8	98	1.9	290
APR 13...	1130	1.5	914	8.2	22.5	5	8.1	8.3	97	2.9	270
MAY 20...	1455	37	525	8.1	24.5	30	70	7.0	86	2.0	210
JUN 21...	1700	60	454	7.7	27.0	50	320	5.8	74	3.9	160

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 27...	140	111	4.5	73	1.9	5.6	160	250	28	.7	9.0
DEC 07...	190	133	5.7	79	1.8	5.3	170	330	32	.8	2.3
JAN 19...	92	120	5.5	130	3.2	4.4	230	270	63	.9	2.0
MAR 01...	110	110	4.7	65	1.7	7.5	180	210	30	.7	7.3
APR 13...	110	100	5.5	91	2.4	4.5	160	260	42	.8	1.2
MAY 20...	43	80	3.1	24	.7	6.0	170	80	12	.5	11
JUN 21...	57	59	2.4	26	.9	6.2	100	87	15	.6	12

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)
OCT 27...	578	22	9	2.9	.080	3.0	.130	1.3	1.40	.140	--
DEC 07...	690	30	17	--	<.020	<.10	.090	1.1	1.20	.070	10
JAN 19...	734	0	0	--	<.020	1.5	.170	1.0	1.20	.320	7.5
MAR 01...	543	72	22	13	1.80	15	.470	2.1	2.60	.130	8.8
APR 13...	601	17	5	.41	.060	.47	.240	1.6	1.80	.110	7.3
MAY 20...	319	96	14	1.6	.050	1.6	.090	2.1	2.20	.110	8.4
JUN 21...	268	489	60	2.2	.120	2.3	.470	.83	1.30	.040	18



BRAZOS RIVER BASIN

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08093250 HACKBERRY CREEK AT HILLSBORO, TX.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 07...	1645	3	60	<1	<10	2	<10
MAR 01...	1620	8	63	<1	10	2	<10
APR 13...	1130	3	56	<3	<10	2	<9
JUN 21...	1700	6	48	<1	<10	4	29

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 07...	<1	8	.1	1	<1	<3
MAR 01...	<1	19	.2	1	<1	<3
APR 13...	<1	<3	<.1	1	1	<12
JUN 21...	2	1	<.1	<1	<1	7

## BRAZOS RIVER BASIN

08093260 HACKBERRY CREEK BELOW HILLSBORO, TX  
(Low-flow partial-record station)

LOCATION.--Lat 31°59'43", long 97°08'38", Hill County, Hydrologic Unit 12060202, at abandoned steel truss bridge on county road, 0.7 mi (1.1 km) downstream from Little Hackberry Creek, 0.8 mi (1.3 km) downstream from State Highway 22, and 1.4 mi (2.3 km) southwest of county courthouse in Hillsboro.

DRAINAGE AREA.--86.8 mi<sup>2</sup> (224.7 km<sup>2</sup>).

PERIOD OF RECORD.--Periodic discharge measurements and chemical analyses: October 1979 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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											
27...	1143	2.0	1420	9.0	14.0	100	160	10.6	104	40	130
DEC											
07...	1530	.73	1650	9.3	13.0	90	12	12.9	124	35	120
JAN											
19...	1400	2.9	1350	8.5	6.0	50	10	13.9	114	28	260
MAR											
01...	1430	7.2	966	7.4	13.5	20	32	9.8	95	7.8	260
APR											
13...	1300	2.7	1330	9.2	23.5	60	5.0	13.3	158	14	210
MAY											
20...	1800	35	535	8.1	25.0	35	64	7.1	89	2.3	210
JUN											
21...	1755	62	503	8.0	27.0	45	230	6.2	79	7.6	150
AUG											
02...	1505	.92	1840	9.5	30.5	--	140	11.9	163	30	92
SEP											
14...	1715	.53	2320	9.3	27.0	--	82	8.1	105	29	95

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											
27...	0	45	4.0	280	11	5.8	350	290	71	1.3	11
DEC											
07...	0	41	4.4	330	13	8.5	410	310	100	1.4	14
JAN											
19...	0	95	5.1	210	5.8	6.5	310	290	79	1.1	8.7
MAR											
01...	92	97	4.7	100	2.7	7.8	170	230	41	.8	8.8
APR											
13...	0	74	5.6	210	6.5	6.8	290	290	71	1.1	11
MAY											
20...	47	78	2.9	29	.9	5.4	160	91	14	.5	11
JUN											
21...	33	57	2.6	46	1.6	6.2	120	95	21	.6	11
AUG											
02...	0	29	4.8	390	18	8.9	500	310	120	1.5	22
SEP											
14...	0	25	8.0	520	23	11	620	410	120	1.7	14

DATE	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, TOTAL 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											
27...	919	34	16	1.1	.940	2.0	.600	3.6	4.20	2.00	15
DEC											
07...	1060	23	8	.10	1.80	1.9	.180	3.5	3.70	3.90	24
JAN											
19...	882	33	7	.69	.050	.74	5.90	2.8	8.70	2.70	18
MAR											
01...	592	80	26	11	1.50	12	3.10	2.5	5.60	1.00	14
APR											
13...	844	36	23	.22	.160	.38	2.10	2.9	5.00	1.90	16
MAY											
20...	328	96	16	1.6	.050	1.6	.120	2.0	2.10	.100	9.3
JUN											
21...	312	585	80	2.1	.130	2.2	.510	1.4	1.90	.360	24
AUG											
02...	1190	94	43	--	<.020	<.10	.110	7.3	7.40	4.10	76
SEP											
14...	1480	98	18	.00	.140	.10	.810	37	38.0	7.60	42

## BRAZOS RIVER BASIN

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08093260 HACKBERRY CREEK BELOW HILLSBORO, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 07...	1530	8	25	<1	<10	2	<10
MAR 01...	1430	7	59	<1	<10	3	<10
MAY 20...	1800	8	52	<3	<10	1	19
AUG 02...	1505	6	19	<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)
DEC 07...	<1	11	<.1	<1	<1	8
MAR 01...	<1	24	.2	<1	<1	<3
MAY 20...	<1	8	<.1	<1	<1	<12
AUG 02...	4	3	<.1	<1	<1	<3

## BRAZOS RIVER BASIN

08093360 AQUILLA CREEK ABOVE AQUILLA, TX

LOCATION (revised).--Lat 31°53'43", long 97°12'10", Hill County, Hydrologic Unit 12060202, on right bank of excavated outlet channel, 0.2 mi (0.3 km) downstream from Aquilla Dam on Aquilla Creek and from Farm Road 310 which is located on top of Aquilla Dam, and 3.3 mi (5.3 km) north-northeast of Aquilla.

DRAINAGE AREA.--255 mi<sup>2</sup> (660 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to current year (discontinued as a continuous-record station; converted to a low flow partial-record station on Mar. 16, 1982).

GAGE.--Water-stage recorder. Datum of gage is 478.71 ft (145.911 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Mar. 15, 1982, at site about 0.2 mi (0.3 km) to left of current location at same datum.

REMARKS.--Water-discharge records fair. Records furnished by the city of Hillsboro show that 869 acre-ft (1.07 hm<sup>3</sup>) of sewage effluent was discharged into a tributary above gage during year. Flow is affected at times by storage in, or pumpage from the earthfill borrow areas within the Aquilla Lake to be formed when Aquilla Dam is completed 0.2 mi (0.3 km) upstream. Deliberate impoundment of water is scheduled for Mar. 20, 1983 (dam closure accomplished during year). Station operation changed to low-flow partial record on Mar. 16, 1982.

EXTREMES FOR PERIOD OR RECORD.--Maximum discharge, 7,100 ft<sup>3</sup>/s (201 m<sup>3</sup>/s) June 16, 1981, gage height, 26.98 ft (8.224 m); no flow for many days in 1980-82.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period Oct. 1, 1981, to Mar. 15, 1982, 361 ft<sup>3</sup>/s (10.2 m<sup>3</sup>/s) Mar. 1 at 1230 hours, gage height, 7.29 ft (2.222 m); maximum gage height during period Mar. 16 to Sept. 30, 1982, 12.86 ft (3.920 m) June 26 at 0500 hours; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	21	1.8	.00	58	173	21	32	63	---	.26	.00
2	.14	7.6	29	.00	45	28	18	---	48	---	.21	.00
3	.07	2.6	26	.00	43	.00	15	---	39	72	.13	.00
4	.00	3.9	14	.00	32	.00	13	76	32	55	.11	.00
5	.00	1.9	8.5	.00	22	.00	12	57	27	41	.08	.00
6	1.0	1.7	5.9	.00	5.7	.00	9.8	---	25	34	.06	.00
7	8.5	1.7	3.0	.00	.51	.00	8.5	---	21	29	.03	.00
8	.76	22	2.0	.00	.39	.00	7.5	---	15	24	.02	.00
9	.34	59	1.5	.00	.41	.00	6.4	---	11	19	.02	.00
10	.41	51	1.8	.00	.34	.00	5.9	---	9.2	15	.07	.00
11	.07	39	1.7	.00	.17	.00	5.6	66	7.7	15	.13	.00
12	.97	26	15	.00	.00	.00	5.1	49	8.1	18	.12	.00
13	1.7	19	32	.00	.00	.00	4.6	46	11	16	.14	.00
14	3.0	14	13	.00	.00	.00	4.2	---	11	13	.06	.00
15	46	12	8.1	.00	.00	.00	4.2	---	9.4	10	.02	.00
16	47	9.4	13	.00	.00	.00	3.9	79	10	5.8	.00	.00
17	40	5.0	41	.00	.00	.00	3.2	---	19	4.0	.00	.00
18	14	2.6	23	.00	.00	.00	3.0	---	25	3.1	.00	.00
19	1.8	2.3	8.6	.00	.00	.00	3.2	---	29	2.3	.00	.00
20	.00	1.9	5.9	.00	.00	.00	3.2	---	32	1.9	.00	.00
21	.00	2.6	4.7	.00	.00	.61	3.1	---	32	1.4	.00	.00
22	49	4.3	1.8	.00	.00	.77	3.0	---	35	1.2	.00	.00
23	92	3.9	1.1	.00	.00	7.0	3.1	---	38	.83	.00	.00
24	65	2.0	1.5	.00	.00	13	3.6	---	---	.47	.00	.00
25	17	4.3	1.6	.00	.00	18	3.8	---	---	.46	.00	.00
26	.55	7.6	1.8	.00	4.5	15	6.4	---	---	.71	.00	.00
27	.34	3.4	1.8	.00	150	16	15	---	---	.58	.00	.00
28	2.3	3.4	1.2	.00	116	22	13	---	---	.49	.00	.00
29	37	7.6	2.4	.00	---	27	11	---	---	.39	.00	.00
30	15	9.0	.56	.00	---	28	9.8	---	---	.35	.00	.00
31	.62	---	.14	14	---	26	---	---	---	.32	.00	---
TOTAL	444.57	351.7	273.40	14.00	478.02	374.38	229.1	---	---	---	1.46	.00
MEAN	14.3	11.7	8.82	.45	17.1	12.1	7.64	---	---	---	.047	.000
MAX	92	59	41	14	150	173	21	---	---	---	.26	.00
MIN	.00	1.7	.14	.00	.00	.00	3.0	---	---	---	.00	.00
AC-FT	882	698	542	28	948	743	454	---	---	---	2.9	.00
CAL YR 1981	TOTAL	22130.10	MEAN	60.6	MAX	6000	MIN	.00	AC-FT	43900		
WTR YR 1982	TOTAL	-	MEAN	-	MAX	-	MIN	-	AC-FT	-		

08093360 AQUILLA CREEK ABOVE AQUILLA, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1979 to current year.

WATER TEMPERATURES: October 1979 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (1979-81): Maximum daily, 1,840 micromhos Mar. 16, 1980; minimum daily, 159 micromhos Jan. 22, 1980.

WATER TEMPERATURES (1979-81): Maximum daily, 30.0°C Oct. 16, 1979, July 13, 1981; minimum daily, 3.0°C Dec. 30, 1979, and Jan. 30, Feb. 11, 1980.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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 27...	1515	.04	1080	8.1	15.0	30	29	10.0	101	2.7	270
DEC 08...	1045	2.2	1020	8.1	13.5	30	32	9.0	87	3.6	240
APR 14...	1720	4.2	657	8.6	23.0	30	20	13.2	157	8.7	140
MAY 21...	0900	--	321	--	22.0	--	--	--	--	--	120
JUN 22...	1030	34	637	7.8	27.0	30	28	6.4	81	2.9	200
AUG 03...	1015	.13	473	7.8	26.5	50	120	3.9	50	2.3	190

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 27...	13	98	6.8	130	3.5	6.1	260	240	47	.6	11
DEC 08...	0	88	5.1	130	3.7	5.7	280	190	52	.9	6.7
APR 14...	43	51	3.8	75	2.8	5.4	100	170	35	.6	--
MAY 21...	22	43	2.2	15	.6	5.2	94	43	9.8	.3	11
JUN 22...	38	72	4.4	57	1.8	5.6	160	120	34	.5	8.2
AUG 03...	26	68	4.0	33	1.1	6.3	160	64	24	.5	12

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 27...	696	16	5	.77	.100	.87	.390	1.4	1.80	.430	8.4
DEC 08...	647	45	14	--	<.020	.15	.110	1.3	1.40	.220	11
APR 14...	401	15	6	.89	.100	.99	.140	1.6	1.70	.130	11
MAY 21...	186	--	--	--	--	--	--	--	--	--	--
JUN 22...	398	48	15	.35	.060	.41	.490	1.4	1.90	.640	9.6
AUG 03...	308	148	13	.52	.070	.59	.160	2.0	2.20	.150	9.1

## BRAZOS RIVER BASIN

08093360 AQUILLA CREEK ABOVE AQUILLA, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 08...	1045	8	71	<1	<10	1	<10
APR 14...	1720	4	42	<3	<10	2	<9
AUG 03...	1015	4	64	<1	10	2	<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)
DEC 08...	1	310	.1	1	<1	4
APR 14...	<1	<3	<.1	<1	<1	16
AUG 03...	<1	1	<.1	1	<1	<3

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	781	1000					703	349	353	466	
2	1350	821	977					629	422	369	467	
3	1490	877	997					605	461	407	467	
4	---	1010	951					605	379	424	468	
5	---	1140	910					586	389	424	467	
6	1430	1230	848					536	521	445	468	
7	195	1310	858					515	493	441	465	
8	372	397	867					488	481	394	476	
9	599	844	889					457	477	428	478	
10	680	820	890					455	469	464	481	
11	755	906	896					464	459	431	476	
12	795	919	908					490	486	437	479	
13	484	1020	1060					451	469	436	487	
14	586	1040	623					491	486	436	493	
15	656	1050	655					494	542	451	494	
16	611	1070	684					502	510	444	---	
17	634	1070	1070					462	516	442	---	
18	618	1080	1150					447	502	453	---	
19	652	1090	1150					366	506	451	---	
20	---	1110	1110					311	562	457	---	
21	---	1110	1100					321	618	462	---	
22	219	1120	1090					334	652	460	---	
23	811	1130	1060					374	528	464	---	
24	657	1130	1060					389	579	465	---	
25	806	1120	1060					386	399	466	---	
26	916	1110	1080					372	322	467	---	
27	996	1100	1100					343	325	468	---	
28	1120	1080	1120					329	335	468	---	
29	760	1010	1110					330	333	468	---	
30	781	868	1090					369	338	469	---	
31	854	---	1090					385	---	469	---	
MEAN	763	1010	982					451	464	442	475	



## BRAZOS RIVER BASIN

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08093360 AQUILLA CREEK ABOVE AQUILLA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

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

## BRAZOS RIVER BASIN

08093500 AQUILLA CREEK NEAR AQUILLA, TX

LOCATION.--Lat 31°50'40", long 97°12'04", Hill County, Hydrologic Unit 12060202, on downstream side of highway embankment near left end of bridge on Farm Road 1304, 1.0 mi (1.6 km) southeast of Aquilla, 1.2 mi (1.9 km) downstream from Cobb Creek, and 18.2 mi (29.3 km) upstream from mouth.

DRAINAGE AREA.--308 mi<sup>2</sup> (798 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1938 to current year. Records of daily discharge for December 1924 to August 1925, published in WSP 608, are unreliable.

REVISED RECORDS.--WSP 1712: 1944(M), 1957-58. WDR TX-76-2: Drainage area. See PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 451.48 ft (137.611 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Water-discharge records good. Flow is affected at times by discharge from flood-detention pools of eleven floodwater-retarding structures with combined detention capacity of 6,420 acre-ft (7.92 hm<sup>3</sup>). These structures control runoff from 20.4 mi<sup>2</sup> (52.8 km<sup>2</sup>) in the Aquilla and Hackberry Creeks drainage basins. Flow also affected at times by construction activities at the Aquilla Dam located 4.7 mi (7.6 km) upstream on Aquilla Creek.

AVERAGE DISCHARGE.--43 years (water years 1940-82), 119 ft<sup>3</sup>/s (3.370 m<sup>3</sup>/s), 5.25 in/yr (133 mm/yr), 86,220 acre-ft/yr (106 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,300 ft<sup>3</sup>/s (1,510 m<sup>3</sup>/s) June 16, 1981, gage height, 31.35 ft (9.555 m), from rating curve extended above 25,900 ft<sup>3</sup>/s (733 m<sup>3</sup>/s) on basis of slope-area measurement of 74,200 ft<sup>3</sup>/s (2,100 m<sup>3</sup>/s), adjusted to gage site; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 31, 1887, reached a stage of 34 ft (10.4 m), from information by local resident. Flood of Sept. 27, 1936, was the highest since 1887 and reached a stage of 33 ft (10.1 m), from floodmark; discharge 84,500 ft<sup>3</sup>/s (2,390 m<sup>3</sup>/s), by slope-area measurement at site 9 mi (14 km) downstream, and 74,200 ft<sup>3</sup>/s (2,100 m<sup>3</sup>/s), adjusted to gage site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,580 ft<sup>3</sup>/s (73.1 m<sup>3</sup>/s) June 25 at 1200 hours, gage height, 19.53 ft (5.953 m), no peak above base of 4,500 ft<sup>3</sup>/s (127 m<sup>3</sup>/s); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.78	6.6	1.6	40	185	16	9.0	127	173	1.2	.00
2	.00	1.4	4.8	1.5	26	44	15	75	90	78	.88	.00
3	.00	.60	6.6	1.3	23	5.2	13	70	68	40	.68	.00
4	.00	1.7	5.9	1.6	20	4.2	11	46	52	29	.42	.00
5	.00	2.6	5.0	1.5	14	4.1	9.5	27	42	21	.38	.00
6	104	1.8	4.4	1.4	12	4.1	8.2	100	34	15	.25	.00
7	204	1.2	5.1	1.5	6.3	4.2	7.7	359	31	10	.20	.00
8	6.2	2.6	3.2	1.4	5.4	4.2	7.5	237	29	8.0	.16	.00
9	.87	9.8	2.5	1.5	5.7	4.2	7.0	111	25	6.8	.21	.00
10	.27	8.0	2.0	1.5	5.3	4.4	6.6	62	23	5.3	.54	.00
11	.47	4.1	2.0	1.9	5.1	4.8	6.6	34	22	4.8	.40	.00
12	.62	2.9	2.1	1.6	5.0	5.1	6.4	22	24	6.2	.22	.00
13	15	1.2	13	2.1	5.0	5.1	6.2	128	26	5.9	.16	.00
14	7.4	1.0	4.6	2.6	4.8	5.8	5.7	143	26	4.8	.16	.00
15	8.8	1.4	4.4	3.1	4.8	6.8	5.5	105	23	4.2	.16	.00
16	8.5	.66	2.7	3.8	4.4	7.0	5.9	52	23	3.6	.16	.00
17	6.6	.35	13	3.4	4.2	7.2	6.5	625	29	3.4	.14	.00
18	7.3	.85	7.3	3.1	4.1	7.5	6.4	481	39	3.2	.09	.00
19	1.3	1.2	3.7	4.2	4.1	7.7	7.4	860	40	3.0	.07	.00
20	.87	3.4	2.2	3.2	3.9	8.3	7.1	695	46	3.0	.03	.00
21	.54	6.4	2.0	3.0	3.9	401	7.3	530	43	3.2	.02	.00
22	139	7.5	1.7	3.4	3.9	53	7.9	434	48	3.2	.01	.00
23	45	8.2	1.2	4.4	3.9	12	7.9	285	53	3.4	.00	.00
24	27	9.2	1.1	4.2	3.9	13	9.1	381	321	3.2	.00	.00
25	4.0	9.5	1.3	4.1	4.8	14	10	344	1300	2.9	.00	.00
26	.74	8.7	.98	4.0	149	13	6.2	870	929	3.0	.00	.00
27	1.0	8.7	1.1	3.7	152	65	12	761	870	3.0	.00	.00
28	1.1	10	1.9	3.7	114	37	11	595	718	2.7	.00	.00
29	4.2	12	2.4	4.0	---	25	33	417	541	2.4	.00	.00
30	2.7	11	2.2	5.8	---	25	5.8	285	356	2.0	.00	.00
31	1.2	---	1.8	7.2	---	22	---	197	---	1.4	.00	---
TOTAL	598.68	138.74	118.78	91.3	638.5	1008.9	275.4	9340.0	5998	458.6	6.54	.00
MEAN	19.3	4.62	3.83	2.95	22.8	32.5	9.18	301	200	14.8	.21	.000
MAX	204	12	13	7.2	152	401	33	870	1300	173	1.2	.00
MIN	.00	.35	.98	1.3	3.9	4.1	5.5	9.0	22	1.4	.00	.00
AC-FT	1190	275	236	181	1270	2000	546	18530	11900	910	13	.00

CAL YR 1981 TOTAL 48847.48 MEAN 134 MAX 27000 MIN .00 AC-FT 96890  
WTR YR 1982 TOTAL 18673.44 MEAN 51.2 MAX 1300 MIN .00 AC-FT 37040

08093500 AQUILLA CREEK NEAR AQUILLA, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: May 1965 to June 1966, October 1967 to current year. Chemical and biochemical analyses: January 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1965 to June 1966, October 1967 to September 1982 (discontinued).

WATER TEMPERATURES: October 1965 to June 1966, October 1967 to September 1982 (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, 3,080 micromhos Dec. 31, 1975; minimum daily, 182 micromhos Oct. 31, 1974.

WATER TEMPERATURES: Maximum daily, 31.0°C July 3, 1980; minimum daily, 0.0°C Jan. 8, 1976, Jan. 10, 1977.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,430 micromhos Dec. 31; minimum daily, 285 micromhos June 25.

WATER TEMPERATURES: Maximum daily, 29.0°C July 23, Aug. 17; minimum daily, 2.0°C Jan. 17.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
DEC 08...	1400	2.7	870	8.1	14.0	9.2	90	3.8	270	30
JAN 20...	1140	3.0	870	7.9	4.0	11.5	89	1.5	350	160
APR 14...	1545	6.0	746	7.9	21.0	8.4	95	2.7	240	78
MAY 18...	1555	320	428	8.0	21.0	7.2	83	3.8	150	44
JUN 22...	1415	9.0	629	8.0	27.5	6.8	87	2.5	210	37
AUG 03...	1340	.63	622	7.9	32.0	6.6	93	1.0	250	46

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)
DEC 08...	98	6.2	84	2.3	5.1	240	180	36	.7
JAN 20...	130	6.1	55	1.3	3.0	190	220	36	.5
APR 14...	87	5.0	64	1.8	4.2	160	170	32	.6
MAY 18...	57	2.9	25	.9	4.9	110	69	14	.5
JUN 22...	75	4.9	52	1.6	5.6	170	110	28	.5
AUG 03...	87	6.9	40	1.1	5.4	200	100	25	.5

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)
DEC 08...	6.2	561	--	<.020	.38	.080	.92	1.00	.050
JAN 20...	5.5	570	--	<.020	1.7	.180	.92	1.10	.030
APR 14...	2.6	462	1.5	.060	1.6	.150	.85	1.00	.040
MAY 18...	9.9	249	1.9	.070	2.0	.120	1.9	2.00	.140
JUN 22...	8.5	387	.24	.030	.27	.210	2.2	2.40	.090
AUG 03...	11	396	--	<.020	.45	.090	1.2	1.30	.040

## BRAZOS RIVER BASIN

08093500 AQUILLA CREEK NEAR AQUILLA, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	598.68	383	232	375	16	25	75	121	160
NOV.	1981	138.74	971	609	228	45	17	200	73	300
DEC.	1981	118.78	902	565	181	42	13	180	58	280
JAN.	1982	91.3	880	548	135	40	9.8	180	44	290
FEB.	1982	638.5	706	437	753	31	54	140	243	250
MAR.	1982	1008.9	579	355	966	25	67	110	312	220
APR.	1982	275.4	685	422	314	30	22	140	101	250
MAY	1982	9340.0	379	229	5770	15	384	74	1870	160
JUNE	1982	5998	346	208	3380	14	223	67	1090	150
JULY	1982	458.6	402	243	301	16	20	79	97	170
AUG.	1982	6.54	686	422	7.5	30	0.5	140	2.4	250
SEPT	1982	0.00	*	*	0.00	*	0.00	*	0.00	*
TOTAL		18673.44	**	**	12400	**	836	**	4010	**
WTD. AVG.		51	406	246	**	17	**	80	**	170

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	749	969	976	1100	695	696	733	371	352	651	
2	---	752	940	616	1110	728	688	669	414	372	661	
3	---	800	840	700	873	738	698	615	462	398	669	
4	---	817	839	793	931	740	697	611	456	415	674	
5	---	829	877	735	949	747	683	602	427	396	682	
6	400	838	903	759	962	706	725	538	482	430	683	
7	293	843	958	902	933	734	703	508	547	434	682	
8	340	838	1010	618	929	732	712	504	539	440	691	
9	386	764	1040	750	908	738	719	471	510	458	698	
10	414	844	1030	885	929	732	725	462	520	470	702	
11	442	811	1080	744	952	725	713	476	540	483	728	
12	430	918	1120	571	956	718	730	493	517	466	744	
13	385	883	576	790	941	721	737	421	549	457	753	
14	387	886	640	860	915	724	740	511	533	477	751	
15	415	902	1070	976	892	718	738	498	514	478	739	
16	429	924	1000	791	888	734	736	508	581	492	724	
17	566	962	600	952	885	762	732	293	549	512	712	
18	383	980	750	930	881	766	747	452	531	515	710	
19	403	975	1080	916	878	763	754	379	533	528	711	
20	444	980	1100	900	876	755	765	327	537	531	714	
21	477	1000	1120	880	886	461	771	328	595	546	715	
22	310	1030	1150	921	889	424	764	341	603	556	717	
23	611	1020	1170	923	884	498	751	382	585	566	---	
24	713	1030	1190	891	885	649	848	337	311	576	---	
25	720	1030	1210	884	883	677	839	390	285	590	---	
26	772	1080	1240	869	518	702	800	327	324	597	---	
27	737	1040	1260	935	550	601	741	353	329	599	---	
28	714	1080	1320	996	642	539	693	337	332	609	---	
29	707	1060	1420	975	---	667	350	341	334	619	---	
30	916	993	1370	927	---	735	612	370	338	627	---	
31	804	---	1430	924	---	710	---	393	---	636	---	
MEAN	523	922	1040	848	887	688	720	451	472	504	705	

## BRAZOS RIVER BASIN

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08093500 AQUILLA CREEK NEAR AQUILLA, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

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

## BRAZOS RIVER BASIN

08094800 NORTH BOSQUE RIVER AT HICO, TX

LOCATION.--Lat 31°58'41", long 98°02'04", Hamilton County, Hydrologic Unit 1206020204, on left bank at downstream side of bridge on U.S. Highway 281 near south boundary of Hico, 2.6 mi (4.2 km) downstream from Gilmore Creek, 5.0 mi (8.0 km) upstream from Honey Creek, and 92.4 mi (148.7 km) upstream from mouth.

DRAINAGE AREA.--359 mi<sup>2</sup> (930 km<sup>2</sup>).

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 982.46 ft (299.454 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow is affected at times by discharge from flood-detention pools of 40 floodwater-retarding structures with combined detention capacity of 65,720 acre-ft (81.0 hm<sup>3</sup>). These structures control runoff from 202 mi<sup>2</sup> (523 km<sup>2</sup>) in North Bosque River and Green Creek drainage basins. Records furnished by the city of Stephenville show that during the year 1,060 acre-ft (1.31 hm<sup>3</sup>) of sewage effluent was discharged into river above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years (water years 1963-82), 40.8 ft<sup>3</sup>/s (1.155 m<sup>3</sup>/s), 29,560 acre-ft/yr (36.4 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,900 ft<sup>3</sup>/s (564 m<sup>3</sup>/s) Apr. 30, 1977, gage height, 22.27 ft (6.788 m), from rating curve extended above 9,000 ft<sup>3</sup>/s (255 m<sup>3</sup>/s); no flow at times in 1962-65, 1967-68, 1971, 1974, 1976, and 1978-82.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 27.6 ft (8.41 m) May 23, 1952, from floodmarks, discharge 87,800 ft<sup>3</sup>/s (2,490 m<sup>3</sup>/s) by contracted-opening measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,780 ft<sup>3</sup>/s (50.4 m<sup>3</sup>/s) May 6 at 0715 hours, gage height, 7.37 ft (2.246 m), no peak above base of 2,500 ft<sup>3</sup>/s (70.8 m<sup>3</sup>/s); no flow for many days

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	131	1.6	2.2	8.0	4.9	3.3	4.9	19	111	4.3	1.1
2	.00	116	2.4	2.1	4.9	4.1	2.7	2.9	17	74	4.5	1.5
3	.00	32	2.4	2.3	4.0	3.6	2.5	2.4	15	49	3.8	.94
4	.00	10	1.9	2.3	3.5	3.2	1.9	2.0	13	35	3.8	.69
5	.00	4.9	1.8	2.4	3.4	3.2	2.4	1.8	12	28	3.9	.62
6	.00	3.0	1.5	2.4	3.4	3.2	2.2	657	11	22	3.7	.69
7	.00	2.4	1.2	2.4	3.1	4.2	1.9	98	9.7	19	3.7	.61
8	.00	2.6	.99	2.1	2.8	4.3	1.6	43	9.0	18	3.4	.50
9	.00	4.1	.91	2.1	2.8	3.4	1.3	27	8.9	18	3.7	.43
10	.00	2.8	.99	2.1	3.0	3.0	1.3	19	8.6	18	3.4	.33
11	.00	2.4	1.1	2.1	3.0	2.9	1.6	15	9.9	15	3.2	.38
12	.00	2.0	.99	2.3	3.0	2.8	1.9	16	166	24	3.6	.57
13	5.4	1.8	.83	2.4	3.0	2.7	2.3	644	57	38	3.3	.77
14	352	1.6	.91	2.6	3.0	3.2	1.9	301	29	38	2.8	.88
15	115	1.2	.83	2.8	3.0	8.0	1.5	132	49	24	2.3	.82
16	116	.99	1.2	5.0	3.0	6.9	1.4	68	273	17	2.3	.83
17	82	.91	1.3	4.5	3.0	4.6	1.2	62	67	15	2.3	1.7
18	26	.91	1.3	3.4	2.9	3.6	1.2	41	121	12	2.3	2.1
19	10	.69	1.3	3.2	2.9	3.1	1.2	24	109	10	2.5	1.5
20	3.9	.50	1.3	3.0	2.9	2.8	1.4	16	84	9.7	2.4	1.2
21	2.4	.44	1.4	2.6	2.8	3.8	1.6	13	218	9.2	1.7	.86
22	3.4	.62	1.3	2.6	2.8	3.5	3.3	166	154	12	1.6	.67
23	28	.76	1.2	2.8	2.7	5.8	4.7	603	67	13	1.5	.59
24	10	.62	1.2	2.6	2.8	4.6	6.7	270	337	11	1.5	.56
25	3.7	.56	1.2	2.4	5.7	3.9	3.7	169	761	9.0	1.2	.56
26	2.4	.83	1.2	2.6	18	3.3	3.0	101	301	8.4	1.1	.42
27	1.6	.76	1.2	2.6	16	3.2	2.9	101	436	7.0	1.1	.19
28	1.2	.69	1.3	2.4	7.2	3.4	2.0	107	271	8.5	.99	.47
29	.91	.99	1.5	2.4	---	3.8	2.8	56	269	11	1.1	.49
30	.69	1.4	1.9	2.6	---	3.9	2.2	37	149	6.8	1.1	.53
31	.83	---	2.0	4.1	---	3.6	---	25	---	5.0	1.1	---
TOTAL	765.43	329.47	42.15	83.4	126.6	120.5	69.6	3825.0	4051.1	695.6	79.19	23.50
MEAN	24.7	11.0	1.36	2.69	4.52	3.89	2.32	123	135	22.4	2.55	.78
MAX	352	131	2.4	5.0	18	8.0	6.7	657	761	111	4.5	2.1
MIN	.00	.44	.83	2.1	2.7	2.7	1.2	1.8	8.6	5.0	.99	.19
AC-FT	1520	654	84	165	251	239	138	7590	8040	1380	157	47
CAL YR 1981	TOTAL	2318.36	MEAN	6.35	MAX	457	MIN	.00	AC-FT	4600		
WTR YR 1982	TOTAL	10211.54	MEAN	28.0	MAX	761	MIN	.00	AC-FT	20250		



## 08095000 NORTH BOSQUE RIVER NEAR CLIFTON, TX

LOCATION.--Lat 31°47'09", long 97°34'04", Bosque County, Hydrologic Unit 12060204, near right bank on downstream side of bridge on Farm Road 219, 0.5 mi (0.8 km) northeast of Clifton, 2.5 mi (4.0 km) downstream from Meridian Creek, and 42.0 mi (67.6 km) upstream from mouth.

DRAINAGE AREA.--968 mi<sup>2</sup> (2,507 km<sup>2</sup>).

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1312.

REVISED RECORDS.--WSP 788: 1924-26, 1928, 1930. WSP 1058: 1945(M). WSP 1512: 1924(M), 1927, 1928(M), 1929, 1930(M), 1931-33, 1934(M), 1935-37, 1939. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 605.43 ft (184.535 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1955, and from Apr. 23, 1957, to Mar. 26, 1958, nonrecording gage at site 1.1 mi (1.8 km) upstream at datum 17.02 ft (5.188 m) higher; Oct. 1, 1955, to Apr. 22, 1957, and Mar. 27, 1958, to Sept. 30, 1959, water-stage recorder (destroyed by floods of Apr. 27, 1957, and Oct. 4, 1959); and Oct. 1, 1959, to Jan. 1, 1961, nonrecording gage at present site and datum.

REMARKS.--Records good. The city of Clifton diverts water from the river upstream from this station for municipal use. The cities of Clifton and Meridian discharge sewage effluent into the river upstream and downstream respectively, from the station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08094800. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--44 years (water years 1924-67) unregulated, 195 ft<sup>3</sup>/s (5.522 m<sup>3</sup>/s), 141,300 acre-ft/yr (174 hm<sup>3</sup>/yr); 15 years (water years 1968-82) regulated, 177 ft<sup>3</sup>/s (5.013 m<sup>3</sup>/s), 128,200 acre-ft/yr (158 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 92,800 ft<sup>3</sup>/s (2,630 m<sup>3</sup>/s) Oct. 4, 1959, gage height, 34.88 ft (10.631 m), from rating curve extended above 34,000 ft<sup>3</sup>/s (963 m<sup>3</sup>/s) on basis of contracted-opening measurement of 92,800 ft<sup>3</sup>/s (2,630 m<sup>3</sup>/s); no flow at times.

Maximum stage since at least 1854, that of Oct. 4, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 9, 1922, reached a stage of about 32 ft (9.8 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,100 ft<sup>3</sup>/s (286 m<sup>3</sup>/s) May 6 at 1200 hours, gage height, 14.37 ft (4.380 m), no other peak above base of 8,300 ft<sup>3</sup>/s (235 m<sup>3</sup>/s); minimum daily, 1.4 ft<sup>3</sup>/s (0.040 m<sup>3</sup>/s) Sept. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	24	13	10	22	99	77	319	207	443	18	3.0
2	11	37	12	10	23	79	92	778	169	301	17	2.7
3	12	156	13	12	23	67	108	333	143	223	14	2.5
4	12	90	12	15	22	57	66	188	123	158	12	2.3
5	12	55	12	12	25	51	57	128	107	121	11	2.3
6	14	41	12	11	22	45	47	4690	95	96	11	2.2
7	20	33	13	12	20	44	42	1380	85	79	9.9	2.1
8	18	33	13	12	19	44	40	642	73	67	9.9	1.9
9	16	38	13	12	19	44	38	406	63	58	9.6	2.0
10	16	46	13	12	18	43	38	291	56	48	9.7	2.0
11	18	34	15	12	18	43	41	238	52	41	10	1.9
12	20	27	15	13	18	41	42	209	74	48	9.6	1.8
13	22	24	13	15	17	40	39	390	390	207	9.1	1.7
14	30	20	14	17	16	40	37	1260	237	152	9.9	1.9
15	248	19	14	18	16	40	35	714	139	117	9.1	2.2
16	147	17	14	19	16	57	34	464	189	107	8.2	2.2
17	126	15	14	18	16	53	32	350	406	77	7.8	2.1
18	124	14	14	18	15	52	29	549	219	57	7.6	2.0
19	69	13	14	18	15	47	26	507	313	44	7.3	1.9
20	49	12	14	19	15	42	26	331	366	37	7.1	1.7
21	40	12	14	22	15	554	34	284	248	32	6.8	1.5
22	49	13	12	20	14	334	34	291	334	28	6.9	1.5
23	216	14	10	19	14	181	55	2270	299	24	6.3	1.5
24	96	13	9.8	24	14	112	68	1860	480	22	4.8	1.6
25	70	13	9.7	20	17	88	122	1040	1020	25	3.6	1.5
26	49	14	10	17	381	73	107	1110	1160	30	3.9	1.5
27	39	14	10	16	311	76	86	719	598	25	4.2	1.4
28	33	11	10	14	148	90	64	504	702	23	3.7	1.6
29	29	10	10	14	---	96	296	591	549	22	3.8	1.8
30	26	12	10	18	---	93	165	387	495	20	3.4	1.8
31	26	---	10	22	---	87	---	271	---	18	3.3	---
TOTAL	1667	874	382.5	491	1289	2812	1977	23494	9391	2750	258.5	58.1
MEAN	53.8	29.1	12.3	15.8	46.0	90.7	65.9	758	313	88.7	8.34	1.94
MAX	248	156	15	24	381	554	296	4690	1160	443	18	3.0
MIN	10	10	9.7	10	14	40	26	128	52	18	3.3	1.4
AC-FT	3310	1730	759	974	2560	5580	3920	46600	18630	5450	513	115
CAL YR 1981	TOTAL	25063.0	MEAN	68.7	MAX	9140	MIN	4.4	AC-FT	49710		
WTR YR 1982	TOTAL	45444.1	MEAN	125	MAX	4690	MIN	1.4	AC-FT	90140		

## BRAZOS RIVER BASIN

08095200 NORTH BOSQUE RIVER AT VALLEY MILLS, TX

LOCATION.--Lat 31°40'10", long 97°28'09", Bosque County, Hydrologic Unit 12060204, on right bank at downstream side of bridge on Farm Road 56, about 0.8 mi (1.3 km) downstream from Thompson Hollow, 0.8 mi (1.3 km) north of intersection of State Highway 6 and Farm Road 56 in Valley Mills, and 28.0 mi (45.1 km) upstream from mouth.

DRAINAGE AREA.--1,146 mi<sup>2</sup> (2,968 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 524.55 ft (159.883 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 29, 1959, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Flow is affected at times by discharge from the flood-detention pools of 42 floodwater-retarding structures with a combined detention capacity of 66,800 acre-ft (82.4 hm<sup>3</sup>). These structures control runoff from 207 mi<sup>2</sup> (536 km<sup>2</sup>). Several small diversions above station.

AVERAGE DISCHARGE.--8 years (water years 1960-67) unregulated, 263 ft<sup>3</sup>/s (7.448 m<sup>3</sup>/s), 190,500 acre-ft/yr (235 hm<sup>3</sup>/yr); 15 years (water years 1968-82) regulated, 220 ft<sup>3</sup>/s (6.230 m<sup>3</sup>/s), 159,400 acre-ft/yr (197 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107,000 ft<sup>3</sup>/s (3,030 m<sup>3</sup>/s) Oct. 4, 1959, gage height, 40.22 ft (12.259 m), from floodmark, from rating curve extended above 28,200 ft<sup>3</sup>/s (799 m<sup>3</sup>/s) on basis of slope-area measurement of 107,000 ft<sup>3</sup>/s (3,030 m<sup>3</sup>/s); no flow Oct. 5-12, 1965.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1868, 43 ft (13.1 m) in May 1908. Floods in September 1936 and April 1945 reached a stage of about 38 ft (11.6 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,900 ft<sup>3</sup>/s (337 m<sup>3</sup>/s) May 6 at 1500 hours, gage height, 22.5 ft/s (6.86 m), from floodmark, no other peak above base of 8,500 ft<sup>3</sup>/s (241 m<sup>3</sup>/s); minimum daily, 4.4 ft<sup>3</sup>/s (0.12 m<sup>3</sup>/s) Sept. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	35	26	22	33	152	114	242	261	479	27	6.4
2	17	31	25	23	35	117	107	744	216	316	27	6.1
3	16	175	24	24	35	98	156	401	190	231	25	6.6
4	17	157	25	25	33	84	105	223	170	171	22	5.4
5	16	96	26	26	35	73	92	153	152	134	20	4.6
6	17	68	23	23	36	67	80	5490	138	111	18	5.0
7	40	53	25	20	33	62	71	1770	126	98	17	5.4
8	42	58	25	21	32	59	71	713	116	88	15	5.7
9	29	59	25	22	31	62	65	465	106	80	16	5.5
10	26	68	26	21	29	61	67	318	99	70	15	5.0
11	27	67	27	20	28	57	71	254	94	62	15	4.6
12	30	49	26	20	27	56	71	226	116	62	15	4.6
13	42	44	25	23	27	55	67	270	362	249	13	5.1
14	45	40	25	29	26	56	63	1270	286	148	13	5.8
15	270	34	26	31	26	54	60	743	175	126	13	5.3
16	256	32	26	33	25	63	57	495	139	104	13	5.1
17	163	30	26	31	25	76	55	359	482	86	13	5.3
18	212	29	25	32	25	68	52	542	264	70	12	5.5
19	117	28	24	32	25	65	49	619	264	59	11	5.9
20	77	23	24	32	24	57	46	377	494	51	10	5.8
21	57	22	26	34	23	1020	53	281	291	46	9.6	5.8
22	62	23	26	38	24	702	62	304	308	42	9.2	5.2
23	291	21	25	34	25	333	75	2150	371	38	8.2	5.0
24	183	22	24	32	25	190	87	2180	298	35	8.3	4.8
25	114	22	23	35	27	143	149	1240	1260	34	8.0	4.9
26	82	20	23	29	401	118	130	1280	1450	39	7.9	4.4
27	63	20	24	27	555	118	110	936	698	35	7.5	4.4
28	50	20	24	25	242	138	90	623	760	33	7.0	4.7
29	42	23	23	24	---	136	289	684	600	32	6.6	4.9
30	37	25	24	30	---	139	212	494	538	33	6.8	5.1
31	35	---	24	36	---	131	---	345	---	30	6.4	---
TOTAL	2493	1394	770	854	1912	4610	2776	26191	10824	3192	415.5	157.9
MEAN	80.4	46.5	24.8	27.5	68.3	149	92.5	845	361	103	13.4	5.26
MAX	291	175	27	38	555	1020	289	5490	1450	479	27	6.6
MIN	16	20	23	20	23	54	46	153	94	30	6.4	4.4
AC-FT	4940	2760	1530	1690	3790	9140	5510	51950	21470	6330	824	313
CAL YR 1981	TOTAL	49945.0	MEAN 137	MAX 20600	MIN 8.7	AC-FT 99070						
WTR YR 1982	TOTAL	55589.4	MEAN 152	MAX 5490	MIN 4.4	AC-FT 110300						

## BRAZOS RIVER BASIN

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08095200 NORTH BOSQUE RIVER AT VALLEY MILLS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 04...	0830	136	396	7.9	14.0	15	23	8.9	86	1.4	170
DEC 08...	1500	25	507	7.2	16.0	5	2.0	11.6	118	.8	220
MAR 09...	1610	46	442	7.7	15.0	5	4.0	13.4	135	1.2	200
APR 13...	1535	64	420	7.5	23.0	5	3.5	12.4	148	1.0	190
JUN 22...	1650	200	420	8.3	29.0	20	20	8.4	111	1.8	180
AUG 25...	0855	8.1	411	7.5	27.5	10	2.5	6.0	77	1.6	160

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	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 04...	0	57	5.8	14	.5	5.1	170	9.0	12	.2	10
DEC 08...	21	79	5.7	19	.6	2.9	200	30	17	.3	5.1
MAR 09...	18	69	6.3	17	.5	3.2	180	27	15	.2	4.0
APR 13...	20	66	6.1	17	.6	2.4	170	32	17	.3	3.6
JUN 22...	15	59	6.8	15	.5	4.7	160	22	16	.3	10
AUG 25...	0	52	6.5	25	.9	1.7	160	27	18	.3	11

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 04...	215	30	7	.73	.030	.76	.120	.57	.69	.110	4.2
DEC 08...	279	9	7	--	<.020	.95	.090	.49	.58	.050	1.9
MAR 09...	250	9	8	--	<.020	.59	.330	.36	.69	.080	5.2
APR 13...	247	5	<2	--	<.020	.14	.120	.45	.57	.030	3.6
JUN 22...	230	31	14	.38	.020	.40	.100	2.5	2.60	.100	6.2
AUG 25...	238	5	<1	--	<.020	.10	.160	.84	1.00	.040	3.5

## BRAZOS RIVER BASIN

08095200 NORTH BOSQUE RIVER AT VALLEY MILLS, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 08...	1500	1	60	<1	<10	3	<10
MAR 09...	1610	1	100	<1	<10	<1	6
JUN 22...	1650	3	59	<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 08...	<1	6	<.1	<1	<1	12
MAR 09...	<1	7	<.1	<1	<1	<4
JUN 22...	<1	3	.1	<1	<1	<3

## BRAZOS RIVER BASIN

311

08095300 MIDDLE BOSQUE RIVER NEAR MCGREGOR, TX

LOCATION.--Lat 31°30'33", long 97°21'56", McLennan County, Hydrologic Unit 12060203, on downstream side of bridge on county road, 1,100 ft (335 m) downstream from Pecan Creek, 5.2 mi (8.4 km) northeast of McGregor, and 7.4 mi (11.9 km) upstream from mouth.

DRAINAGE AREA.--182 mi<sup>2</sup> (471 km<sup>2</sup>).

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 530.51 ft (161.699 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1959, nonrecording gage at same site and datum.

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

AVERAGE DISCHARGE.--23 years, 83.9 ft<sup>3</sup>/s (2.376 m<sup>3</sup>/s), 60,790 acre-ft/yr (75.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,300 ft<sup>3</sup>/s (943 m<sup>3</sup>/s) Oct. 31, 1974, gage height, 24.62 ft (7.504 m); no flow at times in 1960-64, 1967, 1971, 1978-79, and 1981-82.

EXTREMES OUTSIDE PERIOD OF RECORD.--Historical flood information begins with a flood in 1889, which reached a stage of 28.5 ft (8.69 m). A flood in 1957 reached a stage of 28.2 ft (8.60 m); and floods in 1913 and 1942 or 1943 reached a stage of about 28 ft (8.5 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,500 ft<sup>3</sup>/s (127 m<sup>3</sup>/s) Mar. 21 at 1800 hours, gage height, 7.85 ft (2.393 m), no peak above base of 8,000 ft<sup>3</sup>/s (227 m<sup>3</sup>/s); no flow Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	39	24	9.8	14	30	86	56	36	9.0	.29	.08
2	2.2	33	19	9.8	13	28	88	53	32	6.9	.25	.08
3	1.9	31	18	9.8	12	27	79	46	32	5.3	.22	.05
4	1.8	30	16	9.2	10	26	67	42	30	4.4	.22	.03
5	1.7	29	15	9.2	10	24	68	39	27	3.8	.22	.03
6	1.7	28	14	9.2	10	23	59	92	25	3.5	.22	.03
7	4.1	25	15	8.9	10	22	55	75	23	2.8	.22	.03
8	5.1	31	15	8.1	10	21	57	49	20	2.6	.22	.03
9	5.2	55	15	8.1	10	21	53	42	18	2.4	.27	.03
10	4.5	37	15	8.1	10	21	53	40	17	1.9	.29	.03
11	5.6	32	15	7.2	9.4	21	58	40	15	1.5	.29	.03
12	5.5	30	15	7.9	8.6	21	52	40	21	1.5	.29	.03
13	9.3	29	16	10	8.6	20	48	303	22	21	.29	.07
14	68	28	20	11	8.3	20	44	195	18	18	.29	.08
15	30	27	17	11	8.1	20	44	89	14	7.5	.28	.06
16	20	25	16	12	8.1	20	44	78	12	5.5	.16	.07
17	19	24	15	11	8.1	19	39	229	12	3.8	.16	.08
18	25	23	13	11	8.1	18	33	152	14	2.9	.22	.08
19	24	22	13	11	7.7	17	35	147	14	2.1	.29	.08
20	20	19	13	11	7.2	17	37	88	12	1.7	.16	.10
21	19	18	13	11	7.0	1020	33	78	46	1.2	.11	.07
22	30	18	14	11	6.7	419	54	77	17	.88	.11	.03
23	59	18	12	10	6.7	145	65	69	13	.77	.08	.03
24	39	19	11	9.2	6.7	112	79	92	12	.69	.08	.03
25	35	18	10	9.1	8.1	91	113	86	19	.57	.08	.03
26	31	18	10	8.6	128	75	59	81	17	.56	.08	.03
27	28	17	10	8.1	59	124	50	60	13	.43	.08	.02
28	26	16	10	7.6	35	161	47	55	12	.37	.08	.00
29	25	21	10	7.6	---	116	128	52	9.7	.37	.08	.00
30	28	24	9.8	11	---	116	65	46	10	.37	.08	.00
31	57	---	9.8	13	---	101	---	39	---	.29	.08	---
TOTAL	633.8	784	438.6	299.5	448.4	2916	1792	2630	582.7	114.60	5.79	1.34
MEAN	20.4	26.1	14.1	9.66	16.0	94.1	59.7	84.8	19.4	3.70	.19	.045
MAX	68	55	24	13	128	1020	128	303	46	21	.29	.10
MIN	1.7	16	9.8	7.2	6.7	17	33	39	9.7	.29	.08	.00
AC-FT	1260	1560	870	594	889	5780	3550	5220	1160	227	11	2.7
CAL YR 1981	TOTAL	24681.90	MEAN	67.6	MAX	8460	MIN	1.7	AC-FT	48960		
WTR YR 1982	TOTAL	10646.73	MEAN	29.2	MAX	1020	MIN	.00	AC-FT	21120		

## BRAZOS RIVER BASIN

08095400 HOG CREEK NEAR CRAWFORD, TX

LOCATION.--Lat 31°33'20", long 97°21'22", McLennan County, Hydrologic Unit 12060203, on downstream side of bridge on Farm Road 185, 5.6 mi (9.0 km) east of Crawford, and 9.8 mi (15.8 km) upstream from South Bosque River.

DRAINAGE AREA.--78.2 mi<sup>2</sup> (203 km<sup>2</sup>).

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

REVISED RECORDS.--WSP 1922: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 560.54 ft (170.853 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 27, 1959, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow is affected at times by discharge from flood-detention pool of two floodwater-retarding structure with detention capacity of 9,600 acre-ft (11.9 hm<sup>3</sup>). These structure controls runoff from 42.0 mi<sup>2</sup> (108.8 km<sup>2</sup>) in the Hog Creek drainage basin. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--23 years, 35.3 ft<sup>3</sup>/s (1,000 m<sup>3</sup>/s), 25,600 acre-ft/yr (31.6 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,400 ft<sup>3</sup>/s (436 m<sup>3</sup>/s) Oct. 4, 1959, gage height, 14.31 ft (4.362 m); no flow at times in 1959, 1963-64, 1971, and 1978-79.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1900, 17.5 ft (5.33 m) Sept. 26, 1936. Flood in April or May 1957 reached a stage of 15.7 ft (4.79 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,350 ft<sup>3</sup>/s (38.2 m<sup>3</sup>/s) Mar. 21 at 1600 hours, gage height, 5.12 ft (1.561 m); minimum daily, 0.02 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Sept. 13, 14, 17, 18, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.46	7.2	7.0	1.5	7.2	13	35	33	18	5.9	.51	.04
2	.49	11	7.4	1.5	7.3	11	34	28	17	3.6	.38	.04
3	.48	8.3	6.3	1.7	6.5	10	30	24	17	3.1	.31	.04
4	.40	6.8	5.1	2.0	5.9	8.9	27	22	17	2.7	.30	.06
5	.40	6.4	4.5	1.9	5.6	8.1	25	20	15	2.2	.28	.06
6	.47	6.1	4.3	1.7	5.0	7.9	23	34	12	1.9	.27	.05
7	1.3	5.7	4.2	1.6	4.5	7.3	22	40	11	1.6	.29	.05
8	1.0	7.5	4.0	1.5	4.5	6.8	22	31	9.3	1.4	.30	.03
9	1.3	13	3.7	1.5	4.7	6.7	20	25	8.6	1.2	.31	.04
10	1.1	16	3.7	1.4	4.5	6.4	21	22	7.7	.92	.28	.03
11	1.3	13	3.7	1.1	4.5	6.2	22	21	7.0	.79	.26	.03
12	1.3	11	3.6	1.3	4.4	6.3	21	20	9.3	1.7	.28	.03
13	1.8	9.3	4.2	1.5	4.1	6.2	19	36	11	6.4	.24	.02
14	24	8.5	4.0	1.9	3.9	6.4	18	34	9.7	3.5	.16	.02
15	16	7.1	3.4	2.7	3.8	6.0	18	28	8.0	4.5	.15	.03
16	11	6.5	3.3	3.3	3.7	6.4	17	23	7.2	3.7	.14	.03
17	9.2	6.5	3.0	3.4	3.7	6.2	16	28	6.3	2.9	.16	.02
18	7.3	6.4	2.7	3.7	3.6	5.9	15	86	7.7	2.1	.20	.02
19	5.8	6.0	2.7	3.6	3.0	5.7	16	67	8.4	1.6	.15	.04
20	4.8	4.9	2.7	3.4	2.7	5.4	15	38	7.8	1.5	.15	.08
21	4.3	5.2	2.7	3.4	2.6	313	14	31	11	1.3	.17	.03
22	5.9	5.2	2.6	3.3	2.4	266	18	29	9.1	1.1	.16	.03
23	16	5.6	2.1	3.1	2.3	157	19	25	7.6	1.3	.16	.03
24	18	4.7	2.2	4.1	2.1	98	24	43	9.7	1.2	.15	.04
25	13	4.5	2.2	3.9	2.9	61	28	42	9.3	1.2	.11	.05
26	10	4.9	2.1	3.2	12	43	24	64	9.1	1.1	.07	.05
27	8.7	5.0	1.9	3.0	23	46	20	41	7.3	.91	.05	.03
28	7.7	4.9	1.9	3.0	16	52	27	33	5.7	.71	.04	.02
29	7.0	6.5	1.7	2.8	---	46	57	28	5.1	.59	.04	.02
30	7.3	7.1	1.7	4.0	---	43	42	24	4.7	.63	.04	.02
31	10	---	1.6	3.8	---	40	---	21	---	.56	.04	---
TOTAL	197.80	220.8	106.2	79.8	156.4	1311.8	709	1041	293.6	63.81	6.15	1.08
MEAN	6.38	7.36	3.43	2.57	5.59	42.3	23.6	33.6	9.79	2.06	.20	.036
MAX	24	16	7.4	4.1	23	313	57	86	18	6.4	.51	.08
MIN	.40	4.5	1.6	1.1	2.1	5.4	14	20	4.7	.56	.04	.02
AC-FT	392	438	211	158	310	2600	1410	2060	582	127	12	2.1
CAL YR 1981	TOTAL	13969.30	MEAN	38.3	MAX	2640	MIN	.22	AC-FT	27710		
WTR YR 1982	TOTAL	4187.44	MEAN	11.5	MAX	313	MIN	.02	AC-FT	8310		



## 08095550 WACO LAKE NEAR WACO, TX

LOCATION.--Lat 31°34'46", long 97°11'51", McLennan County, Hydrologic Unit 12060203, in intake structure at Waco Dam on Bosque River, at northwest edge of city limits of Waco, and 4.6 mi (7.4 km) upstream from mouth.

DRAINAGE AREA.--1,652 mi<sup>2</sup> (4,279 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1965 to current year. Prior to October 1970, published as Waco Reservoir.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--The lake is formed by a rolled earthfill dam 24,618 ft (7,504 m) long, including spillway. The lake was built for flood control and water conservation. From Oct. 1, 1964, to Feb. 26, 1965, the lake was operated as a detention basin only. On Feb. 26, 1965, old Lake Waco was breached and deliberate impoundment began. The spillway is controlled by fourteen 40.0- by 35.0-foot (12.2 by 10.7 m) tainter gates. The outlet works consists of three gate-controlled outlets, 6.7 by 20.0 ft (2.0 by 6.1 m), opening into a 20.0-foot-diameter 6.1 m concrete conduit and two 54-inch (1,370 mm) concrete pipes. Low-flow releases are made through two 54-inch (1,370 mm) butterfly valves. Flow into two wet wells is controlled by four 5.0- by 6.0-foot (1.5 by 1.8 m) slide gates that are used to release water downstream for the city of Waco municipal water supply. Capacity table No. 2C is based on a sedimentation survey completed in December 1970. Flow is affected at times by discharge from the flood-detention pools of 44 floodwater-retarding structures with a combined detention capacity of 76,460 acre-ft (94.3 hm<sup>3</sup>). These structures control runoff from 248 mi<sup>2</sup> (642 km<sup>2</sup>) in the Bosque River and Hog Creek drainage basins. 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.....	510.0	-
Design flood.....	505.0	824,400
Top of gates.....	500.0	722,500
Crest of spillway.....	465.0	229,900
Top of conservation pool.....	455.0	149,200
Lowest gated outlet (invert).....	400.0	560

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 292,100 acre-ft (360 hm<sup>3</sup>) May 15, 1968, elevation, 470.86 ft (143.518 m); minimum since initial filling, 92,880 acre-ft (115 hm<sup>3</sup>) Oct. 25, 1978, elevation, 446.28 ft (136.026 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 163,400 acre-ft (201 hm<sup>3</sup>) Mar. 22, elevation, 456.93 ft (139.272 m); minimum daily, 134,000 acre-ft (165 hm<sup>3</sup>) Sept. 30, elevation, 452.86 ft (138.032 m).

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

452.0	128,100	456.0	156,500
454.0	142,000	458.0	171,500

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138600	147000	149800	149600	150400	153400	153200	151100	149900	157200	150000	141700
2	138600	147100	149700	149700	150500	153800	153600	152300	148800	155800	149700	141500
3	138400	147200	149600	149700	150500	154000	153800	152000	148900	154400	149400	141200
4	138300	147600	149600	149700	150400	154100	154100	150100	149100	152700	149100	140900
5	138100	147800	149500	149600	150300	154200	154400	149600	149300	151500	148800	140700
6	138700	148000	149600	149600	150300	154300	154400	157700	149300	151500	148500	140500
7	139700	148100	149600	149400	150300	154300	154400	162400	149300	151400	148300	140300
8	140000	148500	149600	149300	150400	154400	154500	162600	149200	151400	148200	140000
9	139900	148700	149700	149300	150400	154400	154400	162000	149300	151100	148000	139700
10	139900	148800	149700	149100	150300	154600	153400	161200	149300	151000	147700	139400
11	139900	148800	149800	149000	150300	154700	151800	159700	149300	150900	147500	139100
12	140000	149000	149700	149100	150300	154900	150300	157400	149800	150900	147300	138800
13	141700	149100	149900	149200	150300	155100	149800	157600	150200	152200	147000	138600
14	142000	149200	150100	149300	150300	155200	149900	157700	150600	152400	146700	138400
15	142400	149300	150100	149500	150400	155100	150000	157300	150800	152500	146400	138100
16	142700	149300	150100	149600	150400	155200	150100	155000	151100	152500	146200	137900
17	143100	149400	150100	149500	150400	155400	150100	153900	151400	152400	145900	137600
18	143400	149600	149900	149400	150300	155600	150200	151400	152200	152300	145700	137300
19	143500	149400	149800	149300	150300	155600	150200	149800	152700	152200	145400	137000
20	143600	149400	149800	149300	150400	155800	150100	149300	153300	151900	145200	136700
21	143700	149300	150100	149300	150400	160500	150500	149400	154100	151800	144900	136500
22	144100	149300	150100	149200	150300	163400	151000	149300	154800	151700	144600	136200
23	144200	149300	149800	149200	150300	159100	151200	149400	155200	151500	144300	135900
24	144700	149300	149800	149100	150400	153000	151800	155800	156500	151400	144000	135600
25	144700	149400	149800	149000	150600	149700	152200	154700	157800	151100	143700	135400
26	144800	149300	149800	149200	150800	149900	151900	152600	159600	150900	143400	135100
27	144900	149300	149700	149300	151200	150800	151100	150700	159700	150800	143200	134800
28	145000	149500	149700	149500	152500	151300	150200	149200	160000	150700	142900	134500
29	145100	149700	149600	149600	---	151800	150300	149600	159200	150600	142600	134200
30	146100	149800	149600	150000	---	152400	150800	150500	158300	150400	142300	134000
31	146800	---	149600	150300	---	152800	---	151100	---	150200	142000	---
MAX	146800	149800	150100	150300	152500	163400	154500	162600	160000	157200	150000	141700
MIN	138100	147000	149500	149000	150300	149700	149800	149200	148800	150200	142000	134000
(†)	454.67	455.09	455.06	455.15	455.46	455.49	455.22	455.26	456.25	455.14	454.00	452.86
(‡)	+8000	+3000	-200	+700	+2200	+300	-2000	+300	+7200	-8100	-8200	-8000

CAL YR 1981 MAX 216200 MIN 115300 ‡ +31800  
WTR YR 1982 MAX 163400 MIN 134000 ‡ -4800

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

BRAZOS RIVER BASIN  
08095550 WACO LAKE NEAR WACO, TX--Continued  
WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1982 (discontinued).

313430097113801 WACO LAKE SITE AC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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											
28...	1230	1.00	320	8.0	9.0	.90	12.6	110	<1	K1	
28...	1231	1.40	--	--	--	--	--	--	--	--	
28...	1232	10.0	320	8.0	8.5	--	12.6	108	--	--	
28...	1234	20.0	320	8.0	8.5	--	12.2	104	--	--	
28...	1236	30.0	320	7.9	8.5	--	11.8	101	--	--	
28...	1238	40.0	320	7.9	8.5	--	11.0	94	--	--	
28...	1240	50.0	320	7.9	8.5	--	10.8	92	--	--	
28...	1242	60.0	320	7.9	8.5	--	10.8	92	--	--	
28...	1244	72.0	320	7.9	8.5	--	10.8	92	--	--	
MAY											
05...	1436	1.00	337	7.9	21.5	.90	8.1	93	<1	K8	
05...	1437	1.50	--	--	--	--	--	--	--	--	
05...	1438	10.0	337	7.9	21.5	--	8.1	93	--	--	
05...	1440	20.0	338	7.8	21.0	--	7.8	89	--	--	
05...	1442	30.0	340	7.7	19.5	--	7.2	79	--	--	
05...	1444	40.0	343	7.6	18.5	--	6.4	69	--	--	
05...	1446	50.0	343	7.6	18.5	--	6.3	68	--	--	
05...	1448	60.0	343	7.5	18.0	--	5.6	60	--	--	
05...	1450	70.0	343	7.5	18.0	--	5.6	60	--	--	
05...	1452	82.0	345	7.4	18.0	--	4.0	43	--	--	
AUG											
05...	0915	1.00	294	7.6	29.0	.90	6.7	87	<1	34	
05...	0916	1.50	--	--	--	--	--	--	--	--	
05...	0917	10.0	294	7.6	29.0	--	6.5	84	--	--	
05...	0919	20.0	294	7.6	29.0	--	6.5	84	--	--	
05...	0921	30.0	294	7.5	29.0	--	6.0	78	--	--	
05...	0923	40.0	294	7.4	29.0	--	5.9	77	--	--	
05...	0925	50.0	296	7.3	29.0	--	5.6	73	--	--	
05...	0927	60.0	308	6.9	28.5	--	.0	0	--	--	
05...	0929	70.0	311	6.9	28.0	--	.0	0	--	--	
05...	0931	80.0	329	6.8	27.5	--	.0	0	--	--	
DATE		HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN											
28...	140	18	49	3.7	13	.5	3.4	120	27	12	
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--	--
28...	140	18	49	3.7	13	.5	3.4	120	27	12	
MAY											
05...	140	13	51	3.8	13	.5	3.0	130	29	14	
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	150	18	53	3.9	13	.5	3.1	130	29	11	
AUG											
05...	120	7	40	4.2	14	.6	3.7	110	24	13	
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--	--	--
05...	130	0	44	4.3	14	.6	3.6	130	21	12	

BRAZOS RIVER BASIN  
WACO LAKE NEAR WACO, TX--Continued

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313430097113801 WACO LAKE SITE AC--Continued  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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									
28...	.3	9.3	190	.13	.60	.73	.010	21	7
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	.14	.57	.71	.020	30	30
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	--	9.2	190	.13	.81	.94	.080	86	61
MAY									
05...	.2	7.5	200	.23	.67	.90	<.010	<9	<3
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.29	.76	1.1	<.010	150	20
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	8.6	200	.33	.57	.90	.030	<9	61
AUG									
05...	.3	9.0	174	<.10	.60	--	.020	<3	7
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	<.10	.90	--	<.010	20	170
05...	--	--	--	.10	.90	1.0	.020	10	230
05...	--	--	--	--	--	--	--	--	--
05...	--	11	190	<.10	1.10	--	.050	300	1300

313511097122801 WACO LAKE SITE AL  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
28...	1304	1.00	320	8.0	8.5	12.2	104
28...	1306	10.0	320	8.0	8.5	12.4	106
28...	1308	20.0	320	8.0	8.5	12.2	104
28...	1310	30.0	320	8.0	8.5	12.4	106
28...	1312	38.0	320	8.0	9.0	10.6	92
MAY							
05...	1416	1.00	335	7.9	21.5	8.4	97
05...	1418	10.0	335	7.9	21.5	8.4	97
05...	1420	22.0	335	7.9	21.5	8.3	95
AUG							
05...	0845	1.00	292	7.7	29.0	7.0	91
05...	0847	10.0	292	7.7	29.0	6.9	90
05...	0849	20.0	292	7.6	29.0	6.9	90
05...	0851	29.0	292	7.5	28.5	6.8	87

BRAZOS RIVER BASIN  
WACO LAKE NEAR WACO, TX--Continued

313338097130301 WACO LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
28...	1203	1.00	322	8.0	9.0	11.1	97
28...	1205	10.0	322	7.9	8.5	11.0	94
28...	1207	20.0	322	7.9	8.5	10.9	93
28...	1209	31.0	322	7.9	9.0	10.8	94
MAY							
05...	1540	1.00	347	7.8	20.5	7.5	84
05...	1542	10.0	347	7.8	20.5	7.5	84
05...	1544	20.0	347	7.8	20.0	7.3	81
05...	1546	34.0	347	7.5	19.0	5.2	57
AUG							
05...	0950	1.00	296	7.5	29.0	6.0	78
05...	0952	10.0	296	7.5	29.0	5.8	75
05...	0954	20.0	296	7.5	29.0	5.8	75
05...	0956	32.0	296	7.5	29.0	6.0	78

313148097140601 WACO LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
28...	1144	1.00	322	7.9	9.0	.60	10.4
28...	1146	10.0	322	7.9	9.0	--	9.8
28...	1148	20.0	322	7.9	9.0	--	9.8
28...	1150	25.0	322	7.9	9.0	--	9.3
MAY							
05...	1605	1.00	354	7.7	20.5	.30	7.2
05...	1608	10.0	351	7.6	20.0	--	6.8
05...	1610	20.0	345	7.6	19.0	--	6.0
05...	1612	26.0	342	7.5	18.5	--	5.4
AUG							
05...	1010	1.00	298	7.4	29.0	.40	5.8
05...	1012	10.0	298	7.4	28.5	--	5.6
05...	1014	20.0	299	7.4	28.5	--	5.6
05...	1016	28.0	301	7.3	28.5	--	5.1

DATE	TIME	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN								
28...	90	.17	.68	.85	.010	20	<10	
28...	85	--	--	--	--	--	--	--
28...	85	--	--	--	--	--	--	--
28...	81	.15	.66	.81	.020	30	<10	
MAY								
05...	81	.44	.59	1.0	.040	30	10	
05...	76	--	--	--	--	--	--	--
05...	65	--	--	--	--	--	--	--
05...	58	.29	.65	.94	.040	20	<10	
AUG								
05...	75	<.10	.90	--	.020	30	20	
05...	72	--	--	--	--	--	--	--
05...	72	--	--	--	--	--	--	--
05...	65	<.10	1.00	--	.090	40	90	

## BRAZOS RIVER BASIN

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WACO LAKE NEAR WACO, TX--Continued

313534097142401 WACO LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
JAN										
28...	1330	1.00	326	8.0	10.5	.60	11.8	106	K1	K2
28...	1332	10.0	326	8.0	9.5	--	12.0	105	--	--
28...	1334	20.0	322	8.0	9.0	--	12.3	107	--	--
28...	1336	28.0	322	8.0	9.0	--	12.2	106	--	--
MAY										
05...	1640	1.00	339	7.9	22.5	.70	7.9	93	K8	K2
05...	1642	10.0	339	7.9	22.5	--	8.0	94	--	--
05...	1644	20.0	342	7.8	22.5	--	7.8	92	--	--
05...	1646	30.0	363	7.5	21.5	--	5.6	64	--	--
05...	1648	44.0	366	7.1	19.0	--	1.1	12	--	--
AUG										
05...	1030	1.00	295	7.7	30.0	.80	6.6	87	K2	K8
05...	1032	10.0	295	7.6	29.5	--	6.5	86	--	--
05...	1034	20.0	295	7.5	29.5	--	6.5	86	--	--
05...	1036	30.0	295	7.5	29.0	--	6.2	81	--	--
05...	1038	40.0	298	7.4	29.0	--	5.3	69	--	--

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)	AIKA- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
28...	140	11	50	3.8	13	.5	3.4	130	27
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	140	20	50	3.7	13	.5	3.4	120	27
MAY									
05...	140	13	51	3.9	13	.5	3.1	130	30
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	160	12	58	4.2	13	.5	3.1	150	27
AUG									
05...	120	8	40	4.4	14	.6	3.9	110	23
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	120	8	40	4.3	14	.6	3.7	110	24

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
28...	10	9.0	194	.13	.56	.69	.010	18	2
28...	--	--	--	.14	.59	.73	.020	40	10
28...	--	--	--	--	--	--	--	--	--
28...	10	9.3	189	.13	.59	.72	.020	16	4
MAY									
05...	15	7.3	201	.17	.56	.73	<.010	<9	<3
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.17	.60	.77	<.010	50	20
05...	--	--	--	--	--	--	--	--	--
05...	13	9.2	218	.36	.92	1.3	.050	36	100
AUG									
05...	13	9.1	174	<.10	.80	--	.030	6	4
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	<.10	1.10	--	.020	10	20
05...	--	--	--	--	--	--	--	--	--
05...	13	9.1	174	<.10	1.00	--	.050	<3	44

## BRAZOS RIVER BASIN

WACO LAKE NEAR WACO, TX--Continued

313608097164501 WACO LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
28...	1400	1.00	356	7.9	12.0	.60	11.2	104	K1	K3
28...	1401	1.00	--	--	--	--	--	--	--	--
28...	1402	10.0	342	7.9	10.0	--	11.5	102	--	--
28...	1404	17.0	331	7.9	9.5	--	11.8	104	--	--
MAY										
05...	1716	1.00	360	7.8	23.0	.40	7.7	92	K1	K1
05...	1717	.70	--	--	--	--	--	--	--	--
05...	1718	10.0	360	7.8	23.0	--	7.7	92	--	--
05...	1720	23.0	357	7.7	23.0	--	7.4	88	--	--
AUG										
05...	1105	1.00	308	7.5	30.0	.50	5.9	78	K1	20
05...	1106	.80	--	--	--	--	--	--	--	--
05...	1107	10.0	308	7.4	29.5	--	5.2	68	--	--
05...	1109	21.0	308	7.4	29.5	--	4.9	64	--	--

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- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
28...	150	12	54	4.2	15	.5	3.3	140	28
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--
28...	140	13	51	3.8	13	.5	3.5	130	28
MAY									
05...	160	25	55	4.4	14	.5	2.9	130	29
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	150	13	54	4.4	13	.5	2.9	140	29
AUG									
05...	130	13	45	4.9	14	.5	3.9	120	22
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	130	10	44	4.8	14	.6	3.8	120	23

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
28...	11	7.0	207	.15	.76	.91	.020	<10	3
28...	--	--	--	--	--	--	--	--	--
28...	--	--	--	.15	.63	.78	.010	20	10
28...	12	8.9	198	.14	.64	.78	.020	<10	4
MAY									
05...	14	7.1	205	.14	.94	1.1	.030	9	<3
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	.14	.64	.78	.030	<10	10
05...	12	7.2	207	.15	.91	1.1	.040	<9	11
AUG									
05...	15	9.8	187	<.10	.70	--	.040	<3	2
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	<.10	1.10	--	.060	10	10
05...	14	9.8	186	<.10	1.00	--	.050	<3	8



## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 28, 82 1231	MAY 5, 82 1437	AUG 5, 82 0916
TOTAL CELLS/ML	190	11000	35000
DIVERSITY: DIVISION	0.8	1.1	0.3
..CLASS	0.8	1.1	0.3
..ORDER	0.8	1.2	1.0
...FAMILY	0.8	1.2	1.0
....GENUS	1.8	1.4	1.1

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
...NITZSCHIAEAE						
....NITZSCHIA	--	-	* 0		* 0	
...EUPODISCALES						
...COSCINODISCAEAE						
....CYCLOTELLA	--	-	270 3		240 1	
....MELOSIRA	--	-	* 0		--	-
...FRAGILARIALES						
...FRAGILARIAEAE						
....SYNEDRA	43# 23		--	-	* 0	
...NAVICULES						
...NAVICULAEAE						
....NAVICULA	--	-	--	-	* 0	
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	--	-	* 0		--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	72# 38		* 0		--	-
....CLOSTERIOPSIS	--	-	67 1		--	-
....FRANCEIA	--	-	--	-	* 0	
....KIRCHNERIELLA	--	-	90 1		--	-
....OOCYSTIS	58# 31		90 1		* 0	
....SELENASTRUM	14 8		--	-	--	-
...SCENEDESMACEAE						
...GLOEOACTINIUM	--	-	--	-	* 0	
...SCENEDESMUS	--	-	--	-	* 0	
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	* 0		* 0	
...PHACOTACEAE						
....DYSMORPHOCOCCUS	--	-	* 0		--	-
....PHACOTUS	--	-	580 6		--	-
...ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	* 0	
CHRYSOPHYTA						
..CHRYSOPHYCEAE						
...OCHROMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	1000 10		--	-
...SYNURACEAE						
....MALLOMONAS	--	-	* 0		--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	* 0	
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	* 0		--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	180 2		1600 5	
....ANACYSTIS	--	-	8100# 76		190 1	
...NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	-	29000# 83	
...OSCILLATORIALES						
...OSCILLATORIAEAE						
....OSCILLATORIA	--	-	--	-	2700 8	
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	* 0	
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...DINOKONTAE						
...PERIDINIAEAE						
....PERIDINIUM	--	-	--	-	190 1	

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

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

BRAZOS RIVER BASIN  
WACO LAKE NEAR WACO, TX--Continued

313608097164501 WACO LAKE SITE EC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 28,82 1401	MAY 5,82 1717	AUG 5,82 1106			
TOTAL CELLS/ML	1000	8700	31000			
DIVERSITY: DIVISION	0.9	1.1	1.2			
..CLASS	0.9	1.1	1.2			
..ORDER	1.3	1.3	2.1			
...FAMILY	1.9	1.4	2.2			
....GENUS	1.9	1.8	2.3			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...ACHNANTHALES						
....ACHNANTHACEAE						
....ACHNANTHES	--	-	* 0	--	-	
...BACILLARIALES						
...NITZSCHIA	--	-	160	2	--	-
...EUPODISCALES						
...COSCINODISCAEAE						
....CYCLOTELLA	140	14	470	5	1200	4
...FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	220#	21	* 0		* 0	
...NAVICULALES						
...NAVICULACEAE						
....NEIDIUM	--	-	--	-	* 0	
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON	--	-	--	-	440	1
...DICTYOSPHAERIALES						
...DICTYOSPHAERIUM	--	-	55	1	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	440#	43	160	2	880	3
...KIRCHNERIELLA	--	-	* 0	--	-	
...OOCYSTIS	--	-	* 0	--	-	
...SELENASTRUM	--	-	* 0	--	-	
...PALMELLACEAE						
...SPHAEROCYSTIS	--	-	55	1	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	* 0	--	-	
...SCENEDESMUS	230#	22	140	2	440	1
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	2500	8
...CHLAMYDOMONAS	--	-	--	-	330	1
...PHACOTACEAE						
....PHACOTUS	--	-	55	1	--	-
CHRYSTOPHYTA						
..CHRYSTOPHYCEAE						
...OCHROMONADALES						
...DINOBRYACEAE						
....DINOBRYON	--	-	190	2	--	-
...OCHROMONADACEAE						
....OCHROMONAS	--	-	150	2	--	-
...SYNURACEAE						
...MALLOMONAS	--	-	* 0	--	-	
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	330	1
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	120	1	--	-

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

## BRAZOS RIVER BASIN

321

WACO LAKE NEAR WACO, TX--Continued

313608097164501 WACO LAKE SITE EC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 28, 82 1401		MAY 5, 82 1717		AUG 5, 82 1106	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	330	4	--	-
....ANACYSTIS	--	-	6400#	74	880	3
....GOMPHOSPHAERIA	--	-	140	2	--	-
..NOSTOCALES						
...NOSTOCACEAE						
....CYLINDROSPERMUM	--	-	--	-	5700#	18
..OSCILLATORIALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	17000#	55
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	*	0	990	3
....TRACHELOMONAS	--	-	69	1	330	1

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

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

## BRAZOS RIVER BASIN

08095600 BOSQUE RIVER NEAR WACO, TX

LOCATION.--Lat 31°36'04", long 97°11'36", McLennan County, Hydrologic Unit 12060203, on downstream side of bridge on Farm Road 1637, 1.8 mi (2.9 km) downstream from Waco Lake Dam, 2.8 mi (4.5 km) upstream from mouth, and 4.7 mi (7.6 km) northwest of courthouse in Waco.

DRAINAGE AREA.--1,656 mi<sup>2</sup> (4,289 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1959 to September 1981, October 1981 to September 1982 (daily mean discharges above 2,000 ft<sup>3</sup>/s or 56.6 m<sup>3</sup>/s only).

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 365.44 ft (111.386 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 21, 1960, nonrecording gage, and from Jan. 21 to Aug. 20, 1960, nonrecording gage below 11.38 ft (3.469 m) and water-stage recorder above. All gages at same site and datum. Dec. 30, 1959, to Aug. 29, 1967, auxiliary water-stage recorder 2.7 mi (4.3 km) downstream at datum 4.66 ft (1.420 m) lower. Since Aug. 30, 1967, auxiliary water-stage recorder 0.7 mi (1.1 km) downstream at datum 4.66 ft (1.420 m) lower.

REMARKS.--Water-discharge records poor. Backwater from the Brazos River affects the stage-discharge relationship. Daily mean discharges below 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) not determined. Flow is regulated by Waco Lake (see station 08095550). The city of Waco diverts water for municipal use upstream from station.

AVERAGE DISCHARGE.--22 years (water years 1960-81), 416 ft<sup>3</sup>/s (11.78 m<sup>3</sup>/s), 301,400 acre-ft/yr (372 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,000 ft<sup>3</sup>/s (1,950 m<sup>3</sup>/s) Oct. 4, 1959, gage height, 39.8 ft (12.13 m), from floodmark, from rating curve extended above 51,000 ft<sup>3</sup>/s (1,440 m<sup>3</sup>/s) on basis of computation of peak flow through gates at old Lake Waco; no flow at times in 1963-64, 1966-67, 1970, and 1972-79.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1880, 44.5 ft (13.56 m) Sept. 27, 1936, discharge 96,000 ft<sup>3</sup>/s (2,720 m<sup>3</sup>/s), from information by local resident. Maximum stage may be the result of backwater from the Brazos River because the discharges on Apr. 22, 1945, 140,000 ft<sup>3</sup>/s (3,960 m<sup>3</sup>/s), and Apr. 20, 1957, 103,000 ft<sup>3</sup>/s (2,920 m<sup>3</sup>/s), exceeded the discharge corresponding to the maximum stage. The discharges for the 1936, 1945, and 1957 floods were obtained from rating curve for tainter gates at old Lake Waco.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 3,410 ft<sup>3</sup>/s (96.6 m<sup>3</sup>/s) Mar. 24; maximum gage height, 14.91 ft (4.545 m) May 26 (backwater from Brazos River); minimum discharge not determined.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

Mar. 23.....2720	May 25.....2280
Mar. 24.....3410	May 26.....2400

## BRAZOS RIVER BASIN

323

08095600 BOSQUE RIVER NEAR WACO, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 28...	1530	10	335	8.2	10.5	20	5.2	10.8	97	.4	140
MAY 06...	0830	--	351	7.7	17.0	5	20	8.6	91	.7	160
AUG 05...	1200	--	365	7.5	30.0	10	.90	7.5	99	3.0	150

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- LINITY 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)
JAN 28...	21	50	3.8	14	.5	3.6	120	28	11	.3	9.2
MAY 06...	26	56	3.9	14	.5	3.1	130	29	16	.3	8.5
AUG 05...	17	52	4.2	14	.5	3.5	130	30	17	.3	10

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)
JAN 28...	192	19	0	--	<.020	.13	.060	.54	.60	.010	3.1
MAY 06...	209	7	1	.28	.020	.30	.130	.55	.68	.050	3.5
AUG 05...	209	2	<2	--	<.020	<.10	.080	1.3	1.40	.050	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 28...	1530	3	42	<1	<10	2	<10
MAY 06...	0830	2	45	<3	<10	1	<9
AUG 05...	1200	4	47	<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 28...	2	6	.2	<1	<1	<1
MAY 06...	1	7	<.1	<1	<1	<12
AUG 05...	<1	<1	<.1	1	<1	<3

## BRAZOS RIVER BASIN

08096500 BRAZOS RIVER AT WACO, TX

LOCATION.--Lat 31°32'06", long 97°04'22", McLennan County, Hydrologic Unit 12060202, on left bank 2.2 mi (3.5 km) downstream from bridge on La Salle Avenue and at mile 400.7 (644.7 km).

DRAINAGE AREA.--29,573 mi<sup>2</sup> (76,594 km<sup>2</sup>), approximately, of which 9,566 mi<sup>2</sup> (24,780 km<sup>2</sup>) probably is noncontributing.

PERIOD OF RECORD.--September 1898 to current year (January 1912 to September 1914 monthly records only, published in WSP 1312).

REVISED RECORDS.--WSP 850 and 878: 1899-1900, 1907-9 (monthly and yearly summaries only). WSP 1512: 1901-5, 1910, 1915, 1925-26(M), 1927-29. WSP 1922: 1957. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 349.34 ft (106.479 m) National Geodetic Vertical Datum of 1929. Sept. 14, 1898, to Mar. 28, 1918, May 6, 1922, to Feb. 12, 1925, nonrecording gage, and May 28, 1918, to May 5, 1922, Feb. 13, 1925, to Aug. 14, 1969, water-stage recorder. Prior to Aug. 14, 1969, at site 3.9 mi (6.3 km) upstream at datum 7.46 ft (2.274 m) higher.

REMARKS.--Records fair. Flow is largely regulated by Whitney and Waco Lakes (stations 08092500 and 08095550). Combined capacity of 18 reservoirs above station, 4,135,000 acre-ft (5.10 km<sup>3</sup>), of which 2,194,000 acre-ft (2.71 km<sup>3</sup>) is flood-control storage in Whitney and Waco Lakes. The city of Waco diverts water above station for municipal use, and the Brazos River Authority returns treated sewage effluent to river above station. Many other small diversions above station for municipal supply, irrigation, and oilfield operation will not appreciably affect flow. Several observations of water temperature were made during the year. Gage-height telemeter at station. Flow is affected at times by discharge from flood-detention pools of eleven floodwater-retarding structures with combined detention capacity of 6,420 acre-ft (7.92 km<sup>3</sup>). These structures control runoff from 20.4 mi<sup>2</sup> (52.8 km<sup>2</sup>) in the Aquilla and Hackberry Creeks drainage basins.

AVERAGE DISCHARGE.--42 years (water years 1899-1940) unregulated, 2,560 ft<sup>3</sup>/s (72.50 m<sup>3</sup>/s), 1,855,000 acre-ft/yr (2.29 km<sup>3</sup>/yr); 42 years (water years 1940-82) regulated, 2,273 ft<sup>3</sup>/s (64.37 m<sup>3</sup>/s), 1,647,000 acre-ft/yr (1.98 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 246,000 ft<sup>3</sup>/s (6,970 m<sup>3</sup>/s) Sept. 27, 1936, gage height, 40.90 ft (12.466 m), at former site and datum, levee on left bank was overtopped and broken by flood; no flow Aug. 20, 21, 1918, and probably for several days in August 1923.

Maximum stage since at least 1847, that of Sept. 27, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage for 1847-98, 34.63 ft (10.555 m) May 28, 1885, from floodmark at site 3.9 mi (6.3 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,300 ft<sup>3</sup>/s (773 m<sup>3</sup>/s) May 26 at 1115 hours, gage height, 21.44 ft (6.535 m); minimum daily, 48 ft<sup>3</sup>/s (1.36 m<sup>3</sup>/s) Apr. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222	5550	1100	120	1160	1860	801	333	24000	24700	1040	1610
2	128	6550	830	110	1160	898	668	1020	24200	24500	616	1100
3	98	22100	1800	130	1000	1050	596	1450	18700	24400	1220	322
4	365	24000	600	397	1420	744	599	1930	11500	24200	1200	197
5	608	22800	1200	272	1380	840	590	1020	6200	23800	1240	451
6	816	11600	990	150	2360	1280	950	1790	5560	22700	1080	266
7	1820	6200	420	253	2170	1220	1270	900	5430	22300	923	195
8	393	5700	260	771	820	1080	441	1160	5340	15600	403	323
9	165	5800	210	1410	1250	2080	236	922	5270	14300	685	348
10	125	5320	190	284	1710	1960	56	2130	5210	7300	647	116
11	157	5420	180	2530	1120	1240	48	1690	5170	5450	647	77
12	158	5240	780	1150	914	893	524	1570	3980	5590	779	305
13	847	4100	890	1190	1020	1300	569	2820	4930	6860	1090	292
14	4000	2860	410	1640	599	920	303	4530	5040	6210	945	759
15	5020	2420	880	433	321	559	540	5100	4960	6180	1900	402
16	21400	2830	2260	218	253	392	763	5090	5110	6070	1660	631
17	24500	2830	1700	3200	216	285	483	6700	4940	6390	302	814
18	21300	2720	2140	1910	317	257	274	6880	4970	6050	191	902
19	20100	2800	1990	579	559	501	261	7150	4940	4080	610	1190
20	24800	2590	1520	400	920	344	593	18700	4950	4570	249	247
21	24900	2860	1440	1980	569	1180	400	18500	5580	4610	450	518
22	23300	1420	1210	1520	356	4380	443	13200	19300	2960	1820	617
23	21700	610	750	2660	241	3840	403	12700	20900	2940	3020	651
24	25000	690	490	2520	417	4780	1480	13600	22100	2710	153	717
25	24500	660	350	2040	715	3660	475	23000	23100	2720	70	615
26	24100	560	220	1110	1880	2410	727	27000	23900	2610	425	726
27	23700	360	180	520	2480	2460	1650	26600	23200	2570	673	253
28	23300	560	170	409	1750	2560	1990	25900	23400	2670	1190	439
29	23100	800	160	724	---	1220	2110	24400	25700	2920	1170	524
30	22900	730	150	1410	---	1640	1160	23800	24900	2510	1420	644
31	12800	---	140	1370	---	860	---	23700	---	1760	1450	---
TOTAL	376322	158680	25610	33410	29077	48693	21403	305285	372480	292230	29268	16251
MEAN	12140	5289	826	1078	1038	1571	713	9848	12420	9427	944	542
MAX	25000	24000	2260	3200	2480	4780	2110	27000	25700	24700	3020	1610
MIN	98	360	140	110	216	257	48	333	3980	1760	70	77
AC-FT	746400	314700	50800	66270	57670	96580	42450	605500	738800	579600	58050	32230
CAL YR 1981	TOTAL	995495	MEAN	2727	MAX	25000	MIN	70	AC-FT	1975000		
WTR YR 1982	TOTAL	1708709	MEAN	4681	MAX	27000	MIN	48	AC-FT	3389000		



## BRAZOS RIVER BASIN

325

08098290 BRAZOS RIVER NEAR HIGHBANK, TX  
(National stream-quality accounting network)

LOCATION.--Lat 31°08'02", long 96°49'29", Falls County, Hydrologic Unit 12070101, near right bank 45 ft (14 m) downstream from bridge on Farm Road 413, 1.4 mi (2.3 km) downstream from Highbank Slough and Spring Branch, 2.6 mi (4.2 km) south of Highbank, and at mile 346.6 (557.7 km).

DRAINAGE AREA.--30,436 mi<sup>2</sup> (78,829 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 279.29 ft (85.128 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Many diversions for municipal supply, irrigation, and industrial use above gage (amount unknown). Flow is affected by 20 upstream reservoirs with a combined capacity of 4,181,000 acre-ft (5.16 km<sup>3</sup>). Water is diverted from river upstream from this station by Texas Power and Light Co. to Tradinghouse Reservoir and Lake Creek Reservoir. Flow is affected at times by discharge from the flood-detention pools of 76 floodwater-retarding structures with a combined detention capacity of 83,290 acre-ft (103 km<sup>3</sup>). These structures control runoff from 238 mi<sup>2</sup> (616 km<sup>2</sup>) in the Aquilla, Tehuacana, Castleman Creeks and Cow Bayou drainage basins. Gage-height telemeter at station.

AVERAGE DISCHARGE.--17 years, 2,664 ft<sup>3</sup>/s (75.44 m<sup>3</sup>/s), 1,930,000 acre-ft/yr (2.38 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,900 ft<sup>3</sup>/s (1,640 m<sup>3</sup>/s) May 11, 1968, gage height, 21.88 ft (6.669 m); minimum daily, 41 ft<sup>3</sup>/s (1.16 m<sup>3</sup>/s) July 12, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stages since at least 1909, 42 ft (12.8 m) in December 1913 and 40 ft (12.2 m) in September 1936, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,900 ft<sup>3</sup>/s (875 m<sup>3</sup>/s) May 28 at 0300 hours, gage height, 16.49 ft (5.026 m); minimum daily, 129 ft<sup>3</sup>/s (3.65 m<sup>3</sup>/s) Sept. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1150	11600	1640	256	1600	2020	1210	1700	26400	25000	1700	1610
2	807	5130	589	253	1470	2110	1010	746	27200	24500	908	1760
3	444	9730	1110	250	1270	1190	877	1160	26300	24400	653	1310
4	345	22200	3010	234	1170	1130	639	1780	18500	24300	974	585
5	446	24800	1070	257	1630	877	587	2440	12100	24100	1330	314
6	820	20800	1650	690	1670	874	600	1600	6240	23300	1260	239
7	1310	11800	793	399	2740	1350	803	2180	5680	22200	1180	414
8	2120	6270	477	287	2480	1340	1310	1270	5490	20500	1000	259
9	1590	6410	392	822	1140	1290	556	1500	5330	15600	781	202
10	1230	5510	345	1860	1420	2230	338	1270	5240	13500	603	266
11	1130	5720	318	802	1970	2190	197	2430	5140	6840	797	291
12	968	5460	299	2480	1420	1460	160	2190	5160	5490	616	166
13	1070	4350	1420	1870	1160	1000	294	6520	3720	6430	823	129
14	10000	3400	775	1770	1170	1410	850	8440	4830	6640	1120	285
15	7810	2700	505	2190	965	971	391	7410	4960	6210	1020	504
16	12000	2840	1940	859	573	780	487	7190	5090	6300	2020	545
17	25000	2940	2230	977	383	434	834	7620	4970	6210	1920	582
18	27100	2870	1970	3570	302	335	694	10100	4940	6860	775	902
19	22000	2890	2410	2300	265	241	467	8310	4990	5600	328	1000
20	21200	2730	1820	1140	464	306	354	12400	4910	4270	538	1340
21	26600	2980	1770	494	939	400	945	18900	5000	4790	407	608
22	27600	2400	1670	2100	735	2200	1100	17800	8970	4840	351	493
23	23900	1080	1240	1940	504	6180	1720	14500	18300	2870	1760	735
24	24700	732	743	3150	303	5930	1430	14600	19900	2780	3370	849
25	28200	853	668	3040	229	6190	2420	17000	20700	2700	860	858
26	27600	998	411	2340	635	4130	1350	24900	22300	2590	319	1000
27	27100	614	339	1380	2140	3250	1220	29900	22700	2460	256	885
28	26500	487	307	844	2810	3520	2270	30600	22000	2530	635	793
29	26000	836	270	551	---	3430	2680	29400	23000	2620	1280	574
30	25800	1040	262	755	---	2130	2790	27400	25600	2940	1320	818
31	23300	---	259	1600	---	2120	---	26700	---	2310	1610	---
TOTAL	425840	172170	32702	41460	33557	63018	30583	339956	375660	311680	32514	20316
MEAN	13740	5739	1055	1337	1198	2033	1019	10970	12520	10050	1049	677
MAX	28200	24800	3010	3570	2810	6190	2790	30600	27200	25000	3370	1760
MIN	345	487	259	234	229	241	160	746	3720	2310	256	129
AC-FT	844700	341500	64860	82240	66560	125000	60660	674300	745100	618200	64490	40300
CAL YR 1981	TOTAL	1201967	MEAN	3293	MAX	37800	MIN	150	AC-FT	2384000		
WTR YR 1982	TOTAL	1879456	MEAN	5149	MAX	30600	MIN	129	AC-FT	3728000		

## BRAZOS RIVER BASIN

08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: November 1967 to current year. Pesticide analyses: October 1976 to September 1981.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1967 to current year.

WATER TEMPERATURES: November 1967 to current year.

INSTRUMENTATION.--Beginning October 1980, specific conductance and 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, 3,000 micromhos Aug. 24, 1978; minimum daily, 260 micromhos June 17, 18, 1981.

WATER TEMPERATURES: Maximum daily, 35.5°C July 15, 16, 1978; minimum daily, 0.5°C Jan. 14, 1982.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,960 micromhos Oct. 19; minimum daily, 500 micromhos Mar. 25.

WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 27; minimum daily, 0.5°C Jan. 14.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (FTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CaCO3)
NOV 03...	1430	13500	1560	8.1	18.5	180	9.2	98	1.4	1400	4900	300
DEC 07...	1405	717	1560	7.8	14.0	4.7	9.4	91	1.0	88	80	320
MAR 09...	1220	1160	1510	8.0	13.0	15	12.7	121	1.0	23	27	310
APR 13...	1205	297	1280	7.6	21.0	16	10.5	118	1.8	K16	680	310
JUN 22...	1255	8750	1270	8.0	26.0	96	8.4	104	1.5	240	620	260
AUG 24...	1245	3890	1190	8.1	29.5	39	6.0	80	2.5	500	16000	280

DATE	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)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
NOV 03...	200	86	21	230	6.1	5.6	98	200	350	.2	6.6	962
DEC 07...	190	94	21	200	5.1	5.8	130	200	320	.3	6.9	911
MAR 09...	200	89	21	200	5.3	5.4	110	210	310	.3	1.1	914
APR 13...	140	93	20	160	4.1	4.3	170	150	240	.3	4.9	821
JUN 22...	150	75	17	160	4.6	5.1	110	130	250	.3	6.1	753
AUG 24...	150	83	17	130	3.4	5.6	124	140	230	.3	8.3	749

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRATE DIS-SOLVED (MG/L AS N)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DIS-SOLVED (MG/L AS P)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 03...	958	.77	.110	.88	.130	.92	.100	.050	.993	36200	68
DEC 07...	926	.48	.240	.72	.400	1.10	.240	.250	12	23	87
MAR 09...	903	--	--	.29	.120	.76	.030	.030	9	28	83
APR 13...	775	--	--	.44	.190	.78	.140	.260	54	43	95
JUN 22...	710	--	--	.20	.510	2.00	.070	.150	372	8790	54
AUG 24...	688	--	--	.11	.140	1.40	.170	.080	618	6490	89

## BRAZOS RIVER BASIN

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08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDED TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
NOV 03...	1430	6	3	3	200	60	140	1	<1	20
MAR 09...	1220	1	0	1	100	0	130	1	<1	10
APR 13...	1205	2	0	2	200	70	130	<1	<3	10
AUG 24...	1245	5	3	2	100	0	120	1	<1	20

DATE	CHRO- MIUM, SUS- PENDED RECOV. (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 03...	--	<10	11	<3	44	30	14	13000	--	<10
MAR 09...	--	<10	<1	1	14	13	1	110	--	<3
APR 13...	--	<10	3	<1	10	9	1	630	610	25
AUG 24...	10	10	5	<1	14	13	1	9100	9100	7

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDED RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDED RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
NOV 03...	15	--	<1	390	390	4	.1	<.1	18
MAR 09...	10	--	<1	30	20	13	.1	<.1	4
APR 13...	3	1	2	80	50	28	.1	<.1	4
AUG 24...	1	0	2	500	--	<1	<.1	<.1	21

DATE	NICKEL, SUS- PENDED RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 03...	--	<1	<1	<1	<1	<1	60	50	8
MAR 09...	--	<1	<1	<1	<1	<1	10	--	<4
APR 13...	--	<1	1	<1	<1	<1	20	--	<12
AUG 24...	20	1	<1	<1	<1	<1	50	50	5

## BRAZOS RIVER BASIN

08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	425840	1520	860	989000	290	334500	160	186500	320
NOV.	1981	172170	1420	802	373000	260	121000	150	70300	310
DEC.	1981	32702	1520	860	75900	290	25300	160	14300	320
JAN.	1982	41460	1480	840	94100	280	31100	160	17700	320
FEB.	1982	33557	1640	933	84500	320	29100	180	15900	330
MAR.	1982	63018	1070	605	103000	180	31400	110	19400	250
APR.	1982	30583	1290	729	60200	230	19000	140	11300	290
MAY	1982	339956	1270	719	660000	220	206100	140	124400	290
JUNE	1982	375660	1280	723	734000	230	228800	140	138200	290
JULY	1982	311680	1310	740	622000	230	195500	140	117200	290
AUG.	1982	32514	1190	673	59100	200	18000	130	11100	270
SEPT	1982	20316	1140	645	35400	190	10600	120	6660	270
TOTAL		1879456	**	**	3891000	**	1250000	**	733000	**
WTD. AVG.		5149	1350	767	**	250	**	140	**	300

## SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	1750	1230	1200	1220	1520	1490	1500	1440	1400	1420
2	---	---	1780	1230	1220	1220	1530	1500	1520	1420	1400	1410
3	---	---	1800	1560	1210	1240	1570	1520	1540	1410	1380	1390
4	---	---	1820	1440	1420	1430	1580	1510	1530	1390	1350	1370
5	---	---	1830	1450	1430	1440	1570	1510	1530	1370	1340	1360
6	---	---	1700	1450	1430	1440	1570	1540	1560	1360	1350	1360
7	---	---	1650	1460	1430	1450	1550	1530	1540	1380	1350	1360
8	---	---	1400	1450	1420	1440	1500	1480	1490	1380	1360	1370
9	---	---	1500	1450	1420	1430	1520	1490	1500	1450	1360	1390
10	---	---	1450	1440	1420	1430	1510	1490	1500	1460	1410	1440
11	---	---	1400	1450	1430	1450	1490	1470	1480	1490	1400	1420
12	---	---	1350	1460	1450	1450	1470	1450	1460	1540	1490	1520
13	---	---	1300	1470	1460	1470	1460	1440	1450	1530	1500	1520
14	---	---	1860	1480	1450	1470	1460	1440	1450	1600	1300	1460
15	---	---	1850	1480	1470	1470	1480	1460	1470	1350	1310	1330
16	---	---	1900	1490	1470	1480	1480	1440	1460	1400	1350	1380
17	---	---	1910	1500	1480	1480	1550	1440	1510	1420	1390	1410
18	1930	---	1920	1500	1480	1490	1570	1480	1540	1450	1410	1430
19	1960	1910	1940	1510	1500	1500	1580	1570	1580	1460	1440	1450
20	1920	1830	1890	1510	1490	1500	1580	1500	1550	1480	1460	1470
21	1830	1790	1810	1510	1500	1510	1570	1470	1530	1500	1480	1490
22	1790	1520	1680	1520	1500	1510	1550	1500	1540	1530	1500	1510
23	1520	1300	1360	1530	1510	1520	1550	1470	1500	1530	1520	1520
24	1320	1290	1310	1530	1510	1520	1550	1480	1510	1540	1520	1530
25	1320	1300	1310	1540	1520	1530	1540	1500	1510	1550	1520	1540
26	1310	1250	1280	1540	1510	1520	1520	1500	1500	1560	1540	1550
27	1260	1220	1240	1520	1490	1500	1510	1490	1500	1560	1500	1540
28	1220	1190	1210	1510	1490	1500	1510	1480	1490	1550	1510	1540
29	1210	1180	1190	1510	1500	1510	1490	1470	1480	1600	1560	1580
30	1210	1190	1200	1510	1490	1500	1480	1460	1470	1640	1610	1620
31	1210	1190	1200	---	---	---	1460	1410	1440	1670	1640	1650
MONTH	1960	1180	1570	1560	1200	1450	1580	1410	1500	1670	1300	1460

08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	1700	1670	1680	1470	1450	1460	1380	1250	1320	---	---	1170
2	1710	1690	1700	1480	1460	1470	1490	1370	1430	---	---	1700
3	1730	1710	1720	1500	1470	1480	1590	1480	1540	---	---	1260
4	1730	1720	1730	1480	1470	1480	1660	1590	1630	---	---	1160
5	1750	1730	1740	1480	1460	1470	1740	1660	1700	---	---	1120
6	1750	1740	1750	1460	1450	1460	1740	1710	1730	---	---	1150
7	1750	1740	1750	1460	1450	1450	1740	1730	1740	---	---	1120
8	1750	1740	1740	1460	1440	1450	1760	1730	1740	---	---	1170
9	1740	1730	1740	1470	1450	1460	1730	1680	1700	---	---	1200
10	1740	1720	1730	1480	1450	1460	1680	1630	1650	---	---	1230
11	1730	1700	1720	1500	1460	1480	1630	1600	1610	---	---	1120
12	1730	1700	1710	1520	1480	1500	1590	1520	1550	---	---	1120
13	1710	1700	1710	1550	1500	1520	1510	1250	1390	---	---	1050
14	1700	1680	1690	1540	1510	1520	1290	1250	1270	---	---	1000
15	1690	1680	1680	1540	1510	1520	1250	1110	1190	---	---	1020
16	1680	1420	1560	1530	1510	1520	---	---	1260	---	---	1030
17	1470	1440	1450	1570	1510	1530	---	---	1230	1190	720	1050
18	1460	1430	1450	1580	1510	1540	---	---	1200	1180	920	1100
19	1460	1430	1450	1530	1490	1510	---	---	1290	1170	930	964
20	1460	1440	1450	1520	1470	1490	---	---	1400	1480	1070	1330
21	1490	1450	1470	1470	1410	1440	---	---	1230	1370	1350	1360
22	1490	1460	1470	1420	1410	1410	---	---	1200	1380	1320	1360
23	1490	1470	1480	1370	600	765	---	---	1170	1350	1320	1340
24	1490	1470	1480	640	510	575	---	---	1150	1360	1340	1350
25	1480	1440	1460	630	500	568	---	---	1120	1360	1240	1320
26	1450	1430	1440	680	600	645	---	---	1190	1300	1260	1280
27	1460	1440	1450	940	680	730	---	---	1200	1460	1290	1390
28	1470	1450	1460	1110	960	1080	---	---	1150	1440	1280	1330
29	---	---	---	1200	830	1010	---	---	1130	1320	1300	1310
30	---	---	---	1170	1100	1140	---	---	1120	1320	1300	1300
31	---	---	---	1260	1170	1220	---	---	---	1330	1310	1320
MONTH	1750	1420	1600	1580	500	1300	1760	1110	1370	1480	720	1220
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1350	1320	1330	1310	1150	1320	---	---	1280	1180	1160	1170
2	1350	1300	1330	1370	1230	1300	---	---	1260	1190	1160	1170
3	1310	1280	1290	1390	1270	1330	---	---	1240	1180	1150	1170
4	1280	1230	1260	1400	1280	1340	---	---	1230	1180	1150	1160
5	1250	1220	1230	1400	1290	1370	---	---	1210	1170	1130	1150
6	1240	1220	1230	1390	1230	1330	---	---	1200	1230	1130	1170
7	1240	1220	1230	1350	1220	1300	---	---	1190	1230	1200	1220
8	1240	1220	1230	1340	1220	1280	---	---	1190	1260	1200	1220
9	1250	1220	1240	1320	1210	1260	---	---	1180	1270	1180	1220
10	1240	1220	1230	1300	1200	1260	---	---	1190	1270	1200	1240
11	1240	1220	1230	1310	1200	1270	---	---	1180	1240	---	1210
12	1260	1220	1240	1310	1200	1270	---	---	1170	---	---	1220
13	1280	1210	1230	1440	1270	1360	1210	1150	1180	---	---	1180
14	1310	1260	1280	1390	1210	1300	1210	1170	1190	1180	1140	1160
15	1270	1230	1250	1370	1250	1310	1190	1160	1170	1170	1130	1150
16	1270	1230	1250	1340	1200	1270	1200	1170	1190	1180	1130	1160
17	1260	1230	1250	1310	1200	1280	1200	1170	1180	1120	1060	1080
18	1250	1230	1240	1310	1200	1280	1190	1150	1170	1130	1050	1100
19	1250	1230	1250	1300	1270	1290	1210	1170	1190	1130	1090	1110
20	1260	1240	1250	1310	1200	1280	1230	1200	1210	1160	1110	1140
21	1260	1050	1170	1310	1200	1290	1260	1200	1230	1100	1070	1080
22	1210	1080	1150	1310	1200	1280	1270	1220	1250	1110	1080	1090
23	1230	1190	1200	1330	1200	1290	1240	1160	1220	1150	1100	1120
24	---	---	1250	1340	1200	1280	1150	1110	1130	1130	1090	1110
25	---	---	1280	1350	1210	1310	1150	1110	1130	1120	1100	1110
26	---	---	1300	1350	1210	1300	1180	1120	1150	1120	1090	1100
27	---	---	1310	1350	1210	1300	1240	1160	1190	1140	1100	1120
28	---	---	1320	1360	1220	1300	1230	1200	1220	1160	1120	1140
29	---	---	1330	---	---	1340	1240	1190	1220	1160	1130	1140
30	---	---	1340	---	---	1320	1190	1140	1170	1170	1120	1150
31	---	---	---	---	---	1300	1180	1150	1170	---	---	---
MONTH	1350	1050	1260	1440	1150	1300	1270	1110	1200	1270	1050	1150



## BRAZOS RIVER BASIN

08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

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



## BRAZOS RIVER BASIN

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08098290 BRAZOS RIVER NEAR HIGHBANK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

## BRAZOS RIVER BASIN

08098300 LITTLE POND CREEK AT BURLINGTON, TX

LOCATION.--Lat 31°01'35", long 96°59'17", Milam County, Hydrologic Unit 12070101, on left bank downstream from bridge on U.S. Highway 77, 1.0 mi (1.6 km) north of Burlington, 2.5 mi (4.0 km) downstream from Keys Creek, and 12.6 mi (20.3 km) upstream from mouth.

DRAINAGE AREA.--23.0 mi<sup>2</sup> (59.6 km<sup>2</sup>).

PERIOD OF RECORD.--October 1962 to September 1982 (discontinued).

Water-quality records: Sediment records: January 1966 to September 1975.

REVISED RECORDS.--WSP 2122: 1965. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 388.51 ft (118.418 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for July 16 to Sept. 2, which are poor. No diversion above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 13.5 ft<sup>3</sup>/s (0.382 m<sup>3</sup>/s), 7.97 in/yr (202 mm/yr), 9,780 acre-ft/yr (12.1 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,570 ft<sup>3</sup>/s (243 m<sup>3</sup>/s) May 24, 1975, gage height, 16.90 ft (5.151 m); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1938, 17.5 ft (5.33 m) in 1950, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft<sup>3</sup>/s (19.8 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Oct. 14	0100	3,920	111	15.24	4.645
May 13	1430	*4,280	121	a15.5	4.72
May 17	2030	871	24.7	11.36	3.463

a From floodmark.

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	3.8	.00	.00	.00	.02	.29	.07	.00	.40	.00	.00
2	.00	.85	.00	.00	.00	.03	.23	.04	.00	.18	.00	.00
3	.00	.25	.00	.00	.00	.02	.15	.02	.00	.14	.00	.00
4	.00	.12	.00	.00	.00	.01	.08	.00	.00	.05	.00	.00
5	.00	.07	.00	.00	.00	.00	.05	.00	.00	.01	.00	.00
6	.00	.03	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
7	.03	.02	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
8	.50	45	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
9	.59	8.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	2.3	1.4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	1.7	.51	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00
12	.65	.24	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00
13	403	.16	.00	.00	.00	.00	.02	1840	.00	.00	.00	.00
14	1480	.08	.00	.00	.00	.00	.06	118	.00	.00	.00	.00
15	18	.06	.00	.00	.00	.00	.05	3.5	.00	.00	.00	.00
16	3.8	.17	.00	.00	.00	.00	.03	1.1	.00	.00	.00	.00
17	1.3	.15	.00	.00	.00	.00	.02	436	.00	.00	.00	.00
18	1.3	.14	.00	.00	.00	.00	.00	92	.00	.00	.00	.00
19	.23	.14	.00	.01	.00	.00	.00	3.1	.00	.00	.00	.00
20	.16	.10	.00	.02	.00	.00	5.2	.89	.00	.00	.00	.00
21	.13	.04	.00	.02	.00	.00	14	.39	.00	.00	.00	.00
22	.08	.03	.00	.02	.00	.00	119	.17	9.5	.00	.00	.00
23	.06	.02	.00	.02	.00	.00	67	.09	5.8	.00	.00	.00
24	.05	.01	.00	.02	.00	.00	171	104	1.3	.00	.00	.00
25	.05	.00	.00	.02	.00	.00	57	6.1	2.8	.00	.00	.00
26	.05	.00	.00	.00	.00	.00	5.4	1.4	.57	.00	.00	.00
27	.03	.00	.00	.00	.00	.25	1.3	.54	56	.00	.00	.00
28	.02	.00	.00	.00	.00	1.9	.63	.23	3.3	.00	.00	.00
29	.01	.00	.00	.00	---	1.2	.29	.11	16	.00	.00	.00
30	17	.00	.00	.00	---	.56	.13	.04	1.7	.00	.00	.00
31	29	---	.00	.00	---	.35	---	.01	---	.00	.00	---
TOTAL	1960.04	61.39	.00	.13	.00	4.34	442.07	2607.80	96.97	.78	.00	.00
MEAN	63.2	2.05	.000	.004	.000	.14	14.7	84.1	3.23	.025	.000	.000
MAX	1480	45	.00	.02	.00	1.9	171	1840	56	.40	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	2.75	.09	.000	.000	.000	.006	.64	3.66	.14	.001	.000	.000
IN.	3.17	.10	.00	.00	.00	.01	.71	4.22	.16	.00	.00	.00
AC-FT	3890	122	.00	.3	.00	8.6	877	5170	192	1.5	.00	.00
CAL YR 1981	TOTAL	6921.79	MEAN	19.0	MAX	1480	MIN	.00	CFSM	.83	IN	11.19
WTR YR 1982	TOTAL	5173.52	MEAN	14.2	MAX	1840	MIN	.00	CFSM	.62	IN	8.37
									AC-FT	13730		10260

## 08099000 LEON RESERVOIR NEAR RANGER, TX

LOCATION.--Lat 32°21'46", long 98°40'32", Eastland County, Hydrologic Unit 12070201, at outlet works near left end of dam on Leon River, 7.4 mi (11.9 km) south of Ranger, 8.7 mi (14.0 km) southeast of Eastland, and 274.1 mi (441.1 km) upstream from mouth.

DRAINAGE AREA.--259 mi<sup>2</sup> (671 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1955 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--The reservoir is formed by a rolled earthfill dam 3,700 ft (1,130 m) long. Storage began in April 1954 and dam was completed in June 1954. The emergency spillway is a 1,200-foot-wide (366 m) cut through natural ground near the left end of dam. The service spillway is an uncontrolled circular concrete drop inlet designed for a maximum discharge of 5,000 ft<sup>3</sup>/s (142 m<sup>3</sup>/s) through an 11-foot-diameter (3 m) concrete conduit. The dam is the property of Eastland County Water Supply District and was built to impound water for municipal use by the cities of Ranger, Olden, and Eastland. The capacity table is based on a survey made in 1952. Figures given herein represent total contents. Data regarding the dam and reservoir are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,398.0	-
Crest of spillway.....	1,382.0	40,210
Crest of spillway (top of conservation pool).....	1,375.0	27,290
Lowest gated outlet (invert for water supply).....	1,335.0	869

COOPERATION.--The capacity curve, reservoir elevations, and diversion records were furnished by the Eastland County Water Supply District.

EXTREMES (at 1000) FOR PERIOD OF RECORD.--Maximum contents observed, 40,640 acre-ft (50.1 hm<sup>3</sup>) June 13, 1967, elevation, 1,382.2 ft (421.29 m); minimum observed since first appreciable storage, 15,880 acre-ft (19.6 hm<sup>3</sup>) Jan. 11-21, Feb. 5-7, Apr. 29, 30, 1956, elevation, 1,366.2 ft (416.42 m).

EXTREMES (at 1000) FOR CURRENT YEAR.--Maximum contents observed, 33,490 acre-ft (41.3 hm<sup>3</sup>) Oct. 14, elevation, 1,378.6 ft (420.20 m); minimum, 17,750 acre-ft (21.9 hm<sup>3</sup>) Oct. 1-7, elevation, 1,367.9 ft (416.94 m).

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

1,367.0	16,740	1,374.0	25,740
1,369.0	19,030	1,376.0	28,920
1,371.0	21,510	1,379.0	34,230

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 1000

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17750	27450	26980	26520	26050	26520	26520	25900	27620	28110	26520	25440
2	17750	27450	26980	26520	26670	26520	26520	26050	27450	27940	26520	25440
3	17750	27290	26980	26520	26670	26520	26520	26050	27450	27780	26520	25440
4	17750	27290	26980	26520	26670	26520	26520	26050	27450	27620	26360	25300
5	17750	27290	26830	26520	26670	26520	26360	26050	27450	27620	26360	25300
6	17750	27290	26830	26360	26670	26360	26360	26210	27290	27450	26210	25300
7	17750	27290	26830	26360	26670	26360	26360	26360	27290	27450	26210	25300
8	18090	27290	26830	26360	26670	26360	26360	26360	27290	27450	26050	25300
9	18330	27290	26830	26360	26670	26360	26360	26360	27290	27450	26050	25300
10	18450	27290	26830	26360	26670	26360	26360	26360	27290	27450	26050	25150
11	18450	27290	26830	26360	26520	26360	26210	26210	27290	27450	26050	25150
12	19270	27290	26830	26360	26520	26360	26210	26210	27290	27450	26050	25000
13	28920	27290	26830	26360	26520	26360	26210	26670	27290	27450	26050	25000
14	33490	27290	26830	26210	26520	26360	26210	27290	27290	27450	26050	24850
15	31680	27290	26830	26210	26520	26520	26210	27290	27290	27450	26050	24850
16	29770	27290	26830	26210	26520	26520	26210	27290	27290	27450	26050	24850
17	28920	27290	26830	26210	26360	26520	26210	27290	27290	27290	26050	24850
18	28110	27290	26670	26210	26360	26520	26050	27290	27450	27290	25900	24700
19	27940	27290	26670	26050	26360	26520	26050	27290	27450	27290	25900	24700
20	27620	27140	26670	26050	26360	26520	26050	27290	27450	27140	25900	24700
21	27450	27140	26670	26050	26360	26520	26050	27290	27450	27140	25900	24560
22	27780	27140	26670	26050	26360	26520	26050	27290	27450	27140	25900	24560
23	28430	27140	26670	26050	26210	26520	26050	27290	27450	26980	25740	24560
24	28270	27140	26520	26050	26210	26520	25900	27290	27450	26980	25740	24410
25	28110	27140	26520	26050	26210	26520	25900	27450	28760	26980	25740	24410
26	27940	27140	26520	26050	26520	26520	25900	27620	29430	26830	25740	24410
27	27780	27140	26520	26050	26520	26520	25900	27620	29090	26830	25590	24410
28	27780	27140	26520	26050	26520	26520	25900	27780	29090	26670	25590	24410
29	27620	27140	26520	26050	---	26520	25900	27780	28590	26670	25590	24260
30	27620	27140	26520	26050	---	26520	25900	27780	28270	26670	25440	24260
31	27450	---	26520	26050	---	26520	---	27620	---	26520	25440	---
MAX	33490	27450	26980	26520	26670	26520	26520	27780	29430	28110	26520	25440
MIN	17750	27140	26520	26050	26050	26360	25900	25900	27290	26520	25440	24260
(†)	1375.1	1374.9	1374.5	1374.2	1374.5	1374.5	1374.1	1375.2	1374.5	1375.5	1373.8	1373.0
(+)	+9700	-310	-620	-470	+470	0	-620	+1720	+650	-1750	-1080	-1180
(††)	176	154	157	175	154	167	185	167	170	229	304	257

CAL YR 1981 MAX 33490 MIN 17190 † +9000 †† 2420  
WTR YR 1982 MAX 33490 MIN 17750 † +6510 †† 2300

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

## BRAZOS RIVER BASIN

08099000 LEON RESERVOIR NEAR RANGER, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
OCT 05...	1315	660	26.5	170	63	48	13	62

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)
OCT 05...	2.2	9.6	110	49	130	.4	3.9	382

## 08099100 LEON RIVER NEAR DE LEON, TX

LOCATION.--Lat 32°10'25", long 98°31'58", Comanche County, Hydrologic Unit 12070201, on left bank at downstream end of bridge on State Highway 16, 1.5 mi (2.4 km) upstream from Flat Creek, 4.4 mi (7.1 km) northeast of De Leon, 6 mi (10 km) downstream from Hog Creek, and 250.1 mi (402.4 km) upstream from mouth.

DRAINAGE AREA.--479 mi<sup>2</sup> (1,241 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,209.93 ft (368.787 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 22, 1960, nonrecording gage at same site and datum.

REMARKS.--Water-discharge records good. Flow partly regulated by Leon Reservoir (station 08099000). Numerous diversions above station for municipal, steam powerplant operation, and other uses. Recording rain gage was discontinued May 31, 1978.

AVERAGE DISCHARGE.--22 years, 42.5 ft<sup>3</sup>/s (1.204 m<sup>3</sup>/s), 30,790 acre-ft/yr (38.0 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,540 ft<sup>3</sup>/s (214 m<sup>3</sup>/s) Jan. 21, 1968, gage height, 15.50 ft (4.724 m); no flow for many days.

EXTREMES OUTSIDE PERIOD OF RECORD.--A stage of 19.3 ft (5.88 m) occurred in May 1908 at a point 2,000 ft (610 m) downstream from present gage site and is the highest since that time, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,690 ft<sup>3</sup>/s (133 m<sup>3</sup>/s) Oct. 14 at 1400 hours, gage height, 14.43 ft (4.398 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	33	2.5	.83	14	6.8	.97	1.2	50	186	.00	.00
2	.00	25	3.8	.87	7.4	5.1	1.0	1.6	33	117	.00	.00
3	.00	21	2.7	.85	5.8	5.6	.72	1.3	24	79	.00	.00
4	.00	18	2.1	.70	3.5	3.2	.68	1.2	19	54	.00	.00
5	.00	15	2.0	.77	2.5	3.9	.58	1.6	10	37	.00	.00
6	.00	12	1.7	.77	1.8	3.8	.49	52	5.7	26	.00	.00
7	.00	9.7	1.7	.73	2.1	2.9	.56	44	3.5	18	.00	.00
8	.00	10	1.6	.68	2.2	2.6	.58	15	3.3	12	.00	.00
9	.00	9.8	1.5	.68	2.0	2.6	.50	5.3	4.9	8.1	.00	.00
10	.00	12	1.3	.70	1.7	2.8	.59	2.9	1.8	4.7	.00	.00
11	.00	6.8	1.3	.78	1.7	3.0	.52	2.4	1.4	2.4	.00	.00
12	311	5.2	1.0	1.1	1.6	3.4	.99	73	11	1.8	.00	.00
13	2210	4.5	1.2	.93	1.3	2.5	.60	243	7.2	2.8	.00	.00
14	3670	4.1	1.3	1.4	1.4	14	.56	108	5.8	2.7	.00	.00
15	3550	3.7	1.2	1.5	1.7	12	.52	41	34	.93	.00	.00
16	2330	3.3	1.2	1.3	1.6	6.2	.47	23	156	.53	.00	.00
17	674	3.5	.99	1.2	1.5	2.5	.49	41	21	.34	.00	.00
18	327	3.1	.97	1.1	1.3	1.4	.47	45	9.6	.18	.00	.00
19	187	2.5	1.5	1.1	1.2	.99	1.1	20	24	.08	.00	.00
20	122	1.8	1.9	1.2	1.3	.78	.64	11	34	.04	.00	.00
21	89	2.4	1.3	1.3	1.3	.86	.44	7.7	33	.01	.00	.00
22	190	3.2	1.1	7.1	1.4	.83	2.6	5.1	23	.00	.00	.00
23	325	2.2	.97	2.7	1.4	.78	2.4	24	16	.00	.00	.00
24	217	2.0	.94	1.5	1.2	.79	1.6	35	10	.00	.00	.00
25	142	2.0	.87	1.2	3.8	.65	3.4	53	881	.00	.00	.00
26	99	1.9	.97	1.1	14	.56	1.1	114	1690	.00	.00	.00
27	70	1.7	1.1	1.2	8.7	.80	.80	111	1380	.00	.00	.00
28	55	1.7	.99	1.1	9.4	.88	.87	225	902	.00	.00	.00
29	45	2.0	.85	1.4	---	1.1	1.1	181	538	.00	.00	.00
30	38	2.6	.81	3.2	---	1.1	.41	105	307	.00	.00	.00
31	35	---	.92	5.8	---	1.1	---	73	---	.00	.00	---
TOTAL	14686.00	225.7	44.28	46.79	98.8	95.52	27.75	1667.3	6239.2	553.61	.00	.00
MEAN	474	7.52	1.43	1.51	3.53	3.08	.93	53.8	208	17.9	.000	.000
MAX	3670	33	3.8	7.1	14	14	3.4	243	1690	186	.00	.00
MIN	.00	1.7	.81	.68	1.2	.56	.41	1.2	1.4	.00	.00	.00
AC-FT	29130	448	88	93	196	189	55	3310	12380	1100	.00	.00
CAL YR 1981	TOTAL	16077.28	MEAN	44.0	MAX	3670	MIN	.00	AC-FT	31890		
WTR YR 1982	TOTAL	23684.95	MEAN	64.9	MAX	3670	MIN	.00	AC-FT	46980		

## BRAZOS RIVER BASIN

08099100 LEON RIVER NEAR DE LEON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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...	0815	3.2	2000	7.8	15.0	5	2.3	6.8	70	1.4	580
DEC 16...	0820	1.2	2440	7.9	8.0	5	1.3	9.8	85	.8	710
MAR 04...	0830	2.9	3200	7.8	11.0	10	1.0	11.0	105	1.3	780
APR 28...	0845	.77	2400	7.9	18.0	5	5.0	5.0	54	.7	660
JUL 15...	0830	1.1	1840	7.8	25.0	10	2.4	7.2	90	1.4	550

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- 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)
NOV 18...	330	180	31	200	3.8	7.2	250	110	470	.3	8.7
DEC 16...	420	220	39	230	3.8	6.9	290	120	540	.3	12
MAR 04...	560	230	49	400	6.2	5.8	220	120	880	.4	7.7
APR 28...	370	200	40	230	3.9	5.8	290	130	520	.4	11
JUL 15...	290	170	30	180	3.5	6.7	260	120	380	.2	12

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...	1160	11	1	.08	.020	.10	.150	1.3	1.40	.040	5.6
DEC 16...	1340	0	1	--	<.020	<.10	.100	.59	.69	.040	--
MAR 04...	1830	0	0	--	<.020	<.10	.090	.59	.68	.040	5.5
APR 28...	1310	11	3	--	<.020	<.10	<.060	--	.82	.180	5.5
JUL 15...	1060	9	<2	--	<.020	<.10	.080	.92	1.00	.030	5.0

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...	0815	1	360	2	<10	2	32
MAR 04...	0830	1	400	1	10	1	60
JUL 15...	0830	1	310	<1	<10	2	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)
NOV 18...	4	180	.1	<1	1	6
MAR 04...	2	220	<.1	<1	<1	10
JUL 15...	<1	260	<.1	<1	<1	9



LOCATION.--Lat 32°06'50", long 98°36'19", Comanche County, Hydrologic Unit 12070201, on left bank at downstream end of bridge on Farm Road 587, 0.6 mi (1.0 km) downstream from Spring Branch, 4.0 mi (6.4 km) west of De Leon, 4.2 mi (6.8 km) upstream from Turkey Creek, and 12.2 mi (19.6 km) upstream from mouth.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,209.59 ft (368.683 m) National Geodetic Vertical Datum of 1929 (levels by State Department of Highways and Public Transportation). Prior to Nov. 22, 1960, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow is affected by Nabors Lake (capacity unknown) on Spring Branch. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft<sup>3</sup>/s (306 m<sup>3</sup>/s) June 12, 1967, gage height, 22.05 ft (6.721 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 24 ft (7.3 m) in May 1908, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft<sup>3</sup>/s (42.5 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge		Gage height	
		(ft <sup>3</sup> /s)	(m <sup>3</sup> /s)	(ft)	(m)
Oct. 13	0030	1,960	55.5	16.67	5.081
June 25	1000	*2,540	71.9	18.40	5.608
June 27	2400	2,530	71.6	18.38	5.602

Minimum discharge, no flow Oct. 1-9, Sept. 27-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.00	.33	.14	.15	.32	.84	.02	.32	8.1	37	.49	.03		
2	.00	.26	.08	.29	.44	.84	.02	.40	4.2	18	.49	.04		
3	.00	.20	.08	.04	.46	.84	.02	.31	2.0	12	.49	.09		
4	.00	.20	.41	.04	.32	.74	.03	.26	1.3	9.5	.49	.10		
5	.00	.20	.72	.04	.32	.72	.03	.55	1.2	6.9	.40	.06		
6	.00	.15	.71	.04	.30	.84	.02	126	.54	4.6	.40	.06		
7	.00	.15	.69	.03	.32	.81	.01	48	.22	4.0	.40	.04		
8	.00	1.1	.49	.03	.32	.71	.02	13	.15	2.9	.40	.06		
9	9.5	.21	.49	.03	.32	.71	.03	4.0	.13	2.3	.32	.06		
10	2.6	.20	.40	.03	.32	.71	.03	1.3	.15	1.7	.32	.07		
11	.58	.20	.40	.04	.32	.69	.03	.84	.07	1.4	.32	.08		
12	.24	.20	.40	.05	.32	.41	.04	11	.17	1.5	.26	.06		
13	773	.20	.40	.06	.32	.40	.04	18	.08	1.3	.20	.07		
14	435	.20	1.2	.07	.32	7.0	.04	70	.08	9.9	.15	.06		
15	59	.20	.45	.08	.32	5.0	.06	19	5.4	16	.11	.07		
16	334	.20	.31	.09	.32	.54	.06	6.6	181	11	.08	.22		
17	61	.13	.18	.10	.32	.08	.03	3.7	20	28	.06	.07		
18	24	.07	.15	.11	.32	.03	.04	2.5	5.9	10	.04	.07		
19	12	.12	.18	.12	.32	.02	.04	1.3	72	1.1	.04	.04		
20	7.0	.15	.26	.13	.32	.02	.40	.79	64	.98	.04	.06		
21	6.2	.15	.30	.14	.32	.06	.11	.55	38	.84	.04	.06		
22	75	.15	.32	.15	.32	.02	.84	.32	24	.84	.04	.03		
23	51	.14	.13	.16	.32	.02	.84	.72	8.4	.84	.05	.02		
24	18	.11	.11	.17	.32	.02	.32	11	3.4	.71	.06	.01		
25	8.9	.11	.13	.18	2.4	.02	.40	267	1470	.71	.04	.01		
26	5.5	.11	.18	.20	5.6	.01	.20	184	281	.71	.05	.01		
27	2.9	.11	.20	.20	1.5	.02	.20	79	1240	.71	.04	.01		
28	1.1	.11	.24	.20	.95	.02	.26	86	1340	.60	.02	.00		
29	.57	.17	.15	.20	---	.02	.26	93	125	.60	.03	.00		
30	.49	.31	.15	.43	---	.02	.26	30	48	.60	.04	.00		
31	.42	---	.15	.44	---	.02	---	15	---	.60	.03	---		
TOTAL	1888.00	6.14	10.20	4.04	18.37	22.20	4.70	1094.46	4944.49	187.84	5.94	1.56		
MEAN	60.9	.20	.33	.13	.66	.72	.16	35.3	165	6.06	.19	.052		
MAX	773	1.1	1.2	.44	5.6	7.0	.84	267	1470	37	.49	.22		
MIN	.00	.07	.08	.03	.30	.01	.01	.26	.07	.60	.02	.00		
CFSM	.23	.001	.001	.000	.003	.003	.001	.13	.63	.02	.001	.000		
IN.	.27	.00	.00	.00	.00	.00	.00	.15	.70	.03	.00	.00		
AC-FT	3740	12	20	8.0	36	44	9.3	2170	9810	373	12	3.1		
CAL YR 1981	TOTAL	3267.05	MEAN	8.95	MAX	773	MIN	.00	CFSM	.03	IN	.46	AC-FT	6480
WTR YR 1982	TOTAL	8187.94	MEAN	22.4	MAX	1470	MIN	.00	CFSM	.09	IN	1.15	AC-FT	16240

## 08099400 PROCTOR LAKE NEAR PROCTOR, TX

LOCATION.--Lat 31°58'07", long 98°29'09", Comanche County, Hydrologic Unit 12070201, in intake structure at Proctor Lake on Leon River, 2.0 mi (3.2 km) upstream from U.S. Highways 67 and 377, 3.5 mi (5.6 km) west of Proctor, and 228.1 mi (367.0 km) upstream from mouth.

DRAINAGE AREA.--1,259 mi<sup>2</sup> (3,261 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to current year. Prior to October 1970, published as Proctor Reservoir.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to May 28, 1963, non-recording gage at same site and datum.

REMARKS.--The lake is formed by a reinforced concrete gated structure and rolled earthfill section, total length 13,460 ft (4,103 m). The lake was operated as a detention basin from Jan. 30 to July 5, 1963. The gates were closed July 6, 1963, but lake was operated to elevation 1,156.0 ft (352.35 m) until construction was completed. Deliberate impoundment began Sept. 30, 1963. The spillway is a gated concrete gravity structure located on the left bank, with an ogee weir section and stilling basin. The spillway is controlled by eleven 40.0- by 35.0-foot (12.2 by 10.7 m) tainter gates. The spillway was designed to discharge 431,800 ft<sup>3</sup>/s (12,200 m<sup>3</sup>/s) at an elevation of 1,201.0 ft (366.06 m). The lake is operated for flood control and water conservation. One major reservoir partly regulates the inflow (see station 08099000). Inflow is affected at times by discharge from the flood-detention pools of 23 floodwater-retarding structures with a combined detention capacity of 43,690 acre-ft (53.9 hm<sup>3</sup>). These structures control runoff from 172 mi<sup>2</sup> (445 km<sup>2</sup>) in the Leon River and Rush Creek drainage basins. The capacity table is based on a survey made in 1946. Borrow is not included in capacity totals. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding the dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	1,206.0	-
Design flood.....	1,201.0	433,000
Top of gates.....	1,197.0	374,200
Crest of spillway (top of conservation pool).....	1,162.0	59,400
Lowest gated outlet (invert).....	1,128.0	68

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 137,500 acre-ft (170 hm<sup>3</sup>) Jan. 26, 1968, elevation, 1,174.84 ft (358.091 m); minimum since first filling of lake, 23,050 acre-ft (28.4 hm<sup>3</sup>) Jan. 9, 1979, elevation, 1,151.35 ft (350.931 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 97,580 acre-ft (120 hm<sup>3</sup>) June 29, elevation, 1,169.05 ft (356.326 m); minimum daily, 30,620 acre-ft (37.8 hm<sup>3</sup>) Oct. 5, elevation, 1,154.29 ft (351.828 m).

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

1,154.0	29,790	1,162.0	59,390	1,168.0	91,170
1,156.0	35,840	1,165.0	74,250	1,170.0	103,590
1,159.0	45,590				

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30960	64650	60880	60130	59760	59810	60040	59670	64690	96830	69670	57120
2	30900	64600	60790	60230	59760	59810	60040	59620	64260	95910	68860	57070
3	30820	64650	60790	60180	59670	59860	60040	59530	63440	94800	68150	56940
4	30730	64650	60740	60130	59860	59760	59990	59480	62530	93590	67550	56760
5	30620	64650	60650	60130	59670	59950	59810	60650	61680	92370	66850	56580
6	31250	64650	60550	60130	59580	59810	59620	63440	60970	91110	66210	56400
7	31310	64600	60550	60090	59440	59670	59620	63580	60460	90280	65620	56220
8	31220	65080	60550	59990	59480	59620	59670	63580	60130	89390	65080	56040
9	31220	64940	60550	59950	59440	59620	59670	63630	59990	88440	64690	55770
10	31200	64690	60510	59900	59440	59760	59670	63730	59900	87560	64110	55550
11	31200	64360	60510	59810	59440	59670	59480	63680	59990	86740	63490	55380
12	31200	63970	60550	59810	59390	59760	59530	64110	60180	85930	62860	55200
13	32710	63580	60550	59860	59390	59760	59530	68910	60130	85530	62150	54980
14	38140	63250	60550	59810	59390	59500	59530	70590	59850	84720	61440	54850
15	46200	63010	60510	59810	59390	59550	59440	70390	61020	83810	60880	54720
16	53110	62630	60510	59720	59480	60040	59440	70030	62770	82960	60600	54540
17	58380	62200	60460	59670	59530	59990	59300	69570	63150	82110	60370	54370
18	60040	61910	60370	59720	59440	59990	59260	69270	63250	81210	60180	54190
19	60460	61730	60230	59620	59390	60090	59440	68560	64210	80320	59990	54060
20	60650	61490	60180	59620	59390	60180	59440	67950	65080	79490	59810	53930
21	61260	61400	60230	59620	59390	60320	59530	67300	65670	78670	59620	53760
22	61870	61400	60230	59810	59350	60270	59620	66860	65870	77850	59390	53540
23	62770	61400	60230	59670	59300	60180	59620	66560	65620	76980	59160	53330
24	63440	61350	60180	59620	59580	60230	59620	66210	66060	76120	58930	53110
25	64020	61350	60130	59620	59950	60130	59670	66260	71730	75210	58750	52940
26	64110	61350	60040	59530	59950	60090	59670	66710	76650	74460	58470	52730
27	64210	61300	60040	59440	59860	60180	59620	66710	86570	73450	58290	52560
28	64310	61260	59990	59530	59860	60090	59620	66360	95970	72560	58060	52390
29	64400	61350	59950	59620	---	60130	59620	66360	97580	71730	57880	52220
30	64500	61440	59900	59860	---	60180	59670	66060	97520	71010	57660	52050
31	64650	---	59950	59720	---	60090	---	65480	---	70340	57480	---
MAX	64650	65080	60880	60230	59950	60320	60040	70590	97580	96830	69670	57120
MIN	30620	61260	59900	59440	59300	59500	59260	59480	59850	70340	57480	52050
(+)	1163.11	1162.44	1164.12	1162.07	1162.10	1162.15	1162.06	1163.25	1169.04	1164.25	1161.58	1160.34
(*)	+33540	-3210	-1490	-230	+140	+230	-420	+5810	+32040	-27180	-12860	-5430
CAL YR 1981	MAX	65080	MIN	30620	+	+21230						
WTR YR 1982	MAX	97580	MIN	30620	+	+20940						

+ Elevation, in feet, at end of month.

\* Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

08099400 PROCTOR LAKE NEAR PROCTOR, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: January 1964 to September 1982 (discontinued).

315814098291201 PROCTOR LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	
JAN											
19...	1330	1.00	655	8.1	6.0	.70	12.4	102	K16	27	
19...	1331	1.20	--	--	--	--	--	--	--	--	
19...	1332	10.0	655	8.1	5.5	--	12.9	106	--	--	
19...	1334	20.0	656	8.0	5.5	--	11.5	94	--	--	
19...	1336	33.0	657	7.9	6.0	--	12.5	103	--	--	
MAY											
04...	1116	1.00	718	8.1	20.5	.90	8.8	101	<1	K2	
04...	1117	1.50	--	--	--	--	--	--	--	--	
04...	1118	10.0	718	8.1	20.0	--	8.7	99	--	--	
04...	1120	15.0	720	8.0	19.5	--	8.2	92	--	--	
04...	1122	20.0	720	7.9	19.5	--	7.1	80	--	--	
04...	1124	25.0	725	7.3	18.5	--	2.9	32	--	--	
04...	1126	33.0	729	7.2	18.0	--	.8	9	--	--	
JUL											
30...	1135	1.00	535	8.1	30.5	.80	7.1	97	<1	K3	
30...	1136	1.40	--	--	--	--	--	--	--	--	
30...	1137	10.0	536	7.5	30.0	--	3.8	51	--	--	
30...	1139	15.0	536	7.2	29.0	--	.3	4	--	--	
30...	1141	20.0	536	7.0	28.0	--	.3	4	--	--	
30...	1143	30.0	540	7.1	27.0	--	.3	4	--	--	
DATE		HARD- NESS (MG/L AS CAC03)	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- LINITY FIELD (MG/L AS CAC03)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN											
19...	190	67	50	15	54	1.8	8.5	120	44	110	
19...	--	--	--	--	--	--	--	--	--	--	
19...	--	--	--	--	--	--	--	--	--	--	
19...	--	--	--	--	--	--	--	--	--	--	
19...	180	64	49	15	53	1.8	8.7	120	44	110	
MAY											
04...	210	82	57	17	59	1.9	8.0	130	53	130	
04...	--	--	--	--	--	--	--	--	--	--	
04...	--	--	--	--	--	--	--	--	--	--	
04...	--	--	--	--	--	--	--	--	--	--	
04...	--	--	--	--	--	--	--	--	--	--	
04...	--	--	--	--	--	--	--	--	--	--	
04...	220	80	60	17	60	1.8	7.9	140	54	130	
JUL											
30...	160	49	44	12	43	1.6	7.9	110	29	84	
30...	--	--	--	--	--	--	--	--	--	--	
30...	--	--	--	--	--	--	--	--	--	--	
30...	--	--	--	--	--	--	--	--	--	--	
30...	--	--	--	--	--	--	--	--	--	--	
30...	160	34	46	12	42	1.5	7.5	130	25	84	

## BRAZOS RIVER BASIN

## PROCTOR LAKE NEAR PROCTOR, TX--Continued

315814098291201 PROCTOR LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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									
19...	.3	2.9	357	.30	1.40	1.7	.020	<10	<1
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	.30	1.50	1.8	.020	40	10
19...	--	3.0	355	.31	1.60	1.9	.030	<10	1
MAY									
04...	.3	2.8	405	<.10	1.00	--	.030	60	23
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	<.10	1.40	--	.040	20	30
04...	--	--	--	--	--	--	--	--	--
04...	--	4.9	419	<.10	1.40	--	.060	<9	610
JUL									
30...	.3	3.4	290	<.10	1.30	--	.050	<3	7
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	<.10	1.20	--	.060	30	230
30...	--	--	--	--	--	--	--	--	--
30...	--	6.6	304	<.10	2.20	--	.280	1500	1300

315823098282801 PROCTOR LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
19...	1350	1.00	655	8.1	7.5	12.3	106
19...	1352	10.0	655	8.1	5.5	11.9	98
19...	1354	20.0	655	8.1	5.5	12.4	102
19...	1356	28.0	655	8.0	5.5	12.4	102
MAY							
04...	1140	1.00	714	8.2	20.5	9.2	106
04...	1142	10.0	714	8.1	20.0	8.6	98
04...	1144	20.0	720	7.6	19.0	4.8	53
04...	1146	31.0	726	7.3	18.5	1.8	20
JUL							
30...	1155	1.00	535	8.1	30.0	6.6	89
30...	1157	10.0	544	7.2	29.5	1.1	15
30...	1159	20.0	544	7.1	28.0	.3	4
30...	1201	29.0	557	7.2	26.5	.3	4

315832098302301 PROCTOR LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
19...	1300	1.00	666	8.1	6.5	12.6	106
19...	1302	10.0	666	8.2	5.5	12.3	101
19...	1304	20.0	676	8.0	6.5	10.9	92
MAY							
04...	1030	1.00	717	8.1	21.5	9.0	105
04...	1032	10.0	717	8.0	21.0	8.7	101
04...	1034	15.0	721	7.7	19.5	6.2	70
04...	1036	19.0	724	7.4	19.0	3.5	39
JUL							
30...	1110	1.00	558	8.0	30.0	6.8	92
30...	1112	10.0	558	7.8	30.0	6.0	81
30...	1114	15.0	558	7.2	29.0	1.1	15
30...	1115	17.0	558	6.9	28.0	.3	4

## BRAZOS RIVER BASIN

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## PROCTOR LAKE NEAR PROCTOR, TX--Continued

315837098314201 PROCTOR LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
19...	1310	1.00	670	7.9	6.5	.80	11.8
19...	1312	8.00	670	7.8	5.5	--	12.7
MAY							
04...	1046	1.00	746	8.0	22.5	.40	7.4
04...	1048	10.0	746	8.0	22.5	--	7.3
JUL							
30...	1120	1.00	577	8.1	30.5	.50	7.4
30...	1122	9.00	577	7.9	30.0	--	6.1

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
19...	99	.29	1.30	1.6	.020	30	<10
19...	104	.29	1.30	1.6	.020	20	10
MAY							
04...	88	<.10	1.30	--	.080	<10	<10
04...	87	<.10	1.30	--	.070	10	<10
JUL							
30...	101	<.10	1.30	--	.050	20	<10
30...	82	<.10	1.20	--	.060	10	10

315943098273101 PROCTOR LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
19...	1404	1.00	650	8.2	6.5	.80	12.6
19...	1406	11.0	655	8.1	6.0	--	11.0
MAY							
04...	1210	1.00	711	8.2	22.0	.80	10.0
04...	1212	12.0	721	7.9	21.0	--	7.4
JUL							
30...	1210	1.00	542	7.9	29.5	.80	5.4
30...	1212	12.0	542	7.5	29.0	--	3.6

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...	106	.32	1.10	1.4	.020	60	<10
19...	91	.33	1.30	1.6	.030	20	<10
MAY							
04...	118	<.10	1.30	--	.040	<10	<10
04...	86	<.10	1.50	--	.060	20	10
JUL							
30...	73	<.10	1.20	--	.040	10	20
30...	48	<.10	1.10	--	.040	<10	70

BRAZOS RIVER BASIN  
PROCTOR LAKE NEAR PROCTOR, TX--Continued

315924098285501 PROCTOR LAKE SITE EC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
JAN										
19...	1415	1.00	661	8.2	6.5	.70	11.4	96	K3	K8
19...	1417	10.0	673	8.1	5.5	--	11.0	90	--	--
19...	1419	23.0	673	8.1	5.5	--	12.3	101	--	--
MAY										
04...	1230	1.00	727	8.2	22.0	.70	9.5	112	K14	K6
04...	1232	10.0	727	8.1	21.0	--	9.3	108	--	--
04...	1234	23.0	743	7.3	19.0	--	1.4	16	--	--
JUL										
30...	1220	1.00	509	8.0	30.5	.90	6.4	88	K14	K13
30...	1222	10.0	515	7.8	29.5	--	5.5	74	--	--
30...	1224	15.0	519	7.2	29.5	--	.4	5	--	--
30...	1226	21.0	534	7.1	27.5	--	.3	4	--	--

DATE	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)
JAN									
19...	190	67	50	15	55	1.9	8.6	120	44
19...	--	--	--	--	--	--	--	--	--
19...	190	67	50	15	55	1.9	8.3	120	44
MAY									
04...	210	90	56	17	58	1.9	8.1	120	54
04...	--	--	--	--	--	--	--	--	--
04...	220	80	60	17	61	1.9	7.4	140	54
JUL									
30...	160	45	44	11	41	1.5	7.8	110	25
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	160	40	46	11	41	1.5	7.6	120	24

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
19...	110	3.0	358	.28	1.40	1.7	.020	<10	<1
19...	--	--	--	.26	1.30	1.6	.030	50	<10
19...	120	3.1	368	.25	1.50	1.8	.020	<10	<1
MAY									
04...	130	2.6	398	<.10	1.10	--	.020	<9	4
04...	--	--	--	<.10	1.30	--	.040	<10	20
04...	130	4.8	419	<.10	1.90	--	.180	<9	390
JUL									
30...	77	4.0	276	<.10	1.10	--	.060	<3	4
30...	--	--	--	<.10	1.20	--	.030	<10	60
30...	--	--	--	--	--	--	--	--	--
30...	81	7.0	293	<.10	1.60	--	.220	1600	1400



## BRAZOS RIVER BASIN

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PROCTOR LAKE NEAR PROCTOR, TX--Continued

320040098293501 PROCTOR LAKE SITE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
JAN										
19...	1445	1.00	708	8.1	7.0	.60	12.9	109	<1	K6
19...	1446	1.10	--	--	--	--	--	--	--	--
19...	1447	12.0	734	8.0	5.5	--	12.4	102	--	--
MAY										
04...	1306	1.00	799	8.1	22.5	.50	8.6	102	K6	K1
04...	1307	.90	--	--	--	--	--	--	--	--
04...	1308	12.0	815	7.6	22.0	--	5.0	59	--	--
JUL										
30...	1245	1.00	506	8.0	31.0	.40	6.9	96	K14	K21
30...	1246	.70	--	--	--	--	--	--	--	--
30...	1247	5.00	509	7.5	30.0	--	3.4	46	--	--
30...	1249	12.0	515	7.2	29.5	--	.4	5	--	--

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)	AIKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
19...	200	72	56	15	57	1.9	8.3	130	43
19...	--	--	--	--	--	--	--	--	--
19...	210	77	58	15	60	1.9	8.5	130	47
MAY									
04...	230	97	63	17	68	2.1	8.0	130	57
04...	--	--	--	--	--	--	--	--	--
04...	230	91	63	18	69	2.1	8.1	140	57
JUL									
30...	150	44	45	10	38	1.4	7.8	110	23
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	160	36	46	10	39	1.4	7.7	120	23

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									
19...	130	3.2	391	.14	1.10	1.2	.020	<10	2
19...	--	--	--	--	--	--	--	--	--
19...	130	3.3	400	.10	1.30	1.4	.030	<10	10
MAY									
04...	150	2.8	444	<.10	2.40	--	.100	<9	<3
04...	--	--	--	--	--	--	--	--	--
04...	150	3.2	452	<.10	1.70	--	.080	9	5
JUL									
30...	76	4.8	271	<.10	1.60	--	.090	5	33
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
30...	76	5.6	280	<.10	1.70	--	.120	25	750

BRAZOS RIVER BASIN  
PROCTOR LAKE NEAR PROCTOR, TX--Continued

315814098291201 PROCTOR LAKE SITE AC  
PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO JULY 1982

DATE TIME	JAN 19,82 1331	MAY 4,82 1117	JUL 30,82 1136
TOTAL CELLS/ML	24000	140000	230000
DIVERSITY: DIVISION	1.4	1.2	0.3
..CLASS	1.4	1.2	0.3
..ORDER	1.8	1.4	1.5
...FAMILY	2.9	1.7	1.5
....GENUS	3.5	2.6	2.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
....NITZSCHIA	680	3	* 0		--	-
....EUPODISCALES						
...COSCIDISCAEAE						
....CYCLOTILLA	590	2	* 0		4700	2
....MELOSIRA	--	-	1800	1	--	-
...FRAGILARIALES						
....FRAGILARIAEAE						
....SYNEDRA	200	1	* 0		* 0	
..NAVICULALES						
...NAVICULACEAE						
....NAVICULA	1600	7	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
....CHLOROCOCCACEAE						
....SCHROEDERIA	2100	9	920	1	--	-
....TETRAEDRON	--	-	--	-	* 0	
...DICTYOSPHAERIAEAE						
....DICTYOSPHAERIUM	780	3	--	-	--	-
....WESTELLA	--	-	920	1	--	-
...MICRACTINIAEAE						
....MICRACTINIUM	780	3	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	3200	2	2500	1
....CHODATELLA	1100	4	* 0		--	-
....KIRCHNERIELLA	1300	5	* 0		--	-
...OOCYSTIS	2700	11	3700	3	--	-
....SELENASTRUM	--	-	* 0		--	-
...SCENEDESMACEAE						
....COELASTRUM	--	-	1800	1	--	-
....CRUCIGENIA	780	3	3700	3	--	-
...SCENEDESMUS	2500	11	55000#	39	--	-
....TETRASTRUM	2000	8	3900	3	--	-
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	* 0	
....CHLAMYDOMONAS	--	-	--	-	* 0	
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
....CHROOCOCCACEAE						
....AGMENELLUM	780	3	1800	1	5800	3
....ANACYSTIS	--	-	48000#	34	2900	1
...GOMPHOSPHAERIA	--	-	7300	5	--	-
...NOSTOCALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	7900	3
....CYLINDROSPERMUM	--	-	--	-	80000#	35
...OSCILLATORIALES						
...OSCILLATORIAEAE						
....LYNGBYA	--	-	--	-	79000#	35
....OSCILLATORIA	5900#	24	4600	3	40000#	17
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
....EUGLENACEAE						
....PHACUS	200	1	--	-	--	-
....TRACHELOMONAS	--	-	* 0		* 0	

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

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

## PROCTOR LAKE NEAR PROCTOR, TX--Continued

320040098293501 PROCTOR LAKE SITE FC

## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO JULY 1982

DATE TIME	JAN 19,82 1446	MAY 4,82 1307	JUL 30,82 1246
TOTAL CELLS/ML	5800	88000	77000
DIVERSITY: DIVISION	0.7	0.5	1.3
..CLASS	0.7	0.5	1.3
..ORDER	0.7	0.7	2.2
...FAMILY	2.1	1.2	2.4
....GENUS	2.9	1.9	2.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	91	2	980	1	15000#	20
...FRAGILARIALES						
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	600	1
....SYNEDRA	--	-	980	1	600	1
...NAVICULALES						
...CYMBELLACEAE						
....CYMBELLA	--	-	*	0	--	-
...NAVICULACEAE						
....NAVICULA	550	9	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	2400#	41	--	-	--	-
....TETRAEDRON	--	-	1600	2	*	0
...COCCOMYXACEAE						
....ELAKATOTHRIX	270	5	--	-	--	-
...DICTYOSPHAERIACEAE						
...DICTYOSPHAERIUM	--	-	--	-	1200	2
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	6200	7	900	1
....CHLORELLA	360	6	--	-	--	-
....CHODATELLA	320	5	--	-	--	-
....KIRCHNERIELLA	320	5	--	-	600	1
...OOCYSTIS	550	9	--	-	1200	2
...SELENASTRUM	230	4	--	-	--	-
...SCENEDESMACEAE						
....COELASTRUM	--	-	2600	3	--	-
...SCENEDESMUS	270	5	56000#	64	3600	5
...TETRASTRUM	360	6	13000	15	1200	2
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	1600	2	*	0
CHRYSTOPHYTA						
..CHRYSTOPHYCEAE						
...OCHROMONADALES						
...DINOBRYACEAE						
....DINOBRYON	140	2	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	4800	6
...NOSTOCALES						
...NOSTOCACEAE						
....ANABAENA	--	-	2900	3	4800	6
...CYLINDROSPERMUM	--	-	--	-	29000#	37
...OSCILLATORIALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	12000#	15
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	1300	1	1200	2

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

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

## BRAZOS RIVER BASIN

08099500 LEON RIVER NEAR HASSE, TX

LOCATION.--Lat 31°57'28", long 98°27'32", Comanche County, Hydrologic Unit 12070201, on left bank at downstream side of bridge on U.S. Highways 67 and 377, 500 ft (150 m) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 0.3 mi (0.5 km) upstream from Walnut Creek, 2.0 mi (3.2 km) downstream from Proctor Lake, 2.1 mi (3.4 km) northeast of Hasse, and 225.2 mi (362.4 km) upstream from mouth.

DRAINAGE AREA.--1,261 mi<sup>2</sup> (3,266 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1342: 1952. WSP 1392: 1952. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,115.01 ft (339.855 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow regulated by Proctor Lake (station 08099400) since October 1963. Numerous diversions above station for municipal, steam powerplant operation, and other uses. Rain gage and gage-height telemeters at station.

AVERAGE DISCHARGE.--24 years (water years 1940-63) prior to completion of Proctor Lake, 151 ft<sup>3</sup>/s (4.276 m<sup>3</sup>/s), 109,400 acre-ft/yr (135 hm<sup>3</sup>/yr); 19 years (water years 1964-82) regulated, 88.7 ft<sup>3</sup>/s (2.512 m<sup>3</sup>/s), 64,260 acre-ft/yr (79.2 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,500 ft<sup>3</sup>/s (1,090 m<sup>3</sup>/s) May 24, 1952, gage height, 21.49 ft (6.550 m); maximum gage height, 21.72 ft (6.620 m) Oct. 4, 1959; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1858, occurred in May 1908, from information by local resident. At site about 2.5 mi (4.0 km) upstream, flood of May 1908 was 9.1 ft (2.77 m) higher than that of May 24, 1952, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 832 ft<sup>3</sup>/s (23.6 m<sup>3</sup>/s) June 27 at 1000 hours, gage height, 8.43 ft (2.569 m); minimum daily, 0.87 ft<sup>3</sup>/s (0.025 m<sup>3</sup>/s) Apr. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	3.1	3.9	3.8	3.3	2.8	1.7	3.4	414	740	304	34
2	24	2.6	3.7	4.0	3.8	2.7	1.8	2.9	410	732	303	44
3	21	3.0	3.9	3.9	3.7	2.8	1.6	2.5	408	731	302	39
4	20	3.1	3.8	3.6	3.6	2.2	1.6	2.0	408	723	301	24
5	21	3.3	3.9	3.7	3.6	2.2	1.6	2.2	400	713	293	23
6	24	3.1	4.1	3.8	3.3	3.3	1.5	192	395	688	290	22
7	19	3.5	4.1	3.6	3.2	2.5	1.5	5.0	306	589	288	30
8	4.2	6.0	4.0	3.6	3.1	2.2	1.7	2.9	84	516	282	45
9	3.7	3.9	3.7	3.6	3.2	2.1	1.3	2.3	61	512	282	35
10	3.3	32	3.8	3.6	2.8	2.1	1.5	2.3	28	508	279	34
11	3.4	195	3.8	2.2	2.6	2.1	1.6	2.4	28	501	279	30
12	3.5	195	3.9	2.4	2.6	2.5	1.4	2.8	32	496	276	30
13	7.3	194	4.1	2.5	2.7	2.6	.97	8.9	29	496	276	34
14	4.4	194	4.2	3.0	2.0	4.3	.92	150	28	492	276	41
15	3.3	194	3.8	3.5	2.3	2.8	1.3	417	20	485	235	41
16	4.9	197	3.5	3.3	2.1	2.1	1.3	416	17	481	78	36
17	4.6	197	3.9	3.0	2.0	1.9	.87	406	14	476	45	34
18	6.7	198	4.1	3.2	2.0	1.6	1.0	399	30	472	45	29
19	5.5	115	4.5	3.4	2.1	1.6	1.9	403	31	468	45	29
20	3.9	4.8	3.9	3.2	2.5	1.5	2.3	402	30	465	45	30
21	3.6	4.0	3.7	3.1	2.5	3.3	2.1	404	30	460	45	35
22	9.9	4.1	3.6	2.6	2.2	2.6	6.9	429	64	457	47	34
23	6.9	3.8	3.5	2.1	2.2	1.9	3.7	431	182	455	45	31
24	5.5	3.9	3.9	3.1	2.1	2.1	2.9	426	182	454	44	31
25	3.6	3.9	4.1	2.6	4.7	1.9	2.8	428	253	452	41	31
26	3.4	3.7	3.5	2.6	5.8	1.8	2.2	428	257	451	32	31
27	3.4	3.7	3.6	2.8	3.2	2.9	1.9	416	559	449	32	28
28	2.8	3.8	3.5	2.9	2.5	2.5	2.0	416	577	449	32	21
29	2.7	4.1	3.6	3.0	---	2.1	2.7	412	690	447	32	21
30	2.5	4.7	3.6	4.1	---	2.3	2.6	409	726	408	32	20
31	3.0	---	3.6	3.6	---	2.0	---	409	---	308	32	---
TOTAL	260.0	1787.1	118.8	99.4	81.7	73.3	59.16	7432.6	6693	16074	4938	947
MEAN	8.39	59.6	3.83	3.21	2.92	2.36	1.97	240	223	519	159	31.6
MAX	25	198	4.5	4.1	5.8	4.3	6.9	431	726	740	304	45
MIN	2.5	2.6	3.5	2.1	2.0	1.5	.87	2.0	14	308	32	20
AC-FT	516	3540	236	197	162	145	117	14740	13280	31880	9790	1880
CAL YR 1981	TOTAL	5278.31	MEAN	14.5	MAX 198	MIN .03	AC-FT	10470				
WTR YR 1982	TOTAL	38564.06	MEAN	106	MAX 740	MIN .87	AC-FT	76490				

## BRAZOS RIVER BASIN

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08099500 LEON RIVER NEAR HASSE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 19...	1615	5.2	994	8.1	7.0	5	4.9	15.3	130	1.8	270
MAY 04...	1500	2.3	1160	7.2	23.5	5	17	6.0	73	2.0	330
JUL 30...	0830	440	549	7.7	26.5	30	20	6.1	79	2.6	160

DATE	HARD- NESS, NONCAR- BONATE (MG/L CAO3)	CALCIUM DIS- SOLVED (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 CAO3)	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 19...	80	70	23	87	2.5	6.4	150	78	170	.4	6.8
MAY 04...	110	87	28	110	2.8	5.4	220	86	200	.4	11
JUL 30...	44	46	12	42	1.5	7.4	120	27	85	.3	4.4

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, 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 19...	532	25	4	<.020	.18	.220	1.1	1.30	.030	6.2
MAY 04...	660	17	<2	.020	<.10	.260	.74	1.00	.050	7.4
JUL 30...	297	79	32	.020	<.10	.210	1.5	1.70	.100	7.8

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 19...	1615	1	120	<1	<10	1	<10
MAY 04...	1500	1	170	<3	<10	1	<9
JUL 30...	0830	3	93	<1	<10	<1	6

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 19...	2	48	<.1	<1	1	3
MAY 04...	2	76	<.1	<1	<1	<12
JUL 30...	<1	190	<.1	<1	<1	<3

## BRAZOS RIVER BASIN

08100000 LEON RIVER NEAR HAMILTON, TX

LOCATION.--Lat 31°47'19", long 98°07'16", Hamilton County, Hydrologic Unit 12070201, on downstream side of bridge on U.S. Highway 281, 2.2 mi (3.5 km) upstream from Mesquite Creek, 3.6 mi (5.8 km) downstream from Bear Creek, 5.9 mi (9.5 km) north of Hamilton, and 172.9 mi (278.3 km) upstream from mouth.

DRAINAGE AREA.--1,891 mi<sup>2</sup> (4,898 km<sup>2</sup>).

PERIOD OF RECORD.--January 1925 to September 1931, September 1960 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 955.38 ft (291.200 m) National Geodetic Vertical Datum of 1929. Jan. 7, 1925, to Sept. 30, 1931, nonrecording gage 1.4 mi (2.3 km) downstream at datum 1.87 ft (0.570 m) higher. Sept. 1 to Nov. 22, 1960, nonrecording gage at same site and at 5.00-foot (1.524 m) higher datum. Nov. 22, 1960, to Sept. 30, 1972, recording gage at same site and at 5.00-foot (1.524 m) higher datum.

REMARKS.--Records poor. Since 1960, at least 10 percent of drainage area is regulated by Proctor Lake (station 08099400) and by other smaller reservoirs. Numerous diversions above station for irrigation, municipal supply, and industrial uses. Flow is affected at times by discharge from the flood-detention pools of 14 floodwater-retarding structures with a combined detention capacity of 11,610 acre-ft (14.3 hm<sup>3</sup>). These structures control runoff from 43.9 mi<sup>2</sup> (113.7 km<sup>2</sup>) in the (northeast tributaries) drainage basin. Gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--6 years (water years 1926-31) unregulated, 130 ft<sup>3</sup>/s (3.682 m<sup>3</sup>/s), 94,180 acre-ft/yr (116 hm<sup>3</sup>/yr); 22 years (water years 1961-82) regulated, 139 ft<sup>3</sup>/s (3.936 m<sup>3</sup>/s), 100,700 acre-ft/yr (124 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,600 ft<sup>3</sup>/s (527 m<sup>3</sup>/s) Sept. 9, 1962, gage height, 31.93 ft (9.732 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1858, 38.4 ft (11.70 m) in May 1908 and December 1913; flood in September 1911 reached a stage of 37.0 ft (11.28 m), all at present site and datum, from information by local residents. The flood in October 1959 reached a stage of 34.1 ft (10.39 m), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,480 ft<sup>3</sup>/s (41.9 m<sup>3</sup>/s) June 26 at 0200 hours, gage height, 14.5 ft (4.42 m), from graph based on fragmentary gage-height record; minimum discharge, 0.59 ft<sup>3</sup>/s (0.017 m<sup>3</sup>/s), Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	4.7	4.2	2.6	3.1	8.8	3.6	40	421	720	320	5.6
2	12	5.4	3.4	3.3	2.4	9.0	4.2	30	422	710	300	5.6
3	7.2	5.1	3.8	2.3	2.8	6.6	5.6	20	420	700	290	3.6
4	7.3	4.4	4.2	2.1	4.2	4.4	4.1	15	418	700	280	2.1
5	5.8	3.8	4.4	1.7	3.8	4.3	4.1	10	416	690	270	8.5
6	4.7	3.8	4.4	1.2	3.3	4.1	4.8	70	412	680	260	9.6
7	6.8	3.8	4.2	1.0	3.2	3.3	3.3	300	402	640	260	4.9
8	13	4.0	4.0	.83	3.0	3.6	2.8	150	350	600	250	2.4
9	27	9.0	3.8	2.6	2.8	3.8	3.3	70	272	590	250	1.7
10	16	14	3.6	7.3	2.7	3.9	3.8	35	186	580	240	1.4
11	9.4	8.5	3.6	8.8	2.6	4.4	4.3	120	150	590	227	.92
12	7.1	8.8	3.8	7.6	2.4	4.3	4.6	440	120	600	221	.59
13	7.8	191	3.8	6.1	2.2	4.7	4.4	360	110	580	217	3.1
14	8.8	203	3.8	4.9	2.1	6.5	5.6	300	100	560	217	10
15	8.1	209	3.6	3.8	2.0	6.3	8.0	430	171	540	214	11
16	13	212	3.4	3.4	1.9	7.0	7.9	430	400	510	199	14
17	18	212	4.0	3.6	1.6	9.8	7.6	430	547	490	98	16
18	13	212	3.8	4.2	1.1	11	6.0	420	97	470	36	11
19	8.8	212	3.8	4.0	.92	8.9	4.3	420	77	450	16	8.5
20	7.3	216	3.8	4.9	.92	8.7	4.3	420	192	450	15	6.1
21	8.5	133	3.1	4.2	1.0	285	5.7	430	113	440	14	7.0
22	23	36	2.8	3.8	1.2	334	7.3	500	100	440	10	3.8
23	78	16	2.1	3.8	1.2	46	10	700	66	430	13	3.5
24	16	9.3	2.3	4.8	.92	17	14	1050	141	420	12	3.2
25	10	7.3	2.6	4.3	3.4	8.9	10	1000	818	410	10	3.0
26	6.3	5.4	2.9	3.5	11	5.5	8.5	1110	1400	410	8.8	9.4
27	4.4	4.7	2.6	4.3	8.8	5.0	6.5	1000	1160	410	8.2	9.0
28	4.2	3.6	2.6	2.4	4.9	5.2	5.5	634	966	400	5.4	8.8
29	4.0	3.6	2.4	2.1	---	5.0	12	476	822	380	1.9	9.3
30	4.0	4.7	2.1	2.4	---	4.7	20	443	750	350	1.4	10
31	4.2	---	2.4	3.6	---	4.4	---	429	---	340	1.6	---
TOTAL	379.7	1965.9	105.3	115.43	81.46	844.1	196.1	12282	12019	16280	4266.3	193.61
MEAN	12.2	65.5	3.40	3.72	2.91	27.2	6.54	396	401	525	138	6.45
MAX	78	216	4.4	8.8	11	334	20	1110	1400	720	320	16
MIN	4.0	3.6	2.1	.83	.92	3.3	2.8	10	66	340	1.4	.59
AC-FT	753	3900	209	229	162	1670	389	24360	23840	32290	8460	384
CAL YR 1981	TOTAL	3827.45	MEAN	10.5	MAX	216	MIN	.00	AC-FT	7590		
WTR YR 1982	TOTAL	48728.90	MEAN	134	MAX	1400	MIN	.59	AC-FT	96650		



## BRAZOS RIVER BASIN

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## 08100500 LEON RIVER AT GATESVILLE, TX

LOCATION.--Lat 31°25'58", long 97°45'42", Coryell County, Hydrologic Unit 12070201, on right bank at upstream side of county road bridge, 800 ft (240 m) downstream from U.S. Highway 84 bridge in Gatesville, 0.3 mi (0.5 km) downstream from Dodds Creek, 5.2 mi (8.4 km) upstream from Cottonwood Creek, and 99.0 mi (159.3 km) upstream from mouth.

DRAINAGE AREA.--2,342 mi<sup>2</sup> (6,066 km<sup>2</sup>).

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 723.85 ft (220.629 m) National Geodetic Vertical Datum of 1929. Oct. 1 1950, to Feb. 8, 1951, nonrecording gage; Feb. 9, 1951, to Jan. 21, 1969, water-stage recorder; all at site 800 ft (240 m) upstream at same datum.

REMARKS.--Records good. Some upstream regulation by Proctor Lake (08099400) and other smaller reservoirs. Flow at times slightly affected by discharge from 18 floodwater-retarding structures, having a combined detention capacity of 12,600 acre-ft (15.5 hm<sup>3</sup>). These structures control runoff from 47.0 mi<sup>2</sup> (121.7 km<sup>2</sup>) in the northeast tributaries and Pecan Creek drainage basins. Numerous diversions above station for irrigation, municipal supply, and oilfield operation. The city of Hamilton, located about 70 mi (113 km) upstream from the station, diverted flow from Leon River for municipal use and returned sewage effluent. The city of Gatesville discharged sewage effluent into Leon River downstream from the station. The city of Gatesville obtains all their municipal water from ground-water wells. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--32 years, 239 ft<sup>3</sup>/s (6.768 m<sup>3</sup>/s), 173,200 acre-ft/yr (214 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,200 ft<sup>3</sup>/s (1,450 m<sup>3</sup>/s) Oct. 4, 1959, gage height, 34.14 ft (10.406 m), from rating curve extended above 41,000 ft<sup>3</sup>/s (1,160 m<sup>3</sup>/s); no flow at times in 1951-52, 1954-55, all 1971, all 1978-79.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1854, about 35 ft (10.7 m) in May 1908, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,900 ft<sup>3</sup>/s (53.8 m<sup>3</sup>/s) June 27 at 0300 hours, gage height, 10.43 ft (3.179 m); minimum daily, 0.29 ft<sup>3</sup>/s (0.008 m<sup>3</sup>/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	11	14	9.0	11	53	65	71	447	710	328	3.6
2	5.6	9.7	12	9.2	11	33	61	286	432	705	295	3.3
3	5.7	9.2	11	9.3	11	25	52	192	422	706	254	2.9
4	5.8	8.5	11	9.0	10	18	91	90	424	692	248	2.6
5	5.8	7.2	11	9.3	10	14	68	65	417	677	237	2.3
6	6.2	6.7	10	9.3	9.7	13	46	176	417	661	235	2.0
7	11	6.5	9.7	9.0	9.4	13	42	1030	411	658	234	1.8
8	9.1	9.4	9.7	8.8	9.4	12	37	1110	401	660	225	1.6
9	8.5	9.2	9.7	9.5	9.4	10	32	541	395	645	222	1.4
10	8.4	9.7	9.7	9.7	9.4	9.7	33	239	326	548	237	1.1
11	9.3	7.9	9.8	9.0	9.4	9.7	32	164	182	482	245	.90
12	9.7	7.4	10	9.2	9.4	9.4	29	127	143	429	246	.94
13	10	8.6	10	11	9.4	9.4	29	405	108	476	242	.90
14	11	7.7	10	13	9.4	9.4	30	258	94	485	234	.80
15	10	70	9.7	13	9.4	9.0	31	531	82	557	229	.69
16	9.7	163	9.3	13	9.4	9.0	30	341	81	513	227	.69
17	11	170	8.8	12	9.7	9.0	23	256	63	436	224	.55
18	11	177	8.2	11	9.7	14	19	432	449	412	199	.50
19	9.7	181	7.9	14	9.4	12	19	454	266	408	102	.49
20	9.3	181	7.6	15	9.4	9.4	19	424	152	401	50	.52
21	9.8	179	8.4	14	9.4	440	16	415	308	396	25	.60
22	23	182	8.2	13	9.0	1460	37	450	319	385	14	.53
23	19	145	8.6	13	9.0	825	37	437	163	362	11	.54
24	17	79	8.7	12	9.0	343	59	587	181	352	9.3	.45
25	42	48	8.3	13	14	164	84	1150	156	356	7.0	.41
26	68	33	9.4	13	87	105	94	793	418	354	6.2	.39
27	36	23	9.7	13	24	92	85	1390	1650	347	6.0	.34
28	23	19	9.3	12	97	81	67	1340	766	345	5.4	.33
29	17	18	9.3	11	---	76	54	742	926	343	5.1	.29
30	14	16	9.3	18	---	78	48	621	921	336	4.4	.59
31	13	---	9.0	12	---	65	---	484	---	332	3.8	---
TOTAL	454.4	1801.7	297.3	356.3	453.3	4030.0	1369	15601	11520	15169	4610.2	34.05
MEAN	14.7	60.1	9.59	11.5	16.2	130	45.6	503	384	489	149	1.14
MAX	68	182	14	18	97	1460	94	1390	1650	710	328	3.6
MIN	5.6	6.5	7.6	8.8	9.0	9.0	16	65	63	332	3.8	.29
AC-FT	901	3570	590	707	899	7990	2720	30940	22850	30090	9140	68
CAL YR 1981	TOTAL	33203.20	MEAN	91.0	MAX	8190	MIN	3.5	AC-FT	65860		
WTR YR 1982	TOTAL	55696.25	MEAN	153	MAX	1650	MIN	.29	AC-FT	110500		

## BRAZOS RIVER BASIN

08101000 COWHOUSE CREEK AT PIDCOKE, TX

LOCATION.--Lat 31°17'05", long 97°53'05", Coryell County, Hydrologic Unit 12070202, on left bank 125 ft (38 m) downstream from bridge on Farm Road 116, 0.1 mi (0.2 km) downstream from Beehouse Creek, 0.6 mi (1.0 km) northeast of Pidcoke, 4.9 mi (7.9 km) upstream from Table Rock Creek, and 34.6 mi (55.7 km) upstream from mouth.

DRAINAGE AREA.--455 mi<sup>2</sup> (1,178 km<sup>2</sup>).

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 1712: 1955. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 736.71 ft (224.549 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--32 years, 86.0 ft<sup>3</sup>/s (2.436 m<sup>3</sup>/s), 2.57 in/yr (65 mm/yr), 62,310 acre-ft/yr (76.8 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,200 ft<sup>3</sup>/s (1,870 m<sup>3</sup>/s) Oct. 4, 1959, gage height, 40.1 ft (12.22 m), from floodmark, from rating curve extended above 30,000 ft<sup>3</sup>/s (850 m<sup>3</sup>/s) on basis of slope-area measurement of 55,800 ft<sup>3</sup>/s (1,580 m<sup>3</sup>/s); no flow at times.

Maximum stage since at least 1882, that of Oct. 4, 1959, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft<sup>3</sup>/s (99.1 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Mar. 21	2100	4,460 126	12.22 3.725
May 13	0800	*9,780 277	18.55 5.654

Minimum discharge, no flow Aug. 25 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	46	5.9	5.1	7.6	32	63	36	44	39	1.8	.00
2	1.5	12	5.5	5.0	7.3	25	53	42	38	25	1.5	.00
3	1.4	6.9	5.6	5.2	7.1	21	51	38	35	19	1.2	.00
4	1.5	5.7	5.3	4.6	7.9	18	64	29	31	16	1.0	.00
5	1.5	4.9	5.1	4.2	7.7	16	46	24	27	14	.86	.00
6	1.9	4.2	5.4	4.3	7.0	15	35	156	24	11	.70	.00
7	8.4	3.8	5.6	4.2	7.1	14	30	179	23	9.1	.54	.00
8	8.5	6.0	5.6	3.6	7.2	13	28	83	20	8.0	.44	.00
9	6.1	8.8	5.7	3.5	7.1	12	25	47	17	6.7	.45	.00
10	5.1	8.9	5.7	3.6	6.8	12	27	32	15	5.6	.54	.00
11	4.6	7.6	5.7	3.4	6.6	12	27	26	14	4.5	.55	.00
12	4.4	7.0	5.7	4.1	6.6	11	25	24	17	79	.56	.00
13	5.3	6.3	6.1	5.4	6.3	11	25	2310	15	396	.54	.00
14	5.6	6.1	6.5	6.3	6.0	11	23	239	13	86	.32	.00
15	5.3	5.8	6.1	7.5	6.2	11	22	151	11	38	.26	.00
16	4.9	5.4	5.8	7.5	5.8	10	22	117	15	21	.20	.00
17	4.5	5.4	5.6	7.2	5.6	10	21	113	11	14	.11	.00
18	5.3	5.4	5.2	7.3	5.4	12	19	100	8.1	11	.06	.00
19	4.3	4.9	5.2	7.1	5.2	12	19	82	6.8	8.6	.05	.00
20	3.9	4.6	5.5	7.1	5.3	12	18	70	6.2	7.1	.05	.00
21	3.8	4.5	5.7	7.8	5.4	812	24	63	5.7	6.0	.04	.00
22	6.9	4.8	5.7	7.6	4.8	846	102	61	17	5.2	.04	.00
23	23	4.7	5.5	6.8	4.6	215	88	56	39	4.6	.04	.00
24	24	4.7	5.5	6.4	4.6	119	157	267	114	4.0	.02	.00
25	12	4.8	5.5	5.9	7.2	85	204	183	74	3.4	.00	.00
26	8.6	5.1	5.3	5.0	38	63	112	96	72	3.8	.00	.00
27	6.8	5.8	5.2	4.8	47	71	72	75	475	3.1	.00	.00
28	5.6	5.2	5.1	5.2	46	89	53	71	132	2.6	.00	.00
29	5.0	5.8	4.8	5.1	---	87	42	86	201	2.2	.00	.00
30	4.7	6.2	4.9	6.7	---	79	37	75	88	1.9	.00	.00
31	33	---	5.1	8.1	---	73	---	55	---	1.9	.00	---
TOTAL	219.0	217.3	171.1	175.6	289.4	2829	1534	4986	1608.8	857.3	11.87	.00
MEAN	7.06	7.24	5.52	5.66	10.3	91.3	51.1	161	53.6	27.7	.38	.000
MAX	33	46	6.5	8.1	47	846	204	2310	475	396	1.8	.00
MIN	1.4	3.8	4.8	3.4	4.6	10	18	24	5.7	1.9	.00	.00
CFSM	.02	.02	.01	.01	.02	.20	.11	.35	.12	.06	.001	.000
IN.	.02	.02	.01	.01	.02	.23	.13	.41	.13	.07	.00	.00
AC-FT	434	431	339	348	574	5610	3040	9890	3190	1700	24	.00

CAL YR 1981	TOTAL	22066.83	MEAN 60.5	MAX 11600	MIN .97	CFSM .13	IN 1.80	AC-FT 43770
WTR YR 1982	TOTAL	12899.37	MEAN 35.3	MAX 2310	MIN .00	CFSM .08	IN 1.05	AC-FT 25590

## 08102000 BELTON LAKE NEAR BELTON, TX

LOCATION.--Lat 31°06'22", long 97°28'28", Bell County, Hydrologic Unit 12070201, in intake structure at Belton Dam on Leon River, 1.6 mi (2.6 km) upstream from bridge on State Highway 317, 3.5 mi (5.6 km) north of Belton, 8.9 mi (14.3 km) upstream from Nolan Creek, and 16.7 mi (26.9 km) upstream from mouth.

DRAINAGE AREA.--3,531 mi<sup>2</sup> (9,145 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1954 to current year. Prior to October 1970, published as Belton Reservoir.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Feb. 20, 1955, nonrecording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam 5,524 ft (1,684 m) long, including a 1,300-foot (396 m) uncontrolled broad-crested spillway in a saddle near left end of dam and a 418-foot-long (127 m) dike. Deliberate impoundment began Mar. 8, 1954, and the dam was completed in December 1954. The lake was built for flood control and conservation storage. The controlled outlet works consist of a 22.0-foot-diameter (6.7 m) conduit that is controlled by three 7.0- by 22.0-foot (2.1 by 6.7 m) broome-type gates. The service outlet consists of a 36- by 36-inch (914 by 914 mm) gated outlet that discharges into the flood-control conduit. Beginning January 1976, the capacity table is based on a sedimentation survey made in 1966. There are many small diversions upstream for irrigation, municipal supply, and oilfield operations. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08100500. 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.....	662.0	-
Design flood.....	656.9	-
Crest of spillway.....	631.0	1,086,000
Top of conservation pool.....	594.0	442,000
Service outlet (invert).....	540.0	51,240
Lowest gated outlet (invert).....	483.0	0

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 870,300 acre-ft (1,070 hm<sup>3</sup>) June 6, 1957, elevation, 620.45 ft (189.113 m); minimum since initial filling, 113,400 acre-ft (140 hm<sup>3</sup>) Dec. 16, 1956, elevation, 553.06 ft (168.573 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 461,600 acre-ft (569 hm<sup>3</sup>) May 16, elevation, 595.55 ft (181.524 m); minimum daily, 432,100 acre-ft (533 hm<sup>3</sup>) Sept. 30, elevation, 593.20 ft (180.807 m).

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

593.0	429,700	595.0	454,500
594.0	442,000	596.0	467,300

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	441700	445600	447200	444800	443400	445000	450500	444600	440900	454400	445700	442600
2	441100	446100	447000	444700	443600	444800	450100	443800	441900	454400	445800	442100
3	441100	446000	446800	444600	443500	445100	449400	443100	442400	453100	446000	441700
4	440700	446000	446800	444700	443600	445600	448700	442900	443000	452100	446000	441200
5	440600	446000	446600	444200	443500	445600	448200	442900	443500	451900	446000	440900
6	442400	445800	447100	444700	443600	445300	447100	443200	442900	451100	446000	440400
7	443200	445700	447100	444300	442900	445000	446300	443100	443000	450600	446000	439900
8	443700	447100	447100	443800	443200	445000	445500	444000	443100	449600	446200	439300
9	443700	447000	447100	443700	442900	445000	444800	445300	443600	449500	446300	439000
10	443600	446100	447100	443600	443000	445000	444200	445700	443800	448000	446300	438600
11	443500	446100	447200	443200	442700	445200	442900	445300	443700	447000	446300	438300
12	443400	446100	447100	443800	442500	445300	443400	444500	444500	446600	446300	437900
13	451400	445800	447100	443200	442500	445600	443400	459000	444700	446500	446500	437500
14	452100	445800	446800	443500	442400	445600	443600	461400	444600	445700	446600	437200
15	452100	446000	446700	443200	442400	445800	443700	461200	444600	445000	446300	437700
16	451100	445800	446800	443100	442500	445800	443700	461600	444700	444200	446300	437400
17	450700	446000	446800	442900	442600	446000	443800	460300	444800	443600	446300	437200
18	449500	446300	446200	442900	442500	445800	444000	457600	444800	443200	447200	437200
19	448000	446500	446000	442900	442400	446000	444500	455000	445200	442600	447100	436900
20	446700	446200	445800	442900	442600	446300	445000	452500	445300	442500	447000	436400
21	445800	446500	446000	442900	442400	448200	445700	450200	445700	442900	446700	435900
22	445300	446600	446000	443000	442200	450100	448200	448700	446300	443400	446300	435600
23	444500	447000	446000	442900	442400	452600	449200	447600	446300	443800	446000	435100
24	444500	447100	445300	443000	442700	453300	451200	447000	448400	444000	445600	434700
25	444600	447000	445300	442900	443700	453500	452600	445700	448900	443800	445200	434300
26	443800	447400	445200	442900	444100	452600	452000	444100	449500	444300	444800	434000
27	444000	447400	445200	442700	444600	453400	450100	442900	445200	444600	444500	433300
28	444100	447400	445200	442400	445000	452300	448100	442200	454900	444800	444200	432900
29	444200	447700	444800	442600	---	452100	446600	442500	454700	445100	443800	432500
30	444500	447600	444600	443500	---	451600	445200	441700	454700	445200	443600	432100
31	445700	---	444800	443400	---	451200	---	441700	---	445600	443200	---
MAX	452100	447700	447200	444800	445000	453500	452600	461600	454900	454400	447200	442600
MIN	440600	445600	444600	442400	442200	444800	442900	441700	440900	442500	443200	432100
(+)	594.30	594.45	594.23	594.11	594.24	594.74	594.26	593.98	595.01	594.29	594.10	593.20
(+)	+4000	+1900	-2800	-1400	+1600	+6200	-6000	-3500	+13000	-9100	-2400	-11100

CAL YR 1981 MAX 540100 MIN 382200 † -60100  
WTR YR 1982 MAX 461600 MIN 432100 † -9600

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

08102000 BELTON LAKE NEAR BELTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1961 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 12...	1545	332	30.0	120	13	36	8.0	19

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 12...	.8	3.7	110	24	27	.3	4.5	189

## BRAZOS RIVER BASIN

353

## 08102500 LEON RIVER NEAR BELTON, TX

LOCATION.--Lat 31°04'12", long 97°26'28", Bell County, Hydrologic Unit 12070201, on left bank 1,400 ft (427 m) upstream from bridge on Farm Road 817, 2,000 ft (610 m) upstream from concrete dam, 1.0 mi (1.6 km) upstream from bridge on Interstate Highway 35 and U.S. Highway 81, 1.6 mi (2.6 km) northeast of Belton, 3.2 mi (5.1 km) downstream from Belton Dam, 5.2 mi (8.4 km) upstream from Nolan Creek, and 13.1 mi (21.1 km) upstream from mouth.

DRAINAGE AREA.--3,542 mi<sup>2</sup> (9,174 km<sup>2</sup>).

PERIOD OF RECORD.--October 1923 to current year.

REVISED RECORDS.--WSP 1442: 1925(M), 1935(M), 1936, 1938(M), 1941-42(M), 1944-45(M). WSP 1712: 1937(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder above concrete dam. Datum of gage is 476.68 ft (145.292 m) National Geodetic Vertical Datum of 1929. Prior to May 21, 1931, nonrecording gage.

REMARKS.--Records good. The city of Temple diverted water from the pool at gage for municipal use and returned sewage effluent to Little Elm Creek downstream from station. The Brazos River Authority returned sewage effluent to the Leon River downstream from station from their Temple-Belton Plant. Flow regulated by Belton Lake (station 08102000) since Mar. 8, 1954. Gage-height telemeter at station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--30 years (water years 1924-53) unregulated, 659 ft<sup>3</sup>/s (18.66 m<sup>3</sup>/s), 477,400 acre-ft/yr (589 hm<sup>3</sup>/yr); 29 years (water years 1954-82) regulated, 515 ft<sup>3</sup>/s (14.58 m<sup>3</sup>/s), 373,100 acre-ft/yr (460 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,500 ft<sup>3</sup>/s (1,600 m<sup>3</sup>/s) Apr. 22, 1945, gage height, 24.41 ft (7.440 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1913 reached a stage of 25 ft (7.6 m), and flood in September 1921 reached a stage of 21 ft (6.4 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,030 ft<sup>3</sup>/s (57.5 m<sup>3</sup>/s) May 25 at 2200 hours, gage height, 5.83 ft (1.777 m); minimum daily, 0.72 ft<sup>3</sup>/s (0.020 m<sup>3</sup>/s) Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	36	16	14	13	13	487	517	473	964	31	45
2	1.5	30	13	13	14	11	489	519	307	960	28	44
3	1.8	32	15	12	13	13	485	509	307	962	28	47
4	2.3	33	15	12	12	12	491	425	306	961	29	54
5	1.9	31	15	16	13	12	485	373	307	963	29	56
6	3.0	31	19	12	13	12	488	377	309	960	27	58
7	12	33	16	10	13	12	494	373	304	961	33	58
8	7.4	40	17	11	8.7	12	488	370	306	956	43	59
9	6.7	39	19	12	12	12	497	375	196	956	45	46
10	5.5	34	21	11	11	11	497	375	110	941	47	38
11	4.9	29	19	10	12	12	499	599	117	933	55	42
12	4.6	29	17	11	12	11	222	791	121	945	61	33
13	48	28	18	8.6	13	11	8.5	569	122	952	57	24
14	38	30	19	8.6	13	11	5.0	451	121	953	35	24
15	20	26	14	8.6	12	11	6.4	1010	121	949	37	21
16	283	20	16	10	11	15	7.5	1020	120	766	36	13
17	562	21	13	9.7	12	13	7.8	1360	118	617	37	11
18	564	22	12	9.7	13	14	7.2	1990	116	612	43	10
19	563	20	9.7	9.2	12	9.6	8.2	1990	122	616	45	6.9
20	563	21	12	9.7	12	11	9.9	1990	129	308	49	5.8
21	564	22	10	11	13	11	9.8	1810	129	36	51	5.7
22	568	22	11	11	12	15	18	1400	137	36	56	.72
23	264	23	12	11	9.6	234	13	1400	135	40	57	1.7
24	24	16	13	10	12	498	14	1630	133	46	58	1.7
25	22	18	14	9.7	13	485	12	1960	233	48	62	3.0
26	24	17	17	9.7	15	488	645	1960	322	47	54	3.4
27	24	14	15	10	14	490	1190	1960	302	47	35	3.4
28	26	15	16	9.7	13	491	1190	1650	533	40	34	3.6
29	26	15	14	11	---	487	1180	1350	963	39	43	3.4
30	32	17	13	15	---	490	925	1360	964	39	50	4.0
31	35	---	14	13	---	484	---	981	---	32	48	---
TOTAL	4303.4	764	464.7	339.2	346.3	4411.6	10879.3	33444	7983	17685	1343	726.32
MEAN	139	25.5	15.0	10.9	12.4	142	363	1079	266	570	43.3	24.2
MAX	568	40	21	16	15	498	1190	1990	964	964	62	59
MIN	1.5	14	9.7	8.6	8.7	9.6	5.0	370	110	32	27	.72
AC-FT	8540	1520	922	673	687	8750	21580	66340	15830	35080	2660	1440

CAL YR 1981 TOTAL 60199.10 MEAN 165 MAX 2790 MIN .00 AC-FT 119400  
WTR YR 1982 TOTAL 82689.82 MEAN 227 MAX 1990 MIN .72 AC-FT 164000



## BRAZOS RIVER BASIN

08102600 NOLAN CREEK AT BELTON, TX

LOCATION.--Lat 31°03'06", long 97°27'25", Bell County, Hydrologic Unit 12070201, on left bank 43 ft (13 m) downstream from northbound service road of Interstate Highway 35, 0.5 mi (0.8 km) southeast of the courthouse at Belton, and 3.1 mi (5.0 km) upstream from mouth.

DRAINAGE AREA.--112 mi<sup>2</sup> (290 km<sup>2</sup>).

PERIOD OF RECORD.--January 1974 to September 1982 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 480.84 ft (146.560 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Low flow is sustained by sewage effluent from Fort Hood military installation and by the cities of Killeen, Nolanville, and Harker Heights. Flow is affected at times by discharge from the flood-detention pools of 13 floodwater-retarding structures with a combined detention capacity of 15,430 acre-ft (19.0 hm<sup>3</sup>). These structures control runoff from 47.4 mi<sup>2</sup> (122.8 km<sup>2</sup>). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--8 years, 73.6 ft<sup>3</sup>/s (2.084 m<sup>3</sup>/s), 53,320 acre-ft/yr (65.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,100 ft<sup>3</sup>/s (1,020 m<sup>3</sup>/s) Oct. 31, 1974, gage height, 26.90 ft (8.199 m); minimum, 6.8 ft<sup>3</sup>/s (0.19 m<sup>3</sup>/s) July 22, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 26.90 ft (8.199 m) Oct. 31, 1974. Floods in December 1913, September 1921, May 1957, and May 1965 reached a stage of 24.5 ft (7.47 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,130 ft<sup>3</sup>/s (117 m<sup>3</sup>/s) May 13 at 1300 hours, gage height, 14.02 ft (4.273 m); minimum daily, 15 ft<sup>3</sup>/s (0.42 m<sup>3</sup>/s) Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	103	42	25	32	21	30	77	31	64	17	22
2	20	51	32	24	41	23	29	76	30	39	18	21
3	20	44	31	26	42	18	27	90	31	36	16	22
4	20	40	29	27	30	19	26	89	30	32	16	21
5	21	39	29	27	26	21	26	93	29	29	15	21
6	48	37	42	26	25	21	26	232	28	32	16	20
7	338	36	41	27	25	18	25	98	27	30	16	22
8	72	128	32	25	30	19	26	77	28	29	24	21
9	50	62	31	25	27	19	30	69	26	27	22	21
10	35	45	30	26	28	18	35	66	26	27	21	20
11	31	41	30	25	27	18	35	66	26	35	18	20
12	43	41	29	28	26	19	29	64	37	27	17	20
13	866	39	29	43	24	19	28	1060	29	95	16	23
14	270	39	44	32	24	20	27	227	20	31	17	34
15	111	39	32	55	25	24	27	125	19	27	17	23
16	49	39	30	33	26	21	27	83	22	25	18	34
17	36	38	29	29	26	21	35	75	19	24	18	24
18	32	37	28	29	25	21	29	63	17	23	19	21
19	31	37	27	28	26	20	26	57	18	22	19	21
20	31	35	28	29	25	20	38	51	17	21	18	21
21	30	34	29	29	27	22	38	47	24	21	18	20
22	78	34	31	29	27	80	358	45	140	20	18	18
23	63	35	29	31	26	35	135	45	45	20	18	18
24	38	34	29	30	26	28	290	173	75	26	18	19
25	36	34	26	30	50	25	185	78	72	20	18	19
26	34	33	25	30	72	23	79	65	48	19	18	21
27	32	31	26	30	32	129	54	44	708	19	20	20
28	32	31	25	30	25	68	44	70	58	18	20	18
29	31	32	25	31	---	38	38	44	52	18	74	19
30	48	60	25	81	---	36	37	37	45	19	36	20
31	169	---	26	58	---	35	---	32	---	18	24	---
TOTAL	2734	1328	941	998	845	919	1839	3518	1777	893	640	644
MEAN	88.2	44.3	30.4	32.2	30.2	29.6	61.3	113	59.2	28.8	20.6	21.5
MAX	866	128	44	81	72	129	358	1060	708	95	74	34
MIN	19	31	25	24	24	18	25	32	17	18	15	18
AC-FT	5420	2630	1870	1980	1680	1820	3650	6980	3520	1770	1270	1280

CAL YR 1981 TOTAL 25404 MEAN 69.6 MAX 1950 MIN 16 AC-FT 50390  
WTR YR 1982 TOTAL 17076 MEAN 46.8 MAX 1060 MIN 15 AC-FT 33870

NOTE.--No gage-height record Feb. 4 to Mar. 10.



## 08103800 LAMPASAS RIVER NEAR KEMPNER, TX

LOCATION.--Lat 31°04'54", long 98°00'59", Lampasas County, Hydrologic Unit 12070203, on left bank 800 ft (240 m) upstream from centerline of U.S. Highway 190, 0.6 mi (1.0 km) upstream from Mesquite Creek, 0.8 mi (1.3 km) west of Kempner, 0.9 mi (1.4 km) downstream from Sulphur Creek, and 72.3 mi (116.4 km) upstream from mouth.

DRAINAGE AREA.--818 mi<sup>2</sup> (2,119 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 828.38 ft (252.490 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 4, 1967, at site 800 ft (240 m) downstream.

REMARKS.--Water-discharge records good except those for period Nov. 20 to Dec. 15, which are fair. At times, flow is affected by discharge from the flood-detention pools of 13 floodwater-retarding structures with a combined detention capacity of 38,570 acre-ft (47.6 hm<sup>3</sup>). These structures control runoff from 131 mi<sup>2</sup> (339 km<sup>2</sup>) in the Sulphur and Bennett Creeks drainage basins. There are many small diversions above the station for irrigation and municipal supply. The city of Lampasas diverts water upstream from this station and returns sewage effluent to Sulfur Creek, which is also upstream from this station.

AVERAGE DISCHARGE.--20 years, 127 ft<sup>3</sup>/s (3.597 m<sup>3</sup>/s), 92,010 acre-ft/yr (113 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,000 ft<sup>3</sup>/s (2,010 m<sup>3</sup>/s) May 16, 1965, gage height, 32.98 ft (10.052 m); minimum daily, 1.4 ft<sup>3</sup>/s (0.040 m<sup>3</sup>/s) July 17, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1871 occurred in September 1873 (stage about 45 ft or 13.7 m). Flood of May 13, 1957, reached a stage of 37 ft (11.3 m), and flood of Oct. 4, 1959, reached a stage of 34 ft (10.4 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,000 ft<sup>3</sup>/s (113 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 31	2130	*8,040 228	11.20 3.414
May 13	1000	4,700 133	9.06 2.761

Minimum daily discharge, 6.2 ft<sup>3</sup>/s (0.18 m<sup>3</sup>/s) Sept. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	532	37	34	35	50	56	76	77	66	12	6.9
2	21	81	37	34	39	42	52	78	69	50	11	6.7
3	21	50	37	35	35	40	56	81	63	40	10	6.2
4	20	42	37	35	37	37	56	66	52	35	6.4	6.5
5	21	40	35	34	37	36	50	62	52	30	6.8	8.6
6	23	40	34	34	35	35	48	241	50	27	8.2	8.3
7	34	40	34	32	35	35	46	215	47	26	8.2	8.3
8	36	40	34	31	34	35	46	117	41	23	8.3	8.8
9	31	40	35	31	34	37	46	90	35	18	8.9	8.7
10	31	40	34	31	34	44	41	76	32	17	9.4	8.6
11	30	42	34	31	34	38	41	73	30	17	9.6	8.6
12	29	42	34	32	34	36	41	69	28	17	9.1	8.1
13	28	42	34	34	34	35	41	1400	29	93	9.1	12
14	32	42	32	34	34	35	41	382	29	88	8.2	17
15	29	39	32	35	34	34	41	173	29	45	8.0	46
16	26	39	32	35	35	32	41	135	33	30	7.9	19
17	27	40	32	35	35	31	41	122	32	24	8.6	13
18	28	39	32	35	35	30	40	114	29	22	8.2	11
19	25	39	32	35	34	29	39	106	24	19	7.6	9.6
20	24	37	34	37	35	29	49	96	24	17	7.6	9.6
21	24	39	35	35	39	363	51	86	24	16	7.3	9.6
22	25	40	39	35	40	711	108	88	33	15	7.7	9.6
23	29	44	39	32	40	117	130	85	65	14	7.3	10
24	27	42	39	34	37	76	130	249	47	14	7.3	10
25	27	39	39	39	37	64	267	203	44	14	6.9	10
26	27	39	37	35	82	54	140	124	58	19	6.9	10
27	27	39	37	36	74	55	106	103	298	15	6.7	10
28	26	39	37	39	59	68	90	119	126	13	6.7	10
29	26	39	37	42	---	70	81	164	146	12	7.5	9.6
30	29	39	35	63	---	65	76	120	78	11	7.4	9.5
31	1020	---	34	48	---	63	---	94	---	11	7.7	---
TOTAL	1825	1745	1090	1112	1111	2426	2091	5207	1724	858	252.5	329.8
MEAN	58.9	58.2	35.2	35.9	39.7	78.3	69.7	168	57.5	27.7	8.15	11.0
MAX	1020	532	39	63	82	711	267	1400	298	93	12	46
MIN	20	37	32	31	34	29	39	62	24	11	6.4	6.2
AC-FT	3620	3460	2160	2210	2200	4810	4150	10330	3420	1700	501	654

CAL YR 1981	TOTAL	26838.0	MEAN	73.5	MAX	7180	MIN	10	AC-FT	53230
WTR YR 1982	TOTAL	19771.3	MEAN	54.2	MAX	1400	MIN	6.2	AC-FT	39220

NOTE.--No gage-height record Nov. 2 to Dec. 15.

## BRAZOS RIVER BASIN

08103800 LAMPASAS RIVER NEAR KEMPNER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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...	1330	--	1010	8.5	20.0	5	2.0	14.6	164	.7	300
DEC 15...	1330	--	1190	8.5	14.0	5	2.5	12.4	122	.7	350
MAR 03...	1135	40	1010	8.6	17.0	5	.50	16.8	181	.8	290
APR 28...	1130	76	639	8.5	22.0	5	2.1	11.0	129	.5	260
JUL 14...	1330	81	611	8.4	28.5	10	16	9.0	118	1.7	230
AUG 16...	1515	8.6	1950	8.2	35.0	15	2.3	13.9	204	2.0	320

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- 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)
NOV 17...	73	67	33	92	2.5	5.2	230	30	190	.3	4.2
DEC 15...	81	78	38	110	2.8	6.1	270	12	240	.4	5.2
MAR 03...	62	59	35	96	2.7	4.5	230	33	190	.4	2.4
APR 28...	43	59	28	41	1.2	3.4	220	21	75	.4	5.0
JUL 14...	29	49	26	41	1.3	3.6	200	28	70	.3	11
AUG 16...	140	59	43	250	6.8	10	180	17	490	.2	8.8

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...	560	0	0	.08	.020	.10	.150	1.2	1.30	.030	1.9
DEC 15...	652	6	0	--	<.020	.26	<.070	--	.54	.080	1.9
MAR 03...	559	14	13	--	<.020	<.10	.090	.42	.51	.050	2.0
APR 28...	365	3	<2	--	<.020	<.10	.070	.53	.60	.020	3.6
JUL 14...	349	19	5	--	<.020	<.10	<.060	--	.90	.020	3.7
AUG 16...	986	8	<2	--	<.020	<.10	.140	.96	1.10	.040	4.3

## BRAZOS RIVER BASIN

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08103800 LAMPASAS RIVER NEAR KEMPNER, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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...	1330	1	66	1	<10	2	<10
MAR 03...	1135	1	59	<1	<10	1	<10
JUL 14...	1330	2	59	<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)
NOV 17...	3	3	<.1	<1	1	<3
MAR 03...	3	2	<.1	<1	<1	<3
JUL 14...	<1	2	<.1	<1	<1	5

## BRAZOS RIVER BASIN

08103900 SOUTH FORK ROCKY CREEK NEAR BRIGGS, TX  
(Hydrologic bench-mark station)

LOCATION.--Lat 30°54'41", long 98°02'12", Burnet County, Hydrologic Unit 12070203, on upstream side of bridge on Ranch Road 963, 6 mi (10 km) above confluence with North Fork Rocky Creek, 7 mi (11 km) west of Briggs, and 12.9 mi (20.8 km) above mouth.

DRAINAGE AREA.--33.3 mi<sup>2</sup> (86.2 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-74-1: 1972-73(P). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 955.8 ft (291.33 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Recording rain gage at station.

AVERAGE DISCHARGE.--19 years, 11.5 ft<sup>3</sup>/s (0.326 m<sup>3</sup>/s), 4.69 in/yr (119 mm/yr), 8,330 acre-ft/yr (10.3 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,200 ft<sup>3</sup>/s (884 m<sup>3</sup>/s) June 19, 1976, gage height, 22.70 ft (6.919 m), from rating curve extended above 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s) on basis of slope-area measurements of 3,580 and 8,510 ft<sup>3</sup>/s (101 and 241 m<sup>3</sup>/s) and conveyance-slope study; no flow for many days each year for 1963-74 and 1976-81. Maximum stage since at least 1904, 22.70 ft (6.919 m) June 19, 1976.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
May 13	0700	*3,770	107	9.75	2.972
June 22	1730	2,570	72.8	8.14	2.481

Minimum discharge, no flow Aug. 5-10, Aug. 12 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	2.9	1.5	.94	.52	1.2	1.3	10	9.4	12	.28	.00
2	1.2	2.8	1.6	.94	.52	1.0	1.2	10	9.0	9.1	.23	.00
3	1.0	2.6	1.5	.86	.52	.91	1.1	9.0	8.5	7.0	.21	.00
4	1.0	2.5	1.4	.79	.52	.84	1.0	8.1	8.1	6.2	.12	.00
5	.94	2.5	1.3	.79	.52	.77	.96	7.7	7.6	5.7	.00	.00
6	1.3	2.3	1.3	.79	.52	.88	.76	25	6.9	4.8	.00	.00
7	2.5	2.2	1.3	.71	.52	.94	.71	12	6.0	4.1	.00	.00
8	2.9	2.2	1.3	.65	.52	.92	.71	9.2	5.8	3.9	.00	.00
9	2.3	2.2	1.3	.65	.52	.72	2.5	8.2	5.2	3.3	.00	.00
10	1.9	2.2	1.3	.65	.52	.71	2.9	7.7	4.5	2.9	.00	.00
11	1.8	2.2	1.2	.65	.52	.71	2.0	7.8	5.2	2.3	.09	.00
12	1.7	2.2	1.1	.65	.52	.71	1.8	8.0	7.0	2.2	.00	.00
13	3.9	2.2	1.1	.71	.52	.71	1.7	351	7.6	3.3	.00	.00
14	5.3	2.1	1.1	.79	.52	.71	1.4	35	7.0	3.1	.00	.00
15	3.1	2.1	1.2	.79	.52	.71	1.3	25	6.1	2.5	.00	.00
16	2.6	1.8	1.2	.79	.52	.71	1.3	22	11	1.9	.00	.00
17	2.3	1.8	1.1	.79	.51	.71	1.3	24	8.7	1.9	.00	.00
18	2.9	1.7	1.0	.79	.46	.71	1.3	21	6.6	1.7	.00	.00
19	2.5	1.5	1.1	.79	.46	.71	1.3	18	5.7	1.5	.00	.00
20	2.3	1.5	1.1	.79	.66	.71	1.3	16	5.1	1.2	.00	.00
21	2.2	1.4	1.1	.79	.70	.98	1.3	15	4.8	1.0	.00	.00
22	3.7	1.3	1.0	.77	.58	2.8	6.3	14	178	.94	.00	.00
23	4.8	1.3	.94	.65	.56	1.6	6.3	13	33	.79	.00	.00
24	3.7	1.3	.94	.65	.46	1.3	30	41	20	.71	.00	.00
25	3.5	1.3	.94	.62	.63	1.1	19	18	19	.71	.00	.00
26	2.9	1.3	.94	.58	3.3	1.0	13	14	12	.65	.00	.00
27	2.8	1.3	.94	.53	2.2	1.2	11	13	46	.58	.00	.00
28	2.8	1.3	.94	.52	1.5	1.5	11	26	15	56	.00	.00
29	2.6	1.3	.94	.52	---	1.6	10	16	11	.47	.00	.00
30	2.6	1.4	.94	.52	---	1.5	10	12	10	.45	.00	.00
31	2.8	---	.94	.52	---	1.4	---	11	---	.43	.00	---
TOTAL	79.14	56.7	35.56	21.98	20.34	31.97	145.74	827.7	489.8	143.33	.93	.00
MEAN	2.55	1.89	1.15	.71	.73	1.03	4.86	26.7	16.3	4.62	.030	.000
MAX	5.3	2.9	1.6	.94	3.3	2.8	30	351	178	56	.28	.00
MIN	.94	1.3	.94	.52	.46	.71	.71	7.7	4.5	.43	.00	.00
CFSM	.08	.06	.04	.02	.02	.03	.15	.80	.49	.14	.001	.000
IN.	.09	.06	.04	.02	.02	.04	.16	.92	.55	.16	.00	.00
AC-FT	157	112	71	44	40	63	289	1640	972	284	1.8	.00
(††)	4.08	.47	.18	.69	1.70	1.73	3.58	4.63	3.81	.47	.31	1.16

CAL YR 1981 TOTAL 4971.45 MEAN 13.6 MAX 764 MIN .18 CFSM .41 IN 5.55 AC-FT 9860 †† -  
WTR YR 1982 TOTAL 1853.19 MEAN 5.08 MAX 351 MIN .00 CFSM .15 IN 2.07 AC-FT 3680 †† 28.81

†† Rainfall, in inches.

08103900 SOUTH FORK ROCKY CREEK NEAR BRIGGS, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1961 to January 1964. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: July 1971 to September 1982 (discontinued). Sediment records: February 1968 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
NOV 17...	1055	1.8	473	8.0	15.5	9.5	97	--	20	700	250
DEC 15...	1100	1.2	475	7.7	10.0	10.5	94	.2	K8	71	250
MAR 03...	0915	.94	450	7.8	13.5	8.4	83	.3	84	160	230
APR 28...	1250	11	467	8.2	22.0	8.8	104	--	48	92	250
JUL 14...	1100	3.3	435	8.0	28.0	7.8	103	--	33	1100	230

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)
NOV 17...	19	57	26	7.3	.2	1.4	230	17	10	.5
DEC 15...	9	56	26	7.6	.2	1.2	240	11	12	.4
MAR 03...	26	51	24	8.0	.3	1.2	200	17	12	.5
APR 28...	15	57	25	7.7	.2	1.4	230	17	9.5	.4
JUL 14...	16	50	24	7.1	.2	1.5	210	19	9.2	.4

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, 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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, ORGANIC DIS- SOLVED (MG/L AS N)
NOV 17...	9.5	264	267	--	.10	.10	.140	.160	.09	.06
DEC 15...	9.0	263	269	--	<.10	<.10	<.070	<.070	--	--
MAR 03...	7.4	229	241	--	<.10	<.10	<.060	<.060	--	--
APR 28...	7.8	246	264	<.020	<.10	<.10	.140	<.060	.31	--
JUL 14...	10	241	247	--	.10	.10	.110	.080	.79	.72

DATE	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDE 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
NOV 17...	.23	.22	.010	<.010	1.1	--	--	5	.02	100
DEC 15...	.57	.52	.010	.020	--	1.1	.4	6	.02	4
MAR 03...	.29	.24	.030	.030	1.6	--	--	7	.02	63
APR 28...	.45	.47	.270	.050	2.1	--	--	9	.27	26
JUL 14...	.90	.80	<.010	<.010	--	1.6	.2	13	.12	18

## BRAZOS RIVER BASIN

08103900 SOUTH FORK ROCKY CREEK NEAR BRIGGS, TX.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
DEC 15...	1100	<1	--	<1	200	200	39	1	<1	<10
JUL 14...	1100	1	0	1	100	50	46	<1	<1	10

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
DEC 15...	<1	<3	5	<10	20	<10	3	<10	10	<1
JUL 14...	<1	<3	3	<10	50	<3	<1	<10	10	<1

DATE	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
DEC 15...	<.1	<.1	<1	<1	1	<1	10	--	<3
JUL 14...	.1	<.1	<1	<1	1	<1	10	5	5

DATE	TIME	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90)	RADIUM 226, DIS- SOLVED, RADON, METHOD (PCI/L)	URANIUM NATURAL DIS- SOLVED (UG/L AS U)
JUL 14...	1100	<4.1	<.4	<3.2	<.4	<3.0	<.4	.13	.8



## BRAZOS RIVER BASIN

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08103900 SOUTH FORK ROCKY CREEK NEAR BRIGGS, TX.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL (UG/L)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL (UG/L)
JUL 14...	1100	<.10	<1	<.10	<.01	<.1	<.10	<1.0	<.01	<.1	<.01
DATE		DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL (UG/L)
JUL 14...		.1	<.01	<.1	<.01	<.01	<.1	<.01	<.01	<.1	<.01
DATE		HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)	
JUL 14...		<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	.1	<.01
DATE		METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUL 14...		<.01	<.01	<.1	<.01	<1	<10	<.01	<.01	<.01	<.01

## BRAZOS RIVER BASIN

## 08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX

LOCATION.--Lat 31°01'20", long 97°31'57", Bell County, Hydrologic Unit 12070203, in intake structure at Stillhouse Hollow Dam on Lampasas River, 5 mi (8 km) southwest of Belton, and 16.0 mi (25.7 km) upstream from mouth.

DRAINAGE AREA.--1,313 mi<sup>2</sup> (3,401 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1966 to current year. Prior to October 1970, published as Stillhouse Hollow Reservoir.

REVISED RECORDS.--WDR TX-76-2: 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 15,624 ft (4,762 m) long, including a 1,650-foot (503 m) spillway and 5,894-foot (1,796 m) dike. The lake was operated as a temporary detention basin from Sept. 2, 1966, to Feb. 19, 1968. Deliberate impoundment began Feb. 19, 1968. The lake was built for flood control and water conservation. The spillway is an uncontrolled broad-crested weir 1,650 ft (503 m) long located near right end of dam. The flood-control outlet consists of a 12.0-foot-diameter (3.7 m) conduit controlled by two 5.67- by 12.0-foot (1.7 by 3.7 m) slide gates at an invert elevation of 515.0 ft (156.97 m). The capacity curve is based on maps prepared by Brazos River Authority in 1937 and supplemented by contour maps prepared by the Corps of Engineers in 1958. There are many small diversions upstream for irrigation, municipal supply, and oilfield operation. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08103800. 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.....	698.0	-
Design flood.....	693.2	1,013,300
Crest of spillway.....	666.0	630,400
Top of conservation pool.....	622.0	235,700
Lowest gated outlet (invert).....	515.0	775

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 347,100 acre-ft (428 hm<sup>3</sup>) May 2, 3, 1977, elevation, 637.26 ft (194.237 m); minimum since conservation storage was reached on Apr. 12, 1969, 183,300 acre-ft (226 hm<sup>3</sup>) Nov. 5, 1978, elevation, 613.13 ft (186.882 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 245,900 acre-ft (303 hm<sup>3</sup>) May 14, elevation, 623.56 ft (190.061 m); minimum daily, 227,800 acre-ft (281 hm<sup>3</sup>) Sept. 30, elevation, 620.75 ft (189.205 m).

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

620.0	223,100
622.0	235,700
624.0	248,800

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236500	239500	237200	238900	237500	238600	237100	236700	236700	241200	234300	230700
2	236300	240000	237200	239000	237600	238600	237000	236700	236600	240800	234100	230600
3	236100	240300	237200	239100	237700	238600	236700	236900	236500	240100	233900	230800
4	235900	240500	237200	238800	237600	238500	236500	236900	236500	239500	233700	230600
5	235800	240800	237200	238300	237600	238400	236200	236500	236300	238700	233500	230500
6	236300	240600	237400	238000	237600	239300	236000	237200	236000	238100	233400	230300
7	237100	240000	237600	237600	237500	238200	236000	237400	235800	237300	233300	230200
8	237200	239600	237700	237100	237600	238000	236000	237600	235800	236900	233100	230000
9	237400	238900	237800	236700	237600	237900	236300	237500	235800	236500	233100	229900
10	237400	238300	238000	236200	237600	237900	236300	237400	236000	236100	232900	229800
11	237600	237800	238100	235800	237600	237900	236300	237400	236100	235700	232900	229600
12	237600	237400	238100	235700	237800	237900	236300	237400	236200	235600	232800	229500
13	243700	237600	238200	235700	237800	237900	236400	244200	236300	235700	232800	229500
14	244400	237900	238300	235900	237800	237900	236500	245900	236300	235700	232600	229300
15	244200	238000	238300	236000	238000	237900	236600	245000	236400	235800	232400	229800
16	242900	238200	238300	236000	238000	237800	236700	243800	236500	235800	232200	229600
17	242000	238300	238300	236000	238000	237800	236500	242600	236500	235700	232100	229600
18	240400	238500	238300	236100	238100	237700	236500	241300	236700	235600	232000	229500
19	239100	238400	238300	236200	238200	237700	236700	239900	236700	235500	231900	229400
20	237700	238000	238300	236300	238400	237600	236900	238400	236700	235400	231800	229100
21	236500	237600	238600	236500	238500	237500	236900	237400	236800	235400	231700	228800
22	235500	237300	238600	236700	238500	238700	237800	236800	237400	235300	231500	228700
23	234900	237100	238500	236700	238600	239000	238200	236300	238000	235300	231400	228600
24	235000	236700	238500	236700	238500	238600	239300	236300	238600	235300	231100	228600
25	235100	236700	238500	236800	238800	238100	240200	236700	238600	235200	230900	228100
26	235100	236700	238500	236800	238700	237700	240100	236600	239800	235100	230700	228100
27	235200	236800	238600	236900	238700	237800	239300	236400	242200	234900	230500	228000
28	235200	236900	238600	236900	238700	237500	238300	236300	242300	234900	230400	227900
29	235300	237000	238600	237100	---	237400	237400	236700	241900	234600	231200	227800
30	236000	237200	238700	237400	---	237400	236700	236800	241700	234600	231000	227800
31	237000	---	238900	237400	---	237200	---	236800	---	234500	230900	---
MAX	244400	240800	238900	239100	238800	239300	240200	245900	242300	241200	234300	230800
MIN	234900	236700	237200	235700	237500	237200	236000	236300	235800	234500	230400	227800
(†)	622.20	622.23	622.49	622.27	622.46	622.24	622.16	622.17	622.92	621.81	621.25	620.75
(‡)	+300	+200	+1700	-1500	+1300	-1500	-500	+100	+4900	-7200	-3600	-3100

CAL YR 1981 MAX 319800 MIN 203700 ‡ +34700  
WTR YR 1982 MAX 245900 MIN 227800 ‡ -8900

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

## BRAZOS RIVER BASIN

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08104050 STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1982 (discontinued).

310129097315901 STILLHOUSE HOLLOW LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
MAR										
01...	1415	1.00	479	8.3	13.0	3.00	9.9	95	<1	K10
01...	1416	4.90	--	--	--	--	--	--	--	--
01...	1417	10.0	479	8.3	11.5	--	9.9	92	--	--
01...	1419	20.0	479	8.3	11.0	--	9.9	91	--	--
01...	1421	30.0	479	8.3	10.5	--	9.7	87	--	--
01...	1423	40.0	479	8.3	10.0	--	9.7	87	--	--
01...	1425	50.0	479	8.3	10.0	--	9.7	87	--	--
01...	1427	60.0	479	8.3	9.5	--	9.6	85	--	--
01...	1429	70.0	479	8.3	9.5	--	9.3	82	--	--
01...	1431	80.0	479	8.3	9.5	--	9.3	82	--	--
01...	1433	90.0	479	8.2	9.0	--	9.2	80	--	--
01...	1435	100	479	8.2	9.0	--	9.2	80	--	--
01...	1437	110	479	8.1	9.0	--	8.7	76	--	--
JUN										
03...	1330	1.00	466	7.6	26.5	2.70	7.8	99	K1	K8
03...	1331	4.50	--	--	--	--	--	--	--	--
03...	1332	10.0	466	7.6	26.5	--	7.8	99	--	--
03...	1334	20.0	466	7.6	26.0	--	7.7	96	--	--
03...	1336	30.0	487	7.3	22.5	--	6.2	73	--	--
03...	1338	40.0	487	7.2	19.0	--	5.6	62	--	--
03...	1340	50.0	487	7.1	17.0	--	4.9	52	--	--
03...	1342	60.0	487	7.0	16.0	--	4.2	43	--	--
03...	1344	70.0	487	7.8	15.0	--	3.6	36	--	--
03...	1346	80.0	487	6.9	14.0	--	2.6	26	--	--
03...	1348	90.0	487	6.9	14.0	--	2.5	25	--	--
03...	1350	103	487	6.9	14.0	--	2.5	25	--	--
AUG										
03...	1200	1.00	448	7.9	30.0	2.40	7.4	99	<1	K3
03...	1201	4.00	--	--	--	--	--	--	--	--
03...	1202	10.0	448	7.9	30.0	--	7.4	99	--	--
03...	1204	20.0	448	7.8	29.5	--	7.4	99	--	--
03...	1206	30.0	451	7.6	28.5	--	7.1	92	--	--
03...	1208	35.0	461	7.8	27.0	--	4.2	53	--	--
03...	1210	40.0	480	6.9	24.0	--	.5	6	--	--
03...	1212	50.0	492	6.9	20.0	--	.8	9	--	--
03...	1214	60.0	492	7.0	17.5	--	.9	9	--	--
03...	1216	70.0	492	7.0	17.0	--	.7	7	--	--
03...	1218	80.0	492	6.9	16.0	--	.5	5	--	--
03...	1220	90.0	492	6.9	15.5	--	.0	0	--	--
03...	1222	100	492	6.9	15.0	--	.0	0	--	--
03...	1224	110	492	7.1	15.0	--	.0	0	--	--
03...	1226	120	492	7.1	15.0	--	.0	0	--	--

## BRAZOS RIVER BASIN

## STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310129097315901 STILLHOUSE HOLLOW LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAR										
01...	180	32	45	17	28	1.0	3.6	150	15	50
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--	--
01...	180	32	45	17	27	.9	3.5	150	16	49
JUN										
03...	170	27	39	17	29	1.1	3.2	140	20	59
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	180	31	46	16	27	.9	3.2	150	19	52
AUG										
03...	160	34	36	18	29	1.1	3.0	130	20	56
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--
03...	200	36	49	18	27	.9	2.9	160	19	53

## BRAZOS RIVER BASIN

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STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310129097315901 STILLHOUSE HOLLOW LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAR									
01...	.2	8.0	257	.17	.43	.60	<.010	<10	<1
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	.18	.48	.66	<.010	<10	20
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	8.1	256	.18	.54	.72	<.010	<10	32
JUN									
03...	.3	5.3	257	<.10	.70	--	<.010	<3	<1
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	.20	.80	1.0	.010	20	10
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	8.2	262	.30	.70	1.0	<.010	<3	5
AUG									
03...	.3	5.6	246	<.10	.80	--	.030	<3	3
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	.70	--	<.010	20	<10
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	.80	--	.020	30	10
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	9.3	275	.16	.60	.76	.020	16	190

## BRAZOS RIVER BASIN

STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310033097333001 STILLHOUSE HOLLOW LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
01...	1345	1.00	478	8.5	12.5	10.0	94
01...	1347	10.0	478	8.5	11.5	10.0	93
01...	1349	20.0	478	8.5	11.0	10.0	92
01...	1351	30.0	478	8.5	10.5	9.9	89
01...	1353	40.0	478	8.5	10.0	9.7	87
01...	1355	50.0	478	8.5	9.5	9.7	86
01...	1357	60.0	478	8.5	9.5	9.4	83
01...	1359	70.0	478	8.4	9.0	9.0	78
01...	1401	80.0	478	8.4	9.0	9.0	78
01...	1403	95.0	478	8.3	9.0	8.6	75
JUN							
03...	1420	1.00	472	7.6	27.0	7.9	101
03...	1422	10.0	472	7.6	26.0	7.9	99
03...	1424	20.0	475	7.5	25.5	7.6	95
03...	1426	30.0	484	7.3	21.5	5.3	61
03...	1428	40.0	488	7.1	19.0	4.7	52
03...	1430	50.0	488	7.1	17.0	3.8	40
03...	1432	60.0	488	6.9	16.0	2.7	28
03...	1434	70.0	488	6.9	15.5	1.5	15
03...	1436	80.0	488	6.8	14.5	.8	8
03...	1438	90.0	488	6.8	14.5	.8	8
03...	1440	100	488	6.9	14.0	.7	7
03...	1442	114	488	7.1	14.0	.7	7
AUG							
03...	1130	1.00	452	7.9	29.0	7.5	99
03...	1132	10.0	452	7.8	29.0	7.5	99
03...	1134	20.0	452	7.8	29.0	7.5	99
03...	1136	30.0	459	7.3	27.5	4.1	53
03...	1138	40.0	480	6.9	23.0	.0	0
03...	1140	50.0	492	6.9	19.5	.0	0
03...	1142	60.0	492	6.9	18.0	.0	0
03...	1144	70.0	492	6.9	16.5	.0	0
03...	1146	80.0	492	6.9	16.0	.0	0
03...	1148	90.0	492	6.9	15.0	.0	0
03...	1150	100	492	6.9	15.0	.0	0
03...	1152	110	492	7.0	14.5	.0	0



## STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310128097353601 STILLHOUSE HOLLOW LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
MAR										
01...	1200	1.00	485	8.4	14.0	2.10	9.2	90	<1	<1
01...	1202	10.0	485	8.4	12.0	--	9.4	88	--	--
01...	1204	20.0	485	8.4	12.0	--	9.4	88	--	--
01...	1206	30.0	485	8.4	11.5	--	9.3	86	--	--
01...	1210	40.0	485	8.4	11.5	--	9.3	86	--	--
01...	1214	50.0	485	8.4	11.0	--	9.1	83	--	--
01...	1218	60.0	490	8.4	9.5	--	8.9	79	--	--
01...	1222	70.0	495	8.3	9.5	--	8.7	77	--	--
01...	1226	80.0	520	8.3	9.5	--	8.2	73	--	--
01...	1230	90.0	543	8.2	9.5	--	7.6	67	--	--
01...	1234	95.0	546	8.1	9.5	--	7.3	65	--	--
JUN										
03...	1450	1.00	472	7.7	27.5	1.80	7.6	97	K1	220
03...	1452	10.0	472	7.6	27.0	--	7.6	97	--	--
03...	1454	20.0	472	7.6	26.0	--	7.3	91	--	--
03...	1456	30.0	472	7.1	22.5	--	3.7	44	--	--
03...	1458	40.0	472	7.0	22.0	--	3.2	37	--	--
03...	1500	50.0	502	6.9	17.5	--	1.8	19	--	--
03...	1502	60.0	502	6.8	16.5	--	1.2	12	--	--
03...	1504	70.0	498	6.8	15.5	--	.0	0	--	--
03...	1506	80.0	496	6.8	15.0	--	.0	0	--	--
03...	1508	90.0	496	6.8	15.0	--	.0	0	--	--
AUG										
03...	1045	1.00	451	7.8	1.0	1.80	7.1	95	K3	K2
03...	1047	10.0	451	7.8	30.0	--	7.1	95	--	--
03...	1049	20.0	451	7.7	29.5	--	7.1	95	--	--
03...	1051	30.0	455	7.4	28.0	--	4.4	57	--	--
03...	1053	35.0	455	7.1	27.0	--	.0	0	--	--
03...	1055	40.0	455	6.8	24.0	--	.0	0	--	--
03...	1057	50.0	492	6.8	19.5	--	.0	0	--	--
03...	1059	60.0	501	6.8	18.0	--	.0	0	--	--
03...	1101	70.0	501	6.8	17.0	--	.0	0	--	--
03...	1103	80.0	501	6.8	16.0	--	.0	0	--	--
03...	1105	93.0	501	6.8	15.5	--	.0	0	--	--

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
MAR									
01...	180	32	45	17	28	1.0	3.4	150	15
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	200	26	49	18	35	1.2	3.5	170	18
JUN									
03...	170	32	41	17	29	1.0	3.1	140	21
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	180	23	47	16	27	.9	3.1	160	18
AUG									
03...	170	31	37	19	29	1.1	3.0	140	20
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	190	24	48	18	27	.9	2.9	170	17

## BRAZOS RIVER BASIN

## STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310128097353601 STILLHOUSE HOLLOW LAKE SITE CC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAR									
01...	52	7.8	258	.17	.40	.57	<.010	<10	1
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	.18	.52	.70	<.010	<10	10
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	62	7.9	296	.19	.53	.72	<.010	36	58
JUN									
03...	55	5.2	255	<.10	.70	--	<.010	<3	<1
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	.20	.80	1.0	<.010	<10	10
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	.20	.90	1.1	<.010	20	10
03...	--	--	--	--	--	--	--	--	--
03...	53	8.7	269	.30	1.50	1.8	.140	110	230
AUG									
03...	55	6.0	253	<.10	.40	--	<.010	<3	3
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	.80	--	.020	<10	30
03...	--	--	--	<.10	.70	--	.030	60	40
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	53	10	279	<.10	.60	--	.020	500	330

310130097371701 STILLHOUSE HOLLOW LAKE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
01...	1520	1.00	495	8.5	13.0	10.4	100
01...	1522	10.0	495	8.5	11.5	10.4	96
01...	1524	20.0	500	8.5	10.5	10.0	90
01...	1526	30.0	500	8.4	10.5	9.5	86
01...	1528	40.0	500	8.4	10.0	9.3	83
01...	1530	50.0	515	8.4	10.0	8.7	78
01...	1532	56.0	523	8.3	10.0	8.6	77
JUN							
02...	1550	1.00	483	7.6	27.5	7.7	99
02...	1552	10.0	483	7.6	27.0	7.6	97
02...	1554	20.0	483	7.6	27.0	7.5	96
02...	1556	30.0	460	6.8	21.5	.5	6
02...	1558	40.0	467	6.7	19.5	.0	0
02...	1602	50.0	500	6.8	17.0	.0	0
02...	1604	60.0	500	6.8	16.5	.0	0
02...	1606	65.0	500	6.9	17.5	.0	0
AUG							
03...	1315	1.00	461	7.8	30.5	7.2	97
03...	1317	10.0	461	7.8	30.5	7.2	97
03...	1319	20.0	461	7.7	30.0	6.9	92
03...	1321	30.0	461	7.1	28.0	2.0	26
03...	1323	35.0	461	6.8	25.5	.0	0
03...	1325	40.0	461	6.8	23.0	.0	0
03...	1327	50.0	487	6.8	19.5	.0	0
03...	1329	60.0	500	6.9	17.5	.0	0
03...	1331	73.0	502	7.0	18.0	.0	0

## STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310037097383201 STILLHOUSE HOLLOW LAKE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
MAR										
01...	1550	1.00	517	8.5	13.5	1.60	11.2	109	<1	K2
01...	1551	2.60	--	--	--	--	--	--	--	--
01...	1552	10.0	535	8.5	11.0	--	9.9	91	--	--
01...	1554	20.0	540	8.4	10.5	--	9.6	86	--	--
01...	1556	30.0	596	8.3	10.5	--	8.6	77	--	--
01...	1558	43.0	643	8.1	10.5	--	7.3	66	--	--
JUN										
03...	1630	1.00	504	7.5	27.5	.90	6.8	87	K12	290
03...	1631	1.50	--	--	--	--	--	--	--	--
03...	1632	10.0	504	7.4	26.5	--	6.7	85	--	--
03...	1634	20.0	490	7.2	25.5	--	4.8	60	--	--
03...	1636	30.0	440	6.7	22.0	--	.0	0	--	--
03...	1638	39.0	472	6.8	19.5	--	.0	0	--	--
AUG										
03...	1345	1.00	473	7.7	30.5	1.20	6.6	89	<1	K4
03...	1346	2.00	--	--	--	--	--	--	--	--
03...	1347	10.0	474	7.6	29.5	--	6.2	83	--	--
03...	1349	20.0	474	7.4	29.5	--	4.6	61	--	--
03...	1351	30.0	479	6.8	28.0	--	.0	0	--	--
03...	1353	40.0	479	6.7	25.0	--	.0	0	--	--
03...	1355	45.0	479	6.8	22.5	--	.0	0	--	--

DATE	HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	AIKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
MAR									
01...	190	32	47	18	31	1.1	3.4	160	16
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	220	41	54	21	43	1.4	3.4	180	21
JUN									
03...	220	32	56	20	25	.8	2.7	190	21
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	190	26	48	16	25	.9	3.1	160	16
AUG									
03...	180	31	41	19	28	1.0	2.9	150	20
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	190	12	49	17	23	.8	2.8	180	9.0

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)
MAR									
01...	58	7.4	277	.16	.52	.68	<.010	<10	<1
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	--	--	--	--	--	--
01...	--	--	--	.19	.55	.74	<.010	<10	20
01...	--	--	--	--	--	--	--	--	--
01...	93	6.4	350	.15	.77	.92	<.010	<10	8
JUN									
03...	39	8.3	286	<.10	.60	--	<.010	<3	9
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	1.00	--	.010	30	10
03...	--	--	--	<.10	.80	--	.070	60	230
03...	45	9.3	259	<.10	1.60	--	<.010	350	330
AUG									
03...	53	7.7	262	<.10	.60	--	.020	3	4
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	.60	--	.030	30	30
03...	--	--	--	--	--	--	--	--	--
03...	45	12	267	<.10	1.90	--	.070	830	410

## STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310129097315901 STILLHOUSE HOLLOW LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	MAR 1, 82 1416	JUN 3, 82 1331	AUG 3, 82 1201			
TOTAL CELLS/ML	510	3800	19000			
DIVERSITY: DIVISION	1.1	1.4	0.8			
..CLASS	1.1	1.4	0.8			
..ORDER	1.6	1.6	1.3			
...FAMILY	2.0	2.0	1.3			
....GENUS	2.0	2.7	1.4			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	210#	41	120	3	410	2
..FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	82#	16	*	0	*	0
..NAVICULALES						
...NAVICULACEAE						
....NAVICULA	--	-	--	-	140	1
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON	14	3	41	1	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	27	5	*	0	1100	6
....KIRCHNERIELLA	--	-	--	-	*	0
...OOCYSTIS	--	-	150	4	--	-
...PALMELLACEAE						
....SPHAEROCYSTIS	--	-	280	7	--	-
...SCENEDESMACEAE						
....COELASTRUM	--	-	110	3	--	-
...CRUCIGENIA	160#	32	280	7	--	-
...SCENEDESMUS	--	-	210	5	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	*	0
...CHLAMYDOMONAS	--	-	41	1	*	0
...PHACOTACEAE						
....PHACOTUS	--	-	41	1	--	-
...ZYGNEATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	28	1	*	0
CHRYSOPHYTA						
..CHRYSOPHYCEAE						
...OCHROMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	28	1	--	-
...SYNURACEAE						
....MALLOMONAS	--	-	*	0	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	440	12	1500	8
....ANACYSTIS	--	-	1900#	50	--	-
...NOSTOCALES						
...NOSTOCACEAE						
....CYLINDROSPERMUM	--	-	--	-	15000#	78
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	140	1
....TRACHELOMONAS	14	3	55	1	180	1
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...DINOKONTAE						
...PERIDINIACEAE						
....PERIDINIUM	--	-	28	1	320	2

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

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

## BRAZOS RIVER BASIN

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## STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310037097383201 STILLHOUSE HOLLOW LAKE EC

## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	MAR 1,82 1551	JUN 3,82 1631	AUG 3,82 1346			
TOTAL CELLS/ML	9300	5000	930			
DIVERSITY: DIVISION	0.3	2.0	1.6			
..CLASS	0.3	2.0	1.6			
...ORDER	0.7	2.6	2.5			
...FAMILY	0.9	3.2	3.0			
....GENUS	1.0	3.8	3.2			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...ACHNANTHALES						
...ACHNANTHACEAE						
....ACHNANTHES						
..BACILLARIALES						
...NITZSCHIA						
...NITZSCHIA						
...EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA						
..FRAGILARIALES						
...FRAGILARIACEAE						
....FRAGILARIA						
....SYNEDRA						
...NAVICULALES						
...NAVICULACEAE						
....NAVICULA						
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON						
...HYDRODICTYACEAE						
....PEDIASTRUM						
...MICRACTINIACEAE						
....ACANTHOSPHAERA						
...OOCYSTACEAE						
....ANKISTRODESMUS						
....FRANCEIA						
...OOCYSTIS						
....TREUBARIA						
...SCENEDESMACEAE						
....CRUCIGENIA						
...GLOEOACTINIUM						
...SCENEDESMUS						
....TETRASTRUM						
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS						
...VOLVOCAEAE						
....VOLVOX						
...ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM						
....STAUSTRUM						
...ZYGNEMATACEAE						
....MOUGEOTIA						
CHRYSTOPHYTA						
..CHRYSTOPHYCEAE						
...OCHROMONADALES						
...DINOBRYACEAE						
....DINOBRYON						

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

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

## BRAZOS RIVER BASIN

STILLHOUSE HOLLOW LAKE NEAR BELTON, TX--Continued

310037097383201 STILLHOUSE HOLLOW LAKE EC--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	MAR 1,82 1551	JUN 3,82 1631	AUG 3,82 1346
ORGANISM	CELLS /ML	PER- CENT	CELLS PER- /ML CENT
CRYPTOPHYTA (CRYPTOMONADS)			
.CRYPTOPHYCEAE			
..CRYPTOMONADALES			
...CRYPTOMONADACEAE			
....CRYPTOMONAS	--	-	140 3 -- -
CYANOPHYTA (BLUE-GREEN ALGAE)			
.CYANOPHYCEAE			
..CHROOCOCCALES			
...CHROOCOCCACEAE			
....ANACYSTIS	--	-	1000# 21 29 3
..NOSTOCALES			
...NOSTOCACEAE			
....APHANIZOMENON	--	-	-- - 220# 23
EUGLENOPHYTA (EUGLENIDS)			
.EUGLENOPHYCEAE			
..EUGLENALES			
...EUGLENACEAE			
....EUGLENA	--	-	170 3 -- -
....TRACHELOMONAS	--	-	140 3 -- -

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

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



## BRAZOS RIVER BASIN

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08104100 LAMPASAS RIVER NEAR BELTON, TX

LOCATION.--Lat 31°00'06", long 97°29'32", Bell County, Hydrologic Unit 12070203, on left bank 22 ft (7 m) upstream from upstream bridge of three bridges on Interstate Highway 35 and U.S. Highway 81, 3.5 mi (5.6 km) downstream from Stillhouse Hollow Dam, 4.1 mi (6.6 km) southwest of Belton, and 12.7 mi (20.4 km) upstream from mouth.

DRAINAGE AREA.--1,321 mi<sup>2</sup> (3,421 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 476.58 ft (145.262 m), State Department of Highways and Public Transportation datum.

REMARKS.--Water-discharge records good. Many small diversions above station for irrigation and municipal supply. Since Sept. 2, 1966, flow largely regulated by Stillhouse Hollow Lake (station 08104050). Gage-height telemeter located at station.

AVERAGE DISCHARGE.--3 years (water year 1964-66) unregulated, 368 ft<sup>3</sup>/s (10.42 m<sup>3</sup>/s), 266,600 acre-ft/yr (329 hm<sup>3</sup>/yr); 16 years (water years 1967-82) regulated, 229 ft<sup>3</sup>/s (6.485 m<sup>3</sup>/s), 165,900 acre-ft/yr (205 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 77,900 ft<sup>3</sup>/s (2,210 m<sup>3</sup>/s) May 17, 1965, gage height, 43.58 ft (13.283 m); no flow Aug. 9, 10, 12-15, Sept. 5, 6, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1877, 45 ft (13.7 m) September 1921, from information by local residents. Flood of May 1957 reached a stage of 44.4 ft (13.53 m), discharge, 83,500 ft<sup>3</sup>/s (2,360 m<sup>3</sup>/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,070 ft<sup>3</sup>/s (30.3 m<sup>3</sup>/s) May 14 at 1830 hours, gage height, 9.50 ft (2.896 m); minimum daily, 5.9 ft<sup>3</sup>/s (0.17 m<sup>3</sup>/s) July 18-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	18	13	13	8.8	88	201	187	188	468	7.6	8.2
2	109	18	13	13	9.5	88	201	187	188	468	7.6	8.2
3	109	18	13	13	9.5	90	201	191	188	468	7.6	8.2
4	109	18	13	60	9.5	91	201	195	188	468	7.6	8.2
5	63	18	12	206	9.5	91	201	195	188	471	7.6	7.7
6	17	124	12	201	9.5	91	124	200	188	471	7.6	6.4
7	23	433	12	201	9.5	92	48	199	188	329	8.6	7.0
8	17	435	12	201	9.5	92	47	199	97	219	9.0	8.2
9	22	430	12	201	9.5	92	47	199	20	219	10	8.2
10	19	428	12	201	9.5	91	47	199	19	219	10	8.2
11	18	428	12	201	9.5	90	46	199	19	219	10	8.4
12	18	217	12	96	10	90	46	199	19	104	10	8.8
13	28	19	12	11	10	91	46	156	19	8.2	10	8.2
14	74	18	12	11	10	91	45	406	18	7.8	10	8.2
15	233	18	12	11	10	90	45	1060	16	7.0	10	7.6
16	749	17	11	11	10	90	44	1050	15	7.6	10	7.6
17	747	17	11	11	10	92	44	1060	14	7.0	10	7.6
18	741	17	11	10	10	92	44	1050	14	5.9	11	8.2
19	741	61	11	10	10	92	44	1050	14	5.9	11	8.2
20	741	212	11	10	10	92	45	1050	14	5.9	11	8.2
21	741	215	11	11	10	91	45	834	14	5.9	11	8.2
22	740	215	11	11	10	90	48	562	17	5.9	11	8.2
23	362	213	11	9.8	23	202	46	560	15	5.9	11	8.2
24	19	213	11	9.5	79	396	46	462	15	6.9	11	8.2
25	18	162	11	10	80	396	46	352	109	7.6	10	7.0
26	17	15	11	9.5	82	304	351	352	211	7.6	9.3	7.0
27	17	14	12	9.5	80	201	734	352	227	8.2	7.6	7.0
28	17	13	13	9.5	87	201	734	311	324	7.6	8.2	7.6
29	16	13	12	9.5	---	201	734	188	468	7.6	13	7.6
30	19	13	12	11	---	201	530	188	468	7.6	8.2	7.6
31	20	---	12	9.0	---	201	---	188	---	7.6	8.2	---
TOTAL	6673	4050	366	1801.3	644.8	4300	5081	13580	3482	4256.7	294.7	236.1
MEAN	215	135	11.8	58.1	23.0	139	169	438	116	137	9.51	7.87
MAX	749	435	13	206	87	396	734	1060	468	471	13	8.8
MIN	16	13	11	9.0	8.8	88	44	156	14	5.9	7.6	6.4
AC-FT	13240	8030	726	3570	1280	8530	10080	26940	6910	8440	585	468
CAL YR 1981	TOTAL	71988.9	MEAN 197	MAX	4570	MIN 3.5	AC-FT	142800				
WTR YR 1982	TOTAL	44765.6	MEAN 123	MAX	1060	MIN 5.9	AC-FT	88790				

## BRAZOS RIVER BASIN

08104100 LAMPASAS RIVER NEAR BELTON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: October 1980 to September 1982 (discontinued).

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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)
MAR 01...	1700	78	473	8.3	13.0	5	1.8	12.0	114	.3	180
JUN 03...	1110	210	483	7.4	14.0	<1	2.2	9.8	95	.4	190
AUG 03...	1450	5.9	474	7.8	30.0	5	1.4	12.3	164	1.1	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- 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)
MAR 01...	21	46	16	26	.9	3.2	160	15	49	.2	7.7
JUN 03...	26	48	16	28	1.0	3.3	160	20	52	.3	7.9
AUG 03...	18	45	16	24	.8	2.2	160	17	47	.3	9.5

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)
MAR 01...	259	0	0	<.020	.23	<.060	--	.43	<.010	2.7
JUN 03...	272	5	2	<.020	.26	<.060	--	1.00	.020	2.8
AUG 03...	257	11	7	<.020	.22	.100	1.0	1.10	<.010	1.9

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)
MAR 01...	1700	2	46	<1	<10	8	<10
JUN 03...	1110	2	49	<1	10	<1	<3
AUG 03...	1450	1	39	<1	<10	2	98

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 01...	7	3	.1	<1	<1	<3
JUN 03...	<1	<1	<.1	<1	<1	<3
AUG 03...	<1	6	<.1	<1	<1	<3

## BRAZOS RIVER BASIN

375

## 08104500 LITTLE RIVER NEAR LITTLE RIVER, TX

LOCATION.--Lat 30°57'59", long 97°20'45", Bell County, Hydrologic Unit 12070204, on right bank 25 ft (8 m) downstream from State Highway 95, 2.4 mi (3.9 km) southeast of Little River, 5 mi (8 km) downstream from confluence of Leon and Lampasas Rivers, and 95.8 mi (154.2 km), upstream from mouth.

DRAINAGE AREA.--5,228 mi<sup>2</sup> (13,541 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to May 1929, August 1962 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 400.11 ft (121.954 m) National Geodetic Vertical Datum of 1929. Oct. 5, 1923, to May 27, 1929, nonrecording gage on railroad bridge 0.5 mi (0.8 km) upstream at same datum.

REMARKS.--Water-discharge records good except those for periods of no gage-height record, Dec. 16 to Jan. 20 and Mar. 9 to Apr. 13, which are fair. Many small diversions for irrigation and municipal supply affect very low flows. Flow regulated by Belton Lake (station 08102000) on Leon River beginning Mar. 8, 1954, and by Stillhouse Hollow Lake (station 08104050) on the Lampasas River beginning Sept. 2, 1966. Gage-height telemeter at station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08102600.

AVERAGE DISCHARGE.--5 years (water years 1924-28) unregulated, 709 ft<sup>3</sup>/s (20.08 m<sup>3</sup>/s), 513,700 acre-ft/yr (633 hm<sup>3</sup>/yr); 20 years (water years 1963-82) regulated, 878 ft<sup>3</sup>/s (24.86 m<sup>3</sup>/s), 636,100 acre-ft/yr (784 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,600 ft<sup>3</sup>/s (2,250 m<sup>3</sup>/s) May 17, 1965, gage height, 42.85 ft (13.061 m); minimum daily, 8.2 ft<sup>3</sup>/s (0.23 m<sup>3</sup>/s) Aug. 6, 19, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 46.8 ft (14.26 m) in September 1921, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,100 ft<sup>3</sup>/s (399 m<sup>3</sup>/s) Oct. 14 at 0400 hours, gage height, 27.66 ft (8.431 m), maximum gage height, 28.87 ft (8.800 m) Oct. 14 at 0500 hours; minimum daily discharge, 46 ft<sup>3</sup>/s (1.30 m<sup>3</sup>/s) Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	201	484	180	111	117	188	720	839	808	1380	89	85
2	198	286	152	111	114	187	710	810	584	1350	87	83
3	199	253	148	110	129	185	715	798	580	1340	87	82
4	205	240	145	200	113	188	710	775	571	1330	86	82
5	197	231	141	229	111	182	705	684	566	1320	85	80
6	138	219	146	302	112	192	680	843	562	1310	83	77
7	416	468	166	299	112	192	640	725	560	1260	83	76
8	276	633	148	302	111	183	600	691	533	1110	91	75
9	289	623	146	302	108	182	600	680	374	1090	127	75
10	191	542	141	302	108	180	600	671	217	1090	103	73
11	151	528	143	302	107	180	590	751	209	1080	96	73
12	154	485	138	302	107	180	350	1020	222	1060	91	73
13	1200	229	134	229	106	182	150	3480	226	969	86	67
14	5980	207	146	114	108	184	131	1020	208	915	86	72
15	552	201	137	114	108	185	127	2380	200	894	82	69
16	1130	194	130	114	108	185	129	2340	210	804	81	91
17	1560	189	120	112	107	186	130	2440	206	608	79	76
18	1540	183	118	111	105	188	129	3290	191	598	77	58
19	1510	179	116	110	105	185	126	3290	192	594	88	55
20	1510	291	115	123	107	180	194	3280	196	481	81	54
21	1490	330	115	111	115	180	196	3120	197	117	80	52
22	1560	331	116	112	111	310	763	2120	284	101	78	48
23	1290	334	117	110	104	600	543	2070	265	102	77	46
24	284	332	116	109	138	800	673	2350	226	104	74	47
25	246	328	115	109	174	820	656	2630	322	103	76	48
26	224	209	115	105	319	810	633	2630	564	100	73	47
27	217	162	114	105	226	810	2120	2450	1830	98	76	48
28	209	157	113	106	195	800	2100	2250	795	96	76	48
29	209	156	113	108	---	760	2080	1620	1390	92	155	48
30	205	169	112	117	---	740	1960	1570	1370	91	121	49
31	409	---	111	170	---	730	---	1310	---	94	89	---
TOTAL	23940	9173	4067	5161	3585	11054	20460	54927	14658	21681	2743	1957
MEAN	772	306	131	166	128	357	682	1772	489	699	88.5	65.2
MAX	5980	633	180	302	319	820	2120	3480	1830	1380	155	91
MIN	138	156	111	105	104	180	126	671	191	91	73	46
AC-FT	47480	18190	8070	10240	7110	21930	40580	108900	29070	43000	5440	3880
CAL YR 1981	TOTAL	245578	MEAN 673	MAX 10000	MIN 60	AC-FT 487100						
WTR YR 1982	TOTAL	173406	MEAN 475	MAX 5980	MIN 46	AC-FT 344000						

## BRAZOS RIVER BASIN

08104500 LITTLE RIVER NEAR LITTLE RIVER, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1964 to September 1982 (discontinued).

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1964 to September 1973, October 1979 to September 1982 (discontinued).

WATER TEMPERATURE: October 1964 to September 1973, October 1979 to September 1982 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,140 micromhos Oct. 28, 1964; minimum daily, 203 micromhos Dec. 25, 1981.

WATER TEMPERATURES: Maximum, 38.0°C July 7, 1969, Sept. 15, 1972; minimum, 3.0°C Jan. 10, 1973.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 588 micromhos Sept. 29; minimum daily, 203 micromhos Dec. 25.

WATER TEMPERATURES: Maximum daily, 28.0°C July 30, 31, Aug. 3, 17.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
DEC 17...	0930	130	582	11.5	250	26	77	13	26
APR 13...	1055	151	455	18.0	190	19	56	12	19
MAY 25...	1350	2520	376	23.0	160	18	49	8.6	17
AUG 02...	1225	83	527	28.5	200	18	61	11	32
SEP 06...	1137	--	500	--	190	28	57	11	32

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)
DEC 17...	.8	3.6	220	33	34	.4	9.8	329
APR 13...	.6	2.7	170	18	27	.3	7.7	245
MAY 25...	.6	3.5	140	24	24	.3	7.1	218
AUG 02...	1.0	4.2	180	31	34	.5	11	293
SEP 06...	1.1	4.3	160	29	37	.4	10	277

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	23940	387	215	13900	24	1570	19	1200	160
NOV.	1981	9173	520	283	7020	36	893	28	690	210
DEC.	1981	4067	346	194	2130	21	232	17	182	140
JAN.	1982	5161	411	228	3170	26	367	21	292	170
FEB.	1982	3585	532	290	2810	37	355	29	279	210
MAR.	1982	11054	444	244	7280	30	884	22	665	180
APR.	1982	20460	419	231	12800	27	1510	20	1130	170
MAY	1982	54927	398	221	32700	25	3720	19	2810	160
JUNE	1982	14658	408	225	8910	27	1050	20	790	170
JULY	1982	21681	403	223	13100	26	1500	19	1130	170
AUG.	1982	2743	500	272	2020	35	258	26	195	200
SEPT	1982	1957	515	280	1480	36	190	27	145	200
TOTAL		173406	**	**	107000	**	12500	**	9510	**
WTD. AVG.		475	415	229	**	27	**	20	**	170

## BRAZOS RIVER BASIN

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## 08104500 LITTLE RIVER NEAR LITTLE RIVER, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	460	456	530	259	567	444	405	415	404	407	523	470
2	430	527	520	275	572	465	415	411	439	409	522	463
3	420	530	485	310	550	480	409	410	441	408	517	470
4	400	525	450	280	559	478	406	409	442	406	515	480
5	450	527	410	260	566	495	410	421	441	407	516	499
6	480	540	390	250	560	487	403	416	440	409	517	500
7	327	489	300	275	562	490	387	407	439	407	526	502
8	375	430	310	260	565	509	400	411	430	400	523	496
9	360	470	312	290	569	512	410	417	422	394	460	501
10	450	474	315	310	567	516	422	418	446	393	475	511
11	505	481	300	332	564	519	430	420	483	395	481	503
12	498	485	320	395	568	514	442	395	485	396	512	504
13	375	548	325	454	570	512	455	382	483	387	520	496
14	294	555	310	517	561	510	470	312	491	376	511	501
15	369	561	319	563	552	509	480	421	487	371	510	517
16	325	568	450	570	570	514	475	425	482	372	510	513
17	360	574	582	574	573	520	468	423	471	377	509	511
18	380	579	437	578	580	517	485	400	475	384	503	522
19	408	583	400	580	587	525	530	403	478	393	502	531
20	425	580	367	564	582	540	550	404	479	414	513	516
21	440	572	335	566	565	545	545	403	464	429	503	521
22	450	567	298	570	567	490	418	410	447	483	506	543
23	470	563	255	577	573	450	495	415	400	512	509	554
24	468	560	230	571	530	433	445	397	410	520	511	564
25	493	555	203	573	495	420	475	377	427	532	508	567
26	515	557	210	576	400	385	510	358	424	522	521	570
27	536	559	213	575	433	390	375	380	262	517	518	584
28	550	563	220	574	439	396	395	383	375	511	521	587
29	560	565	249	572	---	401	404	389	398	506	470	588
30	572	555	242	570	---	403	415	384	400	519	404	586
31	500	---	249	561	---	407	---	381	---	517	477	---
MEAN	440	537	340	457	548	477	444	400	439	435	504	522

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

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



## BRAZOS RIVER BASIN

08104645 NORTH FORK SAN GABRIEL RIVER NEAR LIBERTY HILL, TX

LOCATION---Lat 30°42'11", long 95°52'37", Williamson County, Hydrologic Unit 12070205, at upstream side of U.S. Highway 183 bridge, 0.4 mi (0.6 km) upstream from Hamilton Branch, 3.8 mi (6.1 km) northeast of Liberty Hill.

DRAINAGE AREA---202 mi<sup>2</sup> (523 km<sup>2</sup>).

PERIOD OF RECORD---Chemical analyses: October 1980 to current year.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	HARDNESS (MG/L AS CaCO3)	HARDNESS, NONCARBONATE (MG/L AS CaCO3)
NOV 17...	0915	512	7.9	16.0	5	1.7	9.4	97	.1	270	26
DEC 15...	0900	494	8.2	10.0	0	.40	10.8	96	.5	260	25
MAR 01...	1356	476	8.2	16.5	5	.10	10.9	112	.7	240	21
APR 26...	1430	442	8.3	22.0	<1	2.1	10.0	116	.2	220	12
JUL 14...	0930	430	8.1	28.0	<1	1.0	7.9	104	1.2	200	12
AUG 16...	1255	384	8.2	33.0	5	2.4	7.7	108	.4	170	18

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)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)
NOV 17...	77	18	8.9	.3	1.2	240	26	14	.4	10	300
DEC 15...	73	20	10	.3	1.3	240	20	15	.4	9.9	294
MAR 01...	65	19	10	.3	1.1	220	25	14	.4	7.9	275
APR 26...	64	15	9.2	.3	1.7	210	19	11	.3	9.6	256
JUL 14...	51	18	10	.3	1.5	190	19	14	.4	9.9	238
AUG 16...	36	19	12	.4	1.7	150	21	23	.3	16	219



## BRAZOS RIVER BASIN

379

08104645 NORTH FORK SAN GABRIEL RIVER NEAR LIBERTY HILL, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
NOV 17...	0	0	.54	.020	.56	.140	.96	1.10	.010	2.2
DEC 15...	2	0	--	<.020	.40	.080	.36	.44	<.010	1.2
MAR 01...	0	0	--	<.020	.16	<.060	--	.28	.040	1.5
APR 26...	4	<2	--	<.020	.12	<.060	--	.54	<.010	3.0
JUL 14...	<2	2	--	<.020	<.10	<.060	--	.70	<.010	--
AUG 16...	11	9	--	<.020	<.10	.140	1.2	1.30	.340	2.7

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...	0915	1	51	<1	<10	2	<10
MAR 01...	1356	1	43	<1	<10	1	<10
JUL 14...	0930	1	45	<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)
NOV 17...	4	4	<.1	<1	<1	11
MAR 01...	2	1	<.1	<1	<1	<3
JUL 14...	<1	3	<.1	<1	<1	<3

## BRAZOS RIVER BASIN

## 08104650 LAKE GEORGETOWN NEAR GEORGETOWN, TX

LOCATION.--Lat 30°40'03", long 97°43'38", Williamson County, Hydrologic Unit 12070205, at North San Gabriel Dam, on North Fork San Gabriel River, 2.5 mi (4.0 km) upstream from Middle Fork San Gabriel River, 3.7 mi (6.0 km) northwest of Georgetown, and 4.4 mi (7.1 km) upstream from confluence with South Fork San Gabriel River.

DRAINAGE AREA.--247 mi<sup>2</sup> (640 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to May 13, 1980, nonrecording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam, 6,700 ft (2,042 m) long, including the spillway. The lake was built for water conservation and flood control. Deliberate impoundment began on Mar. 3, 1980. The spillway is an ungated and broad-crested weir 1,000 ft (305 m) long, located near right end of dam. The spillway for normal flood releases is a gated, 11-foot-diameter (3.4 m) conduit, controlled by two 5- by 11 foot (2 by 3 m) slide gates, located near the center of dam. The invert for the floodgate is 720.0 ft (219.5 m). A low-flow outlet, consisting of four 3- by 4-foot (0.9 by 1.2 m) gates is located near the center of dam. These gates are inverts of 735.0, 749.0, 763.0, and 777.0 ft (224.0, 228.3, 232.6, and 236.8 m). Figures given herein represent total contents. Data regarding dam and lake are given in the following table.

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	861.0	246,700
Design flood.....	856.2	221,200
Crest of spillway.....	834.0	130,800
Top of conservation pool.....	791.0	37,080
Lowest gated outlet (invert of 11-foot conduit).....	720.0	0

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 89,730 acre-ft (111 hm<sup>3</sup>) June 22, 1981, elevation, 819.44 ft (249.765 m); minimum, 466 acre-ft (0.575 hm<sup>3</sup>) Mar. 4, 1980, elevation, 724.46 ft (220.815 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 43,130 acre-ft (53.2 hm<sup>3</sup>) Oct. 14, elevation, 795.38 ft (242.432 m); minimum daily, 35,740 acre-ft (44.1 hm<sup>3</sup>) Sept. 30, elevation, 789.96 ft (240.780 m).

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

786.0	31,000	794.0	41,150
790.0	35,790	798.0	47,100

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37770	39980	37280	37270	37570	37250	37360	37850	37290	38470	36920	36340
2	37810	40300	37330	37280	37580	37270	37360	37930	37240	38210	36900	36320
3	37870	40580	37400	37280	37580	37280	37340	37870	37210	37940	36850	36290
4	37910	40350	37420	37270	37580	37280	37360	37650	37170	37650	36810	36260
5	37950	39760	37450	37270	37580	37250	37300	37400	37120	37370	36790	36250
6	38250	39180	37480	37270	37580	37250	37280	37580	37080	37200	36770	36210
7	39260	38580	37530	37230	37580	37250	37270	37730	37080	37150	36740	36190
8	39380	38100	37580	37210	37600	37240	37240	37610	37110	37080	36890	36160
9	39530	37410	37660	37200	37610	37240	37250	37380	37130	37060	36870	36150
10	39620	37320	37750	37170	37610	37240	37250	37320	37170	37080	36850	36120
11	39730	37460	37860	37150	37620	37270	37230	37280	37210	37090	36830	36100
12	39870	37530	37950	37160	37640	37280	37210	37270	37500	37120	36810	36070
13	42920	37570	38030	37170	37570	37290	37210	41180	37540	37120	36790	36060
14	43130	37570	38110	37170	37520	37320	37210	41780	37570	37150	36770	36050
15	42940	37580	38210	37170	37460	37340	37210	42140	37610	37150	36760	36070
16	41800	37580	38180	37170	37410	37340	37210	41670	37660	37150	36720	36030
17	40550	37580	38110	37130	37360	37360	37190	40940	37700	37150	36700	36010
18	39240	37580	38050	37130	37290	37360	37160	40280	37730	37150	36700	36000
19	37930	37560	37950	37190	37240	37360	37210	39690	37750	37130	36680	36000
20	37540	37520	37930	37250	37200	37360	37270	38680	37770	37130	36660	36020
21	37780	37480	37900	37290	37160	37340	37270	39080	37750	37120	36640	35970
22	38070	37420	37830	37360	37130	37330	37790	37410	37770	37110	36610	35940
23	38340	37410	37750	37370	37130	37330	37930	37210	38250	37090	36590	35910
24	38560	37370	37690	37370	37130	37340	38430	37640	38330	37080	36560	35880
25	38760	37370	37610	37380	37190	37320	38700	37930	38210	37060	36530	35860
26	38770	37300	37540	37400	37210	37290	38450	38130	38340	37040	36510	35820
27	38730	37230	37480	37410	37230	37320	37780	37940	39320	37020	36480	35780
28	38640	37150	37410	37440	37240	37300	37570	37460	39180	37000	36460	35770
29	38470	37110	37290	37480	---	37330	37660	37190	38940	36980	36430	35750
30	38380	37170	37280	37540	---	37360	37750	37150	38700	36960	36410	35740
31	39310	---	37250	37560	---	37370	---	37270	---	36950	36380	---
MAX	43130	40580	38210	37560	37640	37370	38700	42140	39320	38470	36920	36340
MIN	37540	37110	37250	37130	37130	37240	37160	37150	37080	36950	36380	35740
(†)	792.67	791.07	791.13	791.36	791.12	791.22	791.51	791.14	792.22	790.90	790.46	789.96
(‡)	+1580	-2140	+80	+310	-320	+130	+380	-480	+1430	-1750	-570	-640

CAL YR 1981 MAX 89340 MIN 23760 ‡ +13500  
WTR YR 1982 MAX 43130 MIN 35740 ‡ -1990

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

08104650 LAKE GEORGETOWN NEAR GEORGETOWN, TX--Continued

## WATER-QUALITY RECORDS

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

304016097433101 LAKE GEORGETOWN SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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- TOCOCCHI FECAL, KF AGAR (COLS. PER 100 ML)	
JAN											
26...	0930	1.00	415	7.9	11.0	2.00	11.0	101	K1	K2	
26...	0931	3.20	--	--	--	--	--	--	--	--	
26...	0934	10.0	415	7.9	10.5	--	10.8	97	--	--	
26...	0936	20.0	415	7.8	10.5	--	10.8	97	--	--	
26...	0938	30.0	419	7.7	9.5	--	10.8	96	--	--	
26...	0940	40.0	420	7.6	9.0	--	10.9	95	--	--	
26...	0942	50.0	420	7.6	8.5	--	10.9	94	--	--	
26...	0948	60.0	425	7.6	8.5	--	10.7	92	--	--	
26...	0950	67.0	431	7.5	8.5	--	8.4	72	--	--	
MAY											
03...	1300	1.00	365	7.9	22.0	1.90	10.1	117	<1	K4	
03...	1301	3.10	--	--	--	--	--	--	--	--	
03...	1302	10.0	365	7.9	21.0	--	10.8	123	--	--	
03...	1304	20.0	392	7.7	18.0	--	7.6	82	--	--	
03...	1306	30.0	417	7.5	16.0	--	4.9	51	--	--	
03...	1308	40.0	433	7.4	13.5	--	4.2	41	--	--	
03...	1310	50.0	433	7.4	12.5	--	3.6	34	--	--	
03...	1312	60.0	433	7.4	12.5	--	3.0	29	--	--	
03...	1314	70.0	436	7.4	12.0	--	1.7	16	--	--	
03...	1316	80.0	436	7.4	12.0	--	1.2	11	--	--	
03...	1318	90.0	440	7.4	12.0	--	1.1	10	--	--	
AUG											
02...	1300	1.00	336	7.7	30.5	2.50	7.1	97	<1	K4	
02...	1301	--	--	4.1	--	--	--	--	--	--	
02...	1302	10.0	336	7.2	29.5	--	6.9	93	--	--	
02...	1304	20.0	336	7.5	29.0	--	6.8	91	--	--	
02...	1306	25.0	336	7.2	28.5	--	1.0	13	--	--	
02...	1308	30.0	336	7.2	26.5	--	.0	0	--	--	
02...	1312	40.0	365	6.7	18.0	--	.0	0	--	--	
02...	1314	50.0	420	6.8	16.5	--	.0	0	--	--	
02...	1316	60.0	430	6.8	15.5	--	.0	0	--	--	
02...	1318	70.0	439	6.8	14.5	--	.0	0	--	--	
02...	1320	80.0	443	6.8	14.5	--	.0	0	--	--	
02...	1322	89.0	443	6.9	14.5	--	.0	0	--	--	
DATE		HARD- NESS (MG/L AS CACO3)	HARD- NESS, NONCAR- BONATE (MG/L CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
JAN											
26...	210	11	63	13	7.4	.2	2.7	200	6.0	10	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
26...	210	12	62	14	8.1	.3	2.5	200	6.0	11	--
MAY											
03...	180	8	50	13	7.5	.3	2.4	170	10	11	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--	--	--
03...	230	11	71	13	7.9	.2	2.5	220	5.0	11	--
AUG											
02...	160	10	41	14	8.4	.3	2.3	150	16	10	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--	--
02...	210	0	64	13	7.9	.2	2.5	220	11	10	--

## BRAZOS RIVER BASIN

## LAKE GEORGETOWN NEAR GEORGETOWN, TX--Continued

304016097433101 LAKE GEORGETOWN SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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									
26...	.2	9.9	232	.36	.69	1.1	.010	<10	<1
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	.36	.67	1.0	.010	40	10
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	10	234	.34	.70	1.0	.010	<10	11
MAY									
03...	.2	7.9	204	.14	.74	.88	<.010	<9	<3
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	.34	.60	.94	<.010	30	10
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	.43	.52	.95	<.010	60	50
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	13	257	.25	.87	1.1	.030	830	620
AUG									
02...	.2	4.6	187	<.10	1.20	--	.030	<3	7
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	<.10	1.10	--	.010	60	30
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	<.10	1.10	--	.090	10	180
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	13	255	<.10	1.80	--	.050	590	440

304006097452501 LAKE GEORGETOWN SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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- TOCOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
JAN										
26...	1021	1.00	417	8.0	11.0	1.90	11.2	103	<1	K2
26...	1023	10.0	417	7.9	10.5	--	11.1	100	--	--
26...	1025	20.0	420	7.9	10.0	--	11.2	100	--	--
26...	1027	30.0	423	7.8	9.5	--	11.3	100	--	--
26...	1029	40.0	425	7.8	9.0	--	11.5	100	--	--
26...	1031	50.0	427	7.7	8.5	--	11.8	102	--	--
26...	1033	60.0	433	7.7	8.5	--	11.8	102	--	--
26...	1035	65.0	438	7.7	8.5	--	11.9	103	--	--
MAY										
03...	1416	1.00	365	7.9	22.5	1.90	10.7	126	<1	<1
03...	1418	10.0	382	7.7	19.0	--	8.5	93	--	--
03...	1420	20.0	392	7.6	17.5	--	6.5	69	--	--
03...	1422	30.0	395	7.4	16.0	--	4.3	44	--	--
03...	1424	40.0	435	7.3	13.5	--	1.1	11	--	--
03...	1426	50.0	437	7.3	12.5	--	.9	9	--	--
03...	1428	59.0	437	7.3	13.0	--	1.1	11	--	--
AUG										
02...	1345	1.00	345	7.6	30.5	2.40	6.4	88	<1	K4
02...	1347	10.0	345	7.6	29.5	--	6.4	86	--	--
02...	1349	20.0	350	7.2	29.5	--	3.3	45	--	--
02...	1351	25.0	350	6.8	27.5	--	.0	0	--	--
02...	1353	30.0	350	6.6	23.5	--	.0	0	--	--
02...	1355	40.0	375	6.7	19.0	--	.0	0	--	--
02...	1357	50.0	426	6.7	16.5	--	.0	0	--	--
02...	1359	60.0	429	7.0	16.0	--	.0	0	--	--

## LAKE GEORGETOWN NEAR GEORGETOWN, TX--Continued

304006097452501 LAKE GEORGETOWN SITE BC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	AIKA- LINITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
26...	210	11	63	13	7.3	.2	2.7	200	6.0
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	220	12	66	14	8.1	.3	2.4	210	8.0
MAY									
03...	180	11	51	13	8.2	.3	2.3	170	10
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	220	11	67	13	8.0	.2	2.4	210	5.0
AUG									
02...	170	15	43	14	8.3	.3	2.2	150	17
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	210	0	63	13	7.4	.2	2.4	210	10

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...	10	10	232	.35	.62	.97	.010	<10	1
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	.35	.63	.98	.090	120	10
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	11	10	246	.33	.75	1.1	.010	<10	16
MAY									
03...	11	8.2	206	.11	.64	.75	<.010	<9	<3
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	.28	.66	.94	<.010	40	10
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	11	10	243	.40	.68	1.1	.020	20	220
AUG									
02...	10	5.0	190	<.10	1.10	--	.010	<3	5
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	<.10	1.10	--	.010	50	30
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	<.10	1.40	--	.080	460	350
02...	--	--	--	--	--	--	--	--	--
02...	10	12	245	<.10	1.90	--	.120	430	390

## BRAZOS RIVER BASIN

LAKE GEORGETOWN NEAR GEORGETOWN, TX--Continued

304055097471301 LAKE GEORGETOWN SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAMPLING DEPTH (FEET)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TRANS-PAR-ENCY (SECCHI DISK) (M)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI, TOCOCCHI KF AGAR (COLS. PER 100 ML)
JAN										
26...	1050	1.00	418	8.0	11.5	1.80	11.0	102	K1	K7
26...	1052	10.0	416	8.0	11.0	--	10.8	99	--	--
26...	1054	20.0	418	7.9	11.0	--	10.9	100	--	--
26...	1056	31.0	421	7.8	10.0	--	10.9	97	--	--
MAY										
03...	1450	1.00	399	7.8	25.0	.90	8.5	105	K4	K10
03...	1451	1.50	--	--	--	--	--	--	--	--
03...	1452	10.0	431	7.6	22.5	--	7.0	82	--	--
03...	1454	20.0	395	7.4	18.5	--	4.3	47	--	--
03...	1456	30.0	400	7.4	17.0	--	3.3	35	--	--
03...	1458	35.0	404	7.3	17.0	--	2.2	23	--	--
AUG										
02...	1420	1.00	372	7.6	32.5	.80	6.4	90	K8	K4
02...	1421	1.30	--	--	--	--	--	--	--	--
02...	1422	10.0	372	7.3	30.5	--	5.3	73	--	--
02...	1424	15.0	366	7.0	30.5	--	.2	3	--	--
02...	1426	20.0	372	6.7	29.0	--	.0	0	--	--
02...	1430	32.0	414	6.5	23.0	--	.0	0	--	--

DATE	HARDNESS (MG/L AS CAC03)	HARDNESS, NONCARBONATE (MG/L AS CAC03)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNESIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY FIELD (MG/L AS CAC03)	SULFATE DIS-SOLVED (MG/L AS SO4)
JAN									
26...	210	11	63	13	7.4	.2	2.7	200	5.0
26...	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--
26...	210	11	63	13	7.3	.2	2.7	200	5.0
MAY									
03...	200	23	58	14	8.6	.3	2.1	180	18
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	200	11	59	13	7.2	.2	2.1	190	7.0
AUG									
02...	180	9	47	15	8.9	.3	2.2	170	17
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	210	0	59	14	7.3	.2	2.5	210	7.0

DATE	CHLORIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SI02)	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)
JAN									
26...	10	10	231	.35	.55	.90	.010	14	2
26...	--	--	--	.35	.66	1.0	.010	50	<10
26...	--	--	--	--	--	--	--	--	--
26...	11	10	232	.36	.76	1.1	.010	<10	2
MAY									
03...	11	8.0	228	<.10	.71	--	.040	<9	<3
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	<.10	.66	--	<.010	<10	10
03...	--	--	--	.21	.63	.84	<.010	10	10
03...	--	--	--	--	--	--	--	--	--
03...	14	9.8	226	.19	.76	.95	<.010	<9	99
AUG									
02...	11	7.4	211	<.10	1.30	--	.030	<3	5
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	<.10	1.20	--	.020	30	30
02...	--	--	--	--	--	--	--	--	--
02...	9.7	12	239	<.10	2.70	--	.030	890	530



## LAKE GEORGETOWN NEAR GEORGETOWN, TX--Continued

304016097433101 LAKE GEORGETOWN SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 26, 82 0931	MAY 3, 82 1301	AUG 2, 82 1301			
TOTAL CELLS/ML	1000	6700	3000			
DIVERSITY: DIVISION	0.9	1.4	1.6			
..CLASS	0.9	1.4	1.6			
...ORDER	0.9	1.8	2.4			
...FAMILY	1.2	2.8	2.7			
....GENUS	1.2	3.2	2.8			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
.BACILLARIOPHYCEAE						
..EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	140	2	210	7
..FRAGILARIALES						
...FRAGILARIACEAE						
....FRAGILARIA	--	-	39	1	--	-
....SYNEDRA	--	-	59	1	1300#	45
..NAVICULALES						
...NAVICULACEAE						
....NAVICULA	290#	28	--	-	--	-
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....TETRAEDRON	--	-	180	3	190	6
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	--	-	370	6	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	39	1	41	1
....KIRCHNERIELLA	--	-	--	-	21	1
....NEPHROCYTIUM	--	-	78	1	--	-
...OOCYSTIS	68	7	140	2	--	-
....TREUBARIA	--	-	--	-	41	1
..PALMELLACEAE						
...SPHAEROCYSTIS	--	-	730	11	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	1500#	23	--	-
....SCENEDESMUS	650#	65	730	11	41	1
..TETRASPORALES						
...GLOEOCYSTACEAE						
....GLOEOCYSTIS	--	-	240	4	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	39	1	--	-
....CHLAMYDOMONAS	--	-	98	1	--	-
...PHACOTACEAE						
....PHACOTUS	--	-	59	1	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	*	0	83	3
...ZYGNEMATAACEAE						
....MOUGEOTIA	--	-	--	-	170	5
CHRYSTOPHYTA						
.CHRYSTOPHYCEAE						
..OCHROMONADALES						
...DINOBYACEAE						
....DINOBYON	--	-	160	2	--	-
...OCHROMONADACEAE						
....OCHROMONAS	--	-	39	1	--	-
...SYNURACEAE						
....MALLOMONAS	--	-	*	0	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	39	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	1900#	29	83	3
..NOSTOCALES						
...NOSTOCACEAE						
....APHANIZOMENON	--	-	--	-	410	14
...OSCILLATORIALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	120	4
....OSCILLATORIA	--	-	--	-	190	6

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

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

## BRAZOS RIVER BASIN

## LAKE GEORGETOWN NEAR GEORGETOWN, TX--Continued

304016097433101 LAKE GEORGETOWN SITE AC--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 26,82 0931		MAY 3,82 1301		AUG 2,82 1301	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	59	1	--	-
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
..DINOKONTAE						
...PERIDINIAEAE						
....PERIDINIUM	--	-	--	-	83	3

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

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

304055097471301 LAKE GEORGETOWN SITE CC

## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 26,82 1050		MAY 3,82 1451		AUG 2,82 1421	
TOTAL CELLS/ML	950		14000		5600	
DIVERSITY: DIVISION	0.9		1.8		1.6	
..CLASS	0.9		1.8		1.6	
...ORDER	0.9		2.2		2.6	
...FAMILY	0.9		2.9		3.5	
....GENUS	0.9		3.1		4.1	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
...NITZSCHIAEAE						
....NITZSCHIA	--	-	72	1	160	3
...EUPODISCALES						
...COSCONODISCACEAE						
...CYCLOTELLA	--	-	360	3	480	9
...MELOSIRA	--	-	--	-	510	9
...FRAGILARIALES						
...FRAGILARIAEAE						
....SYNEDRA	--	-	1800	13	190	3
...NAVICULALES						
...GOMPHONEMACEAE						
....GOMPHONEMA	--	-	72	1	--	-
...NAVICULACEAE						
....NAVICULA	650#	69	--	-	130	2

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

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

## BRAZOS RIVER BASIN

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## LAKE GEORGETOWN NEAR GEORGETOWN, TX--Continued

304055097471301 LAKE GEORGETOWN SITE CC--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 26,82 1050	MAY 3,82 1451	AUG 2,82 1421		
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML PER- CENT
CHLOROPHYTA (GREEN ALGAE)					
.CHLOROPHYCEAE					
..CHLOROCOCCALES					
...CHLOROCOCCACEAE					
....SCHROEDERIA	300#	31	220	2	-- -
....TETRAEDRON	--	-	220	2	64 1
...DICTYOSPHAERIACEAE					
....DICTYOSPHAERIUM	--	-	720	5	450 8
...MICRACTINIACEAE					
....GOLENKINIA	--	-	--	-	350 6
...OOCYSTACEAE					
....ANKISTRODESMUS	--	-	1000	7	96 2
....FRANCEIA	--	-	--	-	130 2
...OOCYSTIS	--	-	--	-	350 6
...SCENEDESMACEAE					
....CRUCIGENIA	--	-	580	4	260 5
....GLOEOACTINIUM	--	-	--	-	260 5
...SCENEDESMUS	--	-	2000	15	320 6
....TETRASTRUM	--	-	290	2	-- -
..VOLVOCALES					
...CHLAMYDOMONADACEAE					
....CARTERIA	--	-	720	5	-- -
...CHLAMYDOMONAS	--	-	--	-	130 2
...VOLVOCAEAE					
....PANDORINA	--	-	--	-	770 14
...ZYGNEATALES					
...DESMIDIACEAE					
....STAUSTRUM	--	-	--	-	130 2
CHRYSTOPHYTA					
.CHRYSTOPHYCEAE					
..OCHROMONADALES					
...DINOBRYACEAE					
....DINOBRYON	--	-	4500#	33	-- -
CRYPTOPHYTA (CRYPTOMONADS)					
.CRYPTOPHYCEAE					
..CRYPTOMONADALES					
...CRYPTOMONADACEAE					
....CRYPTOMONAS	--	-	72	1	260 5
CYANOPHYTA (BLUE-GREEN ALGAE)					
.CYANOPHYCEAE					
..CHROOCOCCALES					
...CHROOCOCCACEAE					
....ANACYSTIS	--	-	720	5	32 1
EUGLENOPHYTA (EUGLENOIDS)					
.EUGLENOPHYCEAE					
..EUGLENALES					
...EUGLENACEAE					
....EUGLENA	--	-	--	-	380 7
....TRACHELOMONAS	--	-	220	2	-- -
PYRRHOPHYTA (FIRE ALGAE)					
.DINOPHYCEAE					
..DINOKONTAE					
...PERIDINIACEAE					
....PERIDINIUM	--	-	--	-	160 3

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

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

## BRAZOS RIVER BASIN

08104700 NORTH FORK SAN GABRIEL RIVER NEAR GEORGETOWN, TX

LOCATION.--Lat 30°39'42", long 97°42'40", Williamson County, Hydrologic Unit 12070205, on left bank 1.5 mi (2.4 km) upstream from Middle Fork San Gabriel River, 2.7 mi (4.3 km) upstream from Interstate Highway 35, 2.7 mi (4.3 km) northwest of Georgetown, and 3.4 mi (5.5 km) upstream from mouth.

DRAINAGE AREA.--248 mi<sup>2</sup> (642 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 689.06 ft (210.025 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Beginning on Mar. 3, 1980, flow is largely regulated by Lake Georgetown (08104650) located about 1 mi (2 km) upstream from gage.

AVERAGE DISCHARGE.--11 years (water years 1969-79) unregulated, 88.1 ft<sup>3</sup>/s (2.495 m<sup>3</sup>/s), 63,830 acre-ft/yr (78.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft<sup>3</sup>/s (991 m<sup>3</sup>/s) Sept. 17, 1974, gage height, 26.20 ft (7.986 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 39.5 ft (12.04 m) in September 1921. Flood in April 1957 reached a stage of 34.5 ft (10.52 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 814 ft<sup>3</sup>/s (23.1 m<sup>3</sup>/s) Oct. 15 at 1630 hours, gage height, 7.07 ft (2.155 m); no flow Oct. 3-5, Dec. 14, 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	2.8	3.5	27	16	18	30	19	50	198	1.2	.92
2	.02	2.8	3.0	27	16	18	18	19	80	198	1.2	.97
3	.00	2.9	13	28	16	19	18	96	82	198	1.2	1.1
4	.00	305	37	28	16	19	18	182	92	198	1.3	1.4
5	.00	518	37	28	15	19	18	182	83	192	1.3	1.7
6	.02	514	37	29	15	18	18	65	70	113	1.3	1.6
7	.02	512	37	29	15	18	18	.17	46	50	1.3	1.6
8	.02	515	39	28	15	18	18	115	31	49	4.0	1.6
9	1.5	508	6.5	28	13	19	18	179	15	26	2.4	1.6
10	1.3	224	.01	28	13	19	18	91	15	.23	2.0	1.7
11	1.3	37	.01	28	13	17	18	84	15	.17	1.8	1.6
12	1.2	79	.01	29	21	20	18	86	43	.29	1.7	1.7
13	396	106	.01	30	41	21	19	67	18	.40	1.6	1.7
14	91	106	.00	30	40	21	20	.60	17	.42	1.5	1.6
15	18	107	.00	30	40	21	20	.30	16	.36	1.3	1.6
16	806	108	36	30	40	20	19	390	16	.29	1.4	1.5
17	799	108	68	30	39	20	20	541	15	.17	1.1	1.5
18	790	108	68	26	39	21	20	475	16	.17	1.1	.94
19	779	108	66	.03	39	21	19	440	16	.13	1.0	1.1
20	314	108	66	3.3	39	21	20	652	16	.13	1.2	2.4
21	.51	108	66	15	39	20	19	596	14	1.8	1.2	1.2
22	.52	108	66	15	29	20	23	275	14	7.1	1.2	1.2
23	.44	110	66	16	18	20	19	199	14	7.6	1.2	1.1
24	.35	112	66	16	18	21	21	68	14	8.2	.72	1.0
25	.30	113	66	17	19	21	19	1.7	104	8.6	.68	1.0
26	72	115	66	16	19	21	270	1.4	185	4.2	.62	.92
27	110	116	66	16	18	21	470	170	210	.13	.69	.92
28	139	116	66	17	18	21	227	380	198	.13	.77	.86
29	170	116	66	17	---	21	19	275	198	.13	.82	1.1
30	170	51	66	18	---	21	19	131	198	.45	.69	1.9
31	70	---	42	16	---	21	---	4.9	---	1.2	.83	---
TOTAL	4731.56	5144.5	1219.04	695.33	679	616	1491	5786.07	1891	1264.30	40.32	41.03
MEAN	153	171	39.3	22.4	24.3	19.9	49.7	187	63.0	40.8	1.30	1.37
MAX	806	518	68	30	41	21	470	652	210	198	4.0	2.4
MIN	.00	2.8	.00	.03	13	17	18	.17	14	.13	.62	.86
AC-FT	9390	10200	2420	1380	1350	1220	2960	11480	3750	2510	80	81
CAL YR 1981	TOTAL	67597.50	MEAN	185	MAX	4500	MIN	.00	AC-FT	134100		
WTR YR 1982	TOTAL	23599.15	MEAN	64.7	MAX	806	MIN	.00	AC-FT	46810		

## BRAZOS RIVER BASIN

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08104700 NORTH FORK SAN GABRIEL RIVER NEAR GEORGETOWN, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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...	1230	16	415	8.0	11.5	5	1.2	13.2	122	.8	210
MAY 03...	1645	176	406	8.1	18.0	<1	1.1	9.4	101	1.1	190
AUG 02...	1615	1.5	361	7.7	32.0	<1	1.9	9.1	128	1.0	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)
JAN 26...	16	61	13	7.9	.3	2.6	190	10	14	.2	9.7
MAY 03...	13	56	13	8.2	.3	2.4	180	14	11	.2	8.7
AUG 02...	18	50	13	7.8	.3	2.1	160	15	12	.2	8.5

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, 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...	233	15	2	<.020	.55	.080	.60	.68	.220	3.0
MAY 03...	222	5	1	<.020	.25	.220	.44	.66	<.010	3.5
AUG 02...	205	12	7	<.020	.92	.090	.71	.80	.020	3.8

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...	1230	2	40	<1	<10	2	<10
MAY 03...	1645	1	39	<3	<10	1	<9
AUG 02...	1615	1	43	<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 26...	2	2	.1	<1	1	<3
MAY 03...	1	3	<.1	<1	<1	<12
AUG 02...	<1	6	<.1	<1	<1	3

## BRAZOS RIVER BASIN

08104900 SOUTH FORK SAN GABRIEL RIVER AT GEORGETOWN, TX

LOCATION.--Lat 30°37'32", long 97°41'27", Williamson County, Hydrologic Unit 12070205, on right bank at downstream side of downstream bridge of two bridges on Interstate Highway 35, 1.1 mi (1.8 km) southwest of the courthouse at Georgetown, and 2.4 mi (3.9 km) upstream from mouth.

DRAINAGE AREA.--133 mi<sup>2</sup> (345 km<sup>2</sup>).

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1948, 1962-67, December 1967 to current year.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 687.72 ft (209.617 m) National Geodetic Vertical Datum of 1929.

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

AVERAGE DISCHARGE.--14 years (water years 1969-82), 49.9 ft<sup>3</sup>/s (1.413 m<sup>3</sup>/s), 5.10 in/yr (130 mm/yr), 36,150 acre-ft/yr (44.6 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft<sup>3</sup>/s (946 m<sup>3</sup>/s) Sept. 3, 1981, gage height, 24.60 ft (7.498 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1887, about 41 ft (12.5 m) Apr. 24, 1957, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft<sup>3</sup>/s (56.6 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 7	0415	5,610 159	9.95 3.033	May 13	1230	4,650 132	9.26 2.822
Oct. 13	1830	*8,360 237	11.65 3.551	June 22	2330	2,800 79.3	7.66 2.335
Oct. 31	1600	4,940 140	9.48 2.890				

Minimum daily discharge, 0.17 ft<sup>3</sup>/s (0.005 m<sup>3</sup>/s) Sept. 16-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	20	393	44	25	14	19	13	74	51	39	5.6	.25		
2	19	138	41	24	13	17	11	74	49	36	4.2	.25		
3	23	112	39	24	14	17	13	72	48	34	1.7	.55		
4	23	100	38	20	14	15	12	68	47	33	1.7	.58		
5	21	93	38	18	14	12	8.9	65	47	30	1.2	.46		
6	55	87	37	19	14	14	8.0	91	48	29	.96	.37		
7	859	83	38	18	13	16	8.3	88	45	29	.89	.25		
8	94	94	38	17	12	15	9.2	73	42	31	2.2	.24		
9	56	108	36	18	13	14	9.4	69	41	26	4.9	.21		
10	45	84	36	18	12	14	11	64	39	25	2.5	.21		
11	40	79	35	18	11	13	11	64	39	22	2.4	.21		
12	35	77	35	20	11	13	9.7	65	141	18	2.7	.21		
13	1640	75	34	21	12	13	8.2	1240	56	22	2.1	.21		
14	399	75	33	22	10	15	7.3	190	45	22	1.7	.21		
15	139	73	33	19	9.0	13	8.2	112	38	17	1.9	.21		
16	110	68	32	18	9.8	12	8.7	104	40	16	1.7	.17		
17	99	67	31	18	9.2	12	10	91	46	17	.96	.17		
18	91	64	30	16	8.7	12	9.8	84	34	18	.97	.17		
19	79	61	30	17	8.9	12	8.8	79	32	14	.96	.17		
20	75	55	31	16	11	14	25	73	35	11	.88	.59		
21	74	56	32	17	12	14	41	73	36	11	.85	.21		
22	79	54	31	16	13	13	317	69	126	11	.92	.22		
23	95	52	28	14	9.0	14	154	68	336	9.5	.96	.29		
24	78	50	28	14	8.4	13	148	105	60	9.4	.76	.31		
25	74	49	27	12	9.8	11	145	93	43	11	.74	.31		
26	67	49	26	12	16	12	95	73	55	8.5	.70	.31		
27	63	45	26	13	34	16	83	67	334	5.4	.54	.26		
28	61	44	24	15	24	17	79	62	78	5.7	.47	.25		
29	59	44	23	14	---	15	74	62	52	5.8	.45	.25		
30	60	47	24	18	---	16	73	58	43	5.6	.37	.25		
31	973	---	25	18	---	14	---	55	---	4.4	.31	---		
TOTAL	5605	2476	1003	549	359.8	437	1419.5	3625	2126	576.3	49.19	8.35		
MEAN	181	82.5	32.4	17.7	12.9	14.1	47.3	117	70.9	18.6	1.59	.28		
MAX	1640	393	44	25	34	19	317	1240	336	39	5.6	.59		
MIN	19	44	23	12	8.4	11	7.3	55	32	4.4	.31	.17		
CFSM	1.36	.62	.24	.13	.10	.11	.36	.88	.53	.14	.01	.002		
IN.	1.57	.69	.28	.15	.10	.12	.40	1.01	.59	.16	.01	.00		
AC-FT	11120	4910	1990	1090	714	867	2820	7190	4220	1140	98	17		
CAL YR 1981	TOTAL	53603.30	MEAN	147	MAX	7830	MIN	1.7	CFSM	1.11	IN	14.99	AC-FT	106300
WTR YR 1982	TOTAL	18234.14	MEAN	50.0	MAX	1640	MIN	.17	CFSM	.38	IN	5.10	AC-FT	36170



## BRAZOS RIVER BASIN

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08105100 BERRY CREEK NEAR GEORGETOWN, TX

LOCATION.--Lat 30°41'28", long 97°39'21", Williamson County, Hydrologic Unit 12070205, on right bank at upstream side of upstream service road on Interstate Highway 35, 2.9 mi (4.7 km) north of the county courthouse at Georgetown, and 63.2 mi (100.2 km) upstream from mouth.

DRAINAGE AREA.--83.1 mi<sup>2</sup> (215.2 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 659.97 ft (201.159 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. No regulation or diversion.

AVERAGE DISCHARGE.--15 years, 27.6 ft<sup>3</sup>/s (0.782 m<sup>3</sup>/s), 4.51 in/yr (115 mm/yr), 20,000 acre-ft/yr (24.7 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,500 ft<sup>3</sup>/s (439 m<sup>3</sup>/s) Oct. 31, 1974, gage height, 19.33 ft (5.892 m); no flow at times in 1967, 1971-72, and 1978-79.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1921 occurred September 1921, 25 ft (7.6 m), from information by State Department of Highways and Public Transportation and local residents. Discharge not determined.

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

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Oct. 13	2000	*3,450	97.7	11.58	3.530
May 13	1230	2,040	57.8	9.63	2.935

Minimum discharge, no flow Sept. 19, 22-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	119	19	9.2	3.7	3.7	1.8	7.8	16	6.5	1.0	.38
2	7.1	46	19	9.2	3.7	4.3	1.7	7.5	15	5.0	1.0	.36
3	7.2	36	18	9.1	3.5	4.3	1.7	6.9	15	4.5	.72	.42
4	7.5	31	17	8.6	3.4	3.8	1.7	6.0	15	4.0	.71	.49
5	7.5	28	16	8.2	3.0	3.8	1.8	4.9	14	3.5	.69	.45
6	9.4	25	15	7.6	3.1	4.0	2.0	5.5	13	3.5	.72	.40
7	9.4	24	15	6.8	3.2	3.9	2.1	9.0	13	3.5	.67	.36
8	9.6	25	15	6.6	3.2	3.4	2.1	9.6	12	3.3	1.1	.35
9	20	35	15	5.2	3.2	3.2	2.1	9.1	12	3.3	1.1	.31
10	17	24	15	5.7	3.2	2.9	2.1	6.5	11	3.2	.84	.28
11	17	23	15	5.5	3.2	2.8	1.9	5.9	11	3.1	.79	.28
12	17	22	15	5.6	3.0	2.2	1.9	5.5	15	3.0	.72	.24
13	770	21	14	5.8	3.0	1.7	1.9	367	9.8	3.0	.67	.15
14	169	18	14	6.0	2.8	1.7	1.9	94	9.4	2.8	.65	.15
15	48	19	14	6.4	2.8	1.7	1.6	43	9.2	2.5	.63	.14
16	32	20	14	6.3	2.8	1.7	1.3	33	9.5	2.3	.63	.12
17	27	18	13	6.3	2.8	1.9	1.2	30	8.8	2.0	.67	.14
18	23	18	13	6.3	2.2	1.9	1.2	29	7.8	1.9	.69	.06
19	23	17	13	6.1	2.6	1.9	1.3	27	7.1	1.6	.78	.00
20	21	17	12	6.0	3.2	1.8	1.9	24	6.8	1.5	.62	.05
21	20	17	12	5.6	2.6	1.8	1.7	22	6.1	1.5	.61	.06
22	20	17	12	5.3	2.4	1.8	36	20	5.2	1.5	.53	.00
23	35	18	12	4.8	2.4	1.9	48	19	4.6	1.5	.50	.00
24	27	18	12	4.6	2.2	1.8	129	46	4.1	1.4	.47	.00
25	24	18	12	4.6	2.2	1.8	66	40	4.1	1.5	.43	.00
26	21	17	12	4.4	2.4	1.9	22	25	4.3	1.5	.41	.00
27	19	17	12	4.2	2.1	2.1	13	21	39	1.4	.39	.00
28	18	17	12	4.0	2.0	2.1	11	20	23	1.4	.36	.00
29	17	17	11	3.8	---	2.1	17	18	10	1.5	.47	.00
30	17	18	10	4.2	---	2.0	11	17	8.0	1.3	.48	.00
31	171	---	9.4	3.9	---	1.9	---	16	---	1.1	.39	---
TOTAL	1638.1	760	427.4	185.9	79.9	77.8	389.9	995.2	338.8	79.6	20.44	5.19
MEAN	52.8	25.3	13.8	6.00	2.85	2.51	13.0	32.1	11.3	2.57	.66	.17
MAX	770	119	19	9.2	3.7	4.3	129	367	39	6.5	1.1	.49
MIN	7.1	17	9.4	3.8	2.0	1.7	1.2	4.9	4.1	1.1	.36	.00
CFSM	.64	.30	.17	.07	.03	.03	.16	.39	.14	.03	.008	.002
IN.	.73	.34	.19	.08	.04	.03	.17	.45	.15	.04	.01	.00
AC-FT	3250	1510	848	369	158	154	773	1970	672	158	41	10
CAL YR 1981	TOTAL	16693.77	MEAN	45.7	MAX	3090	MIN	.10	CFSM	.55	IN	7.47
WTR YR 1982	TOTAL	4998.23	MEAN	13.7	MAX	770	MIN	.00	CFSM	.17	IN	2.24
									AC-FT	33110	AC-FT	9910

## BRAZOS RIVER BASIN

08105300 SAN GABRIEL RIVER NEAR WEIR, TX

LOCATION.--Lat 30°38'45", long 97°35'06", Williamson County, Hydrologic Unit 12070205, on left bank at downstream side of State Highway 29 bridge, 0.5 mi (0.8 km) upstream from Manske Branch, 4.7 mi (7.6 km) east of Georgetown, and 54.8 mi (88.2 km) upstream from mouth.

DRAINAGE AREA.--563 mi<sup>2</sup> (1,458 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 582.04 ft (177.406 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow partially regulated by Lake Georgetown (station 08104650) since March 1980. The city of Georgetown releases sewage effluent into the river 6.5 mi (10.5 km) upstream from this station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,100 ft<sup>3</sup>/s (1,140 m<sup>3</sup>/s) Sept. 3, 1981, gage height, 21.85 ft (6.660 m); minimum daily, 0.45 ft<sup>3</sup>/s (0.013 m<sup>3</sup>/s) Aug. 22, 1978.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,130 ft<sup>3</sup>/s (174 m<sup>3</sup>/s) May 13 at 1400 hours, gage height, 10.61 ft (3.234 m); minimum daily, 10 ft<sup>3</sup>/s (0.28 m<sup>3</sup>/s) Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	871	126	102	60	68	59	109	130	250	20	11
2	35	255	121	106	58	67	56	108	173	246	22	11
3	27	214	119	104	56	67	51	127	172	242	20	11
4	36	331	134	100	58	67	50	228	170	235	17	15
5	34	594	137	98	59	66	51	228	166	236	17	14
6	108	591	139	98	58	66	48	216	162	196	16	13
7	787	573	140	95	58	63	46	118	132	120	15	14
8	214	588	141	93	56	66	48	143	124	116	16	14
9	154	624	138	91	55	64	51	240	99	111	40	24
10	137	425	112	89	52	67	51	187	97	69	23	16
11	128	185	107	87	55	64	52	154	97	59	21	12
12	121	190	102	95	56	63	52	158	465	56	22	11
13	1900	214	104	90	84	62	47	3040	142	54	22	11
14	1560	219	104	88	90	65	45	712	119	65	21	12
15	503	216	102	89	93	65	44	254	108	52	21	13
16	1320	209	124	84	93	63	45	543	114	49	22	13
17	1160	205	152	81	91	62	44	892	117	41	22	11
18	1120	208	157	80	91	63	43	736	110	40	21	11
19	1090	204	155	60	91	58	44	637	104	38	17	10
20	666	198	152	50	96	58	110	894	102	34	15	20
21	162	198	155	55	96	58	73	1030	98	33	15	14
22	163	198	157	62	93	60	676	418	93	34	14	12
23	187	197	152	61	66	64	421	354	496	39	14	12
24	166	194	148	61	64	61	508	996	139	37	14	13
25	155	193	148	61	66	61	479	240	146	42	14	13
26	172	193	146	58	76	55	308	167	237	36	13	12
27	233	194	145	57	80	64	596	238	872	27	13	12
28	227	201	141	60	76	63	425	562	336	23	12	11
29	260	201	137	60	---	65	130	390	267	23	13	11
30	261	184	134	65	---	65	120	299	255	22	13	11
31	1020	---	126	64	---	54	---	126	---	21	13	---
TOTAL	14145	9067	4155	2444	2027	1954	4773	14544	5842	2646	558	388
MEAN	456	302	134	78.8	72.4	63.0	159	469	195	85.4	18.0	12.9
MAX	1900	871	157	106	96	68	676	3040	872	250	40	24
MIN	27	184	102	50	52	54	43	108	93	21	12	10
AC-FT	28060	17980	8240	4850	4020	3880	9470	28850	11590	5250	1110	770
CAL YR 1981	TOTAL	164293	MEAN 450	MAX 9160	MIN 23	AC-FT 325900						
WTR YR 1982	TOTAL	62543	MEAN 171	MAX 3040	MIN 10	AC-FT 124100						

## BRAZOS RIVER BASIN

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08105300 SAN GABRIEL RIVER NEAR WEIR, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: December 1976 to September 1982 (discontinued).

INSTRUMENTATION.--Water temperature is recorded continuously at this station.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum daily, 35.5°C July 27, 1982; minimum daily, 2.5°C Jan. 22, 1978, Jan. 2, 1979.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURES: Maximum daily, 35.5°C July 27.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 04...	1210	206	460	8.3	17.0	10	5.5	9.7	101	1.0	230
DEC 09...	1040	137	504	7.9	15.5	0	1.3	9.8	98	1.4	230
MAR 10...	0940	63	494	8.0	15.0	5	1.5	9.4	95	1.3	230
APR 14...	1035	44	485	7.6	22.0	5	2.6	6.1	71	1.2	230
JUN 23...	0935	441	334	8.1	23.0	15	100	7.1	85	3.9	150
AUG 25...	1300	16	418	8.0	29.0	10	10	9.4	124	3.1	170

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 04...	3	75	11	10	.3	2.1	230	5.0	13	.2	12
DEC 09...	13	70	14	12	.4	1.7	220	9.0	26	.3	8.9
MAR 10...	19	67	15	13	.4	1.8	210	20	15	.3	3.7
APR 14...	22	68	15	15	.5	1.5	210	16	21	.3	7.6
JUN 23...	14	46	9.6	8.7	.3	1.9	140	18	10	.3	9.6
AUG 25...	8	41	16	20	.7	1.4	160	20	29	.2	8.7

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 04...	267	4	4	1.1	.040	1.1	.150	.58	.73	.060	3.1
DEC 09...	274	3	2	1.4	.070	1.5	.160	1.0	1.20	.090	2.4
MAR 10...	262	13	4	1.1	.070	1.2	.360	.49	.85	.130	3.2
APR 14...	271	8	2	.73	.060	.79	.190	.57	.76	.180	4.2
JUN 23...	188	277	46	.30	.070	.37	.150	1.4	1.50	.110	8.8
AUG 25...	233	14	7	.25	.040	.29	.180	.82	1.00	.070	4.6

## BRAZOS RIVER BASIN

08105300 SAN GABRIEL RIVER NEAR WEIR, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 09...	1040	1	46	<1	<10	1	<10
APR 14...	1035	1	45	<3	<10	2	<9
AUG 25...	1300	2	35	<1	<10	2	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)
DEC 09...	1	8	<.1	<1	<1	<3
APR 14...	<1	4	<.1	<1	<1	<12
AUG 25...	<1	2	<.1	<1	<1	<3

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

## BRAZOS RIVER BASIN

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08105300 SAN GABRIEL RIVER NEAR WEIR, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1				---	---	---	21.0	19.5	20.5	21.0	18.5	19.5
2				---	---	---	24.0	19.0	21.0	22.5	18.5	20.5
3				---	---	---	22.5	18.0	20.0	24.0	19.5	21.5
4				---	---	---	19.5	17.5	18.0	22.0	20.0	21.0
5				---	---	---	22.0	18.0	19.5	20.5	19.0	19.5
6				---	---	---	19.5	15.5	17.5	20.5	18.0	19.0
7				---	---	---	17.0	15.5	16.0	22.5	17.5	19.5
8				---	---	---	21.5	15.5	18.5	23.0	17.5	20.0
9				---	---	---	18.0	15.0	16.0	20.5	18.5	19.5
10				---	---	---	14.5	12.5	14.0	19.5	18.5	19.0
11				20.5	16.0	19.0	18.0	12.0	14.5	21.0	19.0	20.0
12				23.0	18.0	20.0	19.5	13.5	16.0	21.5	19.5	20.5
13				24.0	19.5	21.5	22.0	17.0	19.5	20.0	16.0	18.0
14				24.5	19.5	22.0	25.5	19.5	22.0	22.0	18.0	20.0
15				22.0	20.5	21.5	21.0	19.5	20.5	24.0	20.5	22.0
16				22.0	20.5	21.0	22.0	19.5	20.5	23.5	16.5	21.5
17				24.0	20.5	22.0	22.0	19.0	20.0	17.5	15.0	16.0
18				25.5	21.0	23.0	20.0	18.0	19.0	18.0	15.0	16.5
19				24.5	21.0	22.5	22.0	18.5	20.0	19.0	15.5	17.0
20				22.5	21.5	22.0	20.0	15.5	17.5	18.0	15.5	17.0
21				22.0	17.0	19.5	15.0	13.5	14.0	18.0	15.5	16.5
22				19.0	16.0	17.0	13.5	10.5	11.5	20.0	16.5	18.5
23				16.5	15.5	16.0	14.0	11.5	13.0	19.5	17.0	18.5
24				20.0	15.0	17.0	13.5	12.5	13.0	22.0	17.5	20.0
25				17.5	15.5	17.0	17.5	13.0	15.5	26.0	21.0	23.5
26				16.0	14.0	15.0	20.5	16.0	18.0	27.0	24.0	25.5
27				14.0	10.5	12.5	18.0	14.5	16.5	27.0	24.5	25.5
28				14.0	10.0	12.0	19.5	15.5	17.5	24.5	21.5	23.5
29				13.5	11.0	12.0	22.5	18.5	20.0	26.5	22.5	24.5
30				20.0	13.5	16.5	20.5	19.5	20.0	27.0	23.5	25.0
31				23.0	18.0	20.0	---	---	---	28.0	24.5	26.0
MONTH				25.5	10.0	18.5	25.5	10.5	17.5	28.0	15.0	20.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	27.5	23.0	25.0	27.5	25.5	26.5	---	---	---	32.0	29.5	31.0
2	25.5	23.5	24.5	27.5	25.5	26.5	---	---	---	32.0	29.5	31.0
3	26.5	23.5	25.0	28.5	25.5	27.0	---	---	---	31.5	28.5	30.5
4	27.0	24.5	25.5	28.0	25.5	26.5	---	---	---	30.5	26.5	28.5
5	27.0	24.0	25.0	28.0	25.5	26.5	---	---	---	30.0	25.5	28.0
6	26.0	24.0	25.0	28.0	25.5	26.5	---	---	---	29.5	26.0	28.0
7	27.5	23.5	25.0	29.5	25.0	27.0	---	---	---	30.5	27.0	29.0
8	27.5	24.0	25.5	30.5	25.5	27.5	---	---	---	30.0	26.5	29.0
9	27.5	24.0	25.5	30.5	26.0	28.0	---	---	---	32.0	27.0	28.5
10	29.5	24.0	26.5	31.5	25.5	28.0	31.5	27.0	30.5	30.0	25.0	27.0
11	29.0	25.5	27.0	32.0	26.0	29.0	32.5	27.5	30.0	30.5	26.5	29.0
12	26.5	21.5	23.5	32.0	26.5	29.0	33.5	27.5	30.5	30.0	28.5	29.5
13	27.0	22.0	24.5	31.5	26.5	28.5	33.0	27.5	30.5	30.0	28.5	29.0
14	28.0	24.0	26.0	31.5	26.0	28.5	34.0	27.5	30.5	29.5	26.5	28.0
15	28.0	24.5	26.0	31.5	26.5	28.5	33.5	27.5	31.0	29.5	28.0	29.0
16	29.5	24.0	26.5	32.0	26.5	28.5	34.5	28.0	31.0	29.5	27.0	28.5
17	29.5	25.0	27.0	31.0	26.5	28.5	33.0	29.0	31.5	30.0	27.0	28.5
18	30.0	25.5	27.5	31.5	26.5	28.5	32.5	29.0	31.5	30.0	28.5	29.5
19	30.0	25.5	27.5	31.5	26.0	28.5	32.5	28.5	31.0	30.5	28.5	29.0
20	30.0	25.5	27.5	32.0	26.0	28.5	32.5	28.5	31.0	28.5	26.0	27.0
21	30.5	25.5	28.0	32.5	27.0	29.5	32.5	28.5	31.0	26.0	22.5	24.0
22	29.0	25.0	26.5	31.5	27.5	29.5	32.0	28.0	30.5	25.0	21.5	23.5
23	26.0	22.5	24.5	32.0	27.0	29.0	32.0	28.0	30.5	24.5	21.5	23.5
24	28.5	24.0	26.0	31.5	27.0	28.5	31.0	27.0	29.5	26.0	22.0	24.0
25	30.0	24.5	27.0	32.0	27.0	29.0	32.5	26.5	29.0	26.0	24.5	25.0
26	28.0	25.5	26.5	32.0	27.0	29.5	32.0	28.5	30.5	25.0	22.5	24.0
27	26.0	21.5	24.5	35.5	23.0	29.5	32.0	28.5	30.5	26.0	23.5	24.5
28	28.0	25.0	26.0	---	---	---	31.5	28.5	30.5	27.0	24.5	26.0
29	28.0	25.5	26.5	---	---	---	32.5	29.0	31.0	27.0	25.5	26.0
30	28.0	25.5	26.5	---	---	---	32.0	28.5	31.0	27.5	25.5	26.5
31	---	---	---	---	---	---	32.0	29.5	31.0	---	---	---
MONTH	30.5	21.5	26.0	35.5	23.0	28.0	34.5	26.5	30.5	32.0	21.5	27.5



## BRAZOS RIVER BASIN

08105600 GRANGER LAKE NEAR GRANGER, TX

LOCATION.--Lat 30°41'34", long 97°19'34", Williamson County, Hydrologic Unit 12070205, at Granger Dam on San Gabriel River, 1.5 mi (2.4 km) south of Friendship, 2.2 mi (3.5 km) upstream from Willis Creek, 7.1 mi (11.4 km) east of Granger, and at mile 31.9 (51.3 km).

DRAINAGE AREA.--730 mi<sup>2</sup> (1,891 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Mar. 27, 1980, nonrecording gage at present site and datum.

REMARKS.--The lake is formed by a rolled earthfill dam, 16,320 ft (4,974 m) long, including the spillway. The lake was built for water conservation and flood control. Deliberate impoundment began on Jan. 21, 1980. The spillway is an ungated ogee weir, 950 ft (290 m) long, located near right end of dam. The spillway for normal flood releases is a gated 18-foot-diameter (5.5 m) conduit, controlled by two 8- by 18-foot (2 by 5 m) slide gates, located near the center of dam. The invert for the floodgate is 457.0 ft (139.3 m). A low-flow outlet, consisting of three 3- by 4-foot (0.9 by 1.2 m) gated openings, invert elevations of 486.0, 494.0, and 502.0 ft (148.13, 150.57, and 153.01 m). Figures given herein represent total contents. Data regarding dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	555.0	674,500
Designed flood.....	550.3	580,000
Crest of spillway.....	528.0	244,200
Top of conservation pool.....	504.0	65,510
Lowest gated outlet (invert of 18 foot conduit).....	457.0	0

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 186,200 acre-ft (230 hm<sup>3</sup>) June 19, 1981, elevation, 522.25 ft (159.182 m); minimum, 615 acre-ft (0.758 hm<sup>3</sup>) Jan. 21, 1980, elevation 462.60 ft (141.000 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 81,280 acre-ft (100 hm<sup>3</sup>) May 15, elevation, 507.35 ft (154.640 m); minimum daily, 63,050 acre-ft (77.7 hm<sup>3</sup>) Sept. 30, elevation, 503.43 ft (153.445 m).

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

502.0	57,280
506.0	74,610
510.0	95,670

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67100	70970	67010	67460	66300	65860	67320	67100	66120	69740	66120	64630
2	67190	71610	66790	67410	66340	65900	67540	67050	65730	68980	66080	64590
3	67280	72120	66520	67320	66340	65900	67590	66880	65730	68170	65950	64500
4	67410	71980	66430	67230	66340	65950	67680	66610	65810	67230	65860	64420
5	67540	71800	66390	67190	66390	66040	67810	66390	65950	66340	65770	64370
6	68750	71200	66480	67050	66300	65860	67770	66610	65990	66170	65680	64290
7	70380	70240	66520	66880	66340	65860	67770	66170	65860	66300	65590	64240
8	71330	69830	66520	66700	66340	65820	67770	65770	65990	66570	65510	64200
9	71700	69060	66520	66570	66390	65860	67900	65770	66170	66650	65590	64110
10	71980	68080	66570	66430	66430	65900	68030	65860	66300	66700	65730	64070
11	72300	66610	66430	66390	66480	65990	68080	65950	66480	66740	65730	63990
12	72580	65600	66300	66340	66430	65950	68170	66610	68300	66830	65680	63940
13	72960	65730	66210	66300	66300	65990	68210	79410	68570	67050	65640	63990
14	78110	66170	66120	66260	66210	66210	68300	81020	68930	67050	65550	63990
15	79210	66660	65990	66170	66170	66210	68440	81280	68890	67100	65510	63940
16	79910	67100	65950	66040	66080	66260	68120	79760	69150	67100	65420	63940
17	80260	67460	66080	65950	66040	66300	67500	76010	69060	67100	65420	63900
18	80410	67410	66340	65820	65950	66340	66920	72210	69110	67050	65460	63900
19	80520	67100	66610	65770	65860	66300	66300	68530	68980	67050	65420	63900
20	79960	66790	67050	65680	65820	66300	66610	64420	68800	66970	65420	63810
21	78910	66480	67460	65770	65770	66210	67230	63990	68800	66920	65330	63690
22	77570	66260	67500	65860	65640	66260	69430	64630	68800	66920	65240	63600
23	76200	66390	67410	65860	65600	66300	70560	65420	69290	66920	65160	63520
24	74800	66880	67410	65900	65640	66340	72630	68620	69290	66880	65070	63430
25	73520	67190	67460	65900	65770	66300	73660	70470	69240	66830	64980	63350
26	72160	67190	67460	65950	65820	66390	73190	70970	69240	66740	64890	63260
27	70970	67140	67460	65990	65820	66610	71930	70650	71520	66700	64810	63180
28	69790	67100	67360	66040	65860	66740	70650	70280	71700	66610	64760	63130
29	68840	67140	67360	66120	---	66880	69020	69650	71240	66480	64810	63090
30	67900	67190	67460	66300	---	67010	67460	68800	70510	66390	64720	63050
31	68840	---	67500	66390	---	67190	---	67100	---	66260	64680	---
MAX	80520	72120	67500	67460	66480	67190	73660	81280	71700	69740	66120	64630
MIN	67100	65600	65950	65680	65600	65820	66300	63990	65730	66170	64680	63050
(†)	504.75	504.38	504.45	504.20	504.08	504.38	504.44	504.36	505.12	504.17	503.81	503.43
(#)	-1870	-1650	+310	-1110	-530	+1330	+270	-360	+3410	-4250	-1580	-1630

CAL YR 1981 MAX 185600 MIN 39110 † +28450  
WTR YR 1982 MAX 81280 MIN 63050 † -3920

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



## BRAZOS RIVER BASIN

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08105600 GRANGER LAKE NEAR GRANGER, TX--Continued

## WATER-QUALITY RECORDS

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

304132097200801 GRANGER LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

		SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
DATE	TIME									
JAN										
27...	0937	1.00	409	8.0	9.0	.80	11.9	103	<1	100
27...	0938	1.20	--	--	--	--	--	--	--	--
27...	0939	10.0	409	8.0	9.0	--	11.3	98	--	--
27...	0941	20.0	409	8.0	9.0	--	11.9	103	--	--
27...	0943	30.0	409	8.0	9.0	--	11.9	103	--	--
27...	0945	40.0	409	8.0	9.0	--	11.9	103	--	--
27...	0948	45.0	409	8.0	9.0	--	11.6	101	--	--
MAY										
20...	1315	1.00	361	8.0	24.0	.61	7.7	93	K4	K16
20...	1316	1.00	--	--	--	--	--	--	--	--
20...	1317	10.0	361	7.9	24.0	--	7.6	92	--	--
20...	1319	20.0	361	7.8	23.5	--	7.1	85	--	--
20...	1320	25.0	361	7.9	23.5	--	6.9	82	--	--
20...	1321	30.0	305	7.4	21.0	--	3.0	34	--	--
20...	1323	35.0	290	7.4	21.0	--	2.2	25	--	--
20...	1325	40.0	383	7.4	20.5	--	4.1	46	--	--
20...	1327	53.0	393	7.5	20.0	--	3.9	43	--	--
AUG										
11...	1000	1.00	329	7.7	28.5	.70	6.5	83	K2	35
11...	1001	1.10	--	--	--	--	--	--	--	--
11...	1002	10.0	331	7.6	28.5	--	6.4	82	--	--
11...	1004	20.0	331	7.3	28.0	--	4.1	52	--	--
11...	1006	30.0	334	7.1	28.0	--	3.0	38	--	--
11...	1008	40.0	340	7.0	28.0	--	1.2	15	--	--
11...	1010	46.0	340	7.0	28.0	--	.9	11	--	--
	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										
27...	200	18	63	9.9	10	.3	3.0	180	14	12
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	200	19	63	10	11	.4	3.0	180	14	14
MAY										
20...	160	23	51	8.7	11	.4	3.1	140	22	14
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	190	7	60	9.1	8.4	.3	2.9	180	18	10
AUG										
11...	140	9	41	9.0	13	.5	3.2	130	21	17
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	140	13	42	9.2	14	.5	3.2	130	21	17

BRAZOS RIVER BASIN  
GRANGER LAKE NEAR GRANGER, TX--Continued

304132097200801 GRANGER LAKE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS F)	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									
27...	.3	7.6	228	.80	.59	1.4	.010	<10	1
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	.80	.66	1.5	.010	20	10
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	7.8	231	.81	.77	1.6	.020	<10	5
MAY									
20...	.2	6.8	201	.80	.90	1.7	.030	43	1
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	.90	.90	1.8	.040	<10	<10
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	1.0	1.20	2.2	.060	10	10
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	9.9	227	.70	1.30	2.0	.130	5	54
AUG									
11...	.2	6.1	189	<.10	1.10	--	.040	<3	3
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	<.10	1.00	--	.020	20	10
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	6.9	192	.10	1.10	1.2	.040	<3	210

304209097195101 GRANGER LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
JAN							
27...	1015	1.00	405	8.1	9.5	10.9	96
27...	1017	10.0	405	8.1	9.5	10.9	96
27...	1020	22.0	405	8.1	9.5	10.9	96
MAY							
20...	1400	1.00	361	8.0	25.0	8.0	98
20...	1402	10.0	361	8.0	25.0	7.9	96
20...	1404	20.0	361	8.0	24.5	7.6	92
20...	1406	30.0	356	7.7	23.0	5.7	67
20...	1408	40.0	292	7.4	20.5	2.2	25
20...	1410	46.0	319	7.4	20.5	2.3	26
AUG							
11...	0945	1.00	331	7.7	28.5	6.6	85
11...	0947	10.0	331	7.6	28.5	6.4	82
11...	0949	20.0	336	7.2	28.0	3.6	46
11...	0951	30.0	340	7.1	28.0	2.5	32
11...	0953	40.0	340	7.0	28.0	2.0	25
11...	0955	47.0	342	6.9	28.0	1.2	15

## BRAZOS RIVER BASIN

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## GRANGER LAKE NEAR GRANGER, TX--Continued

304206097215001 GRANGER LAKE SITE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)
JAN							
27...	1047	1.00	408	8.0	10.0	.80	11.2
27...	1049	10.0	408	8.0	10.0	--	11.2
27...	1051	20.0	408	8.0	10.0	--	11.4
APR							
20...	1247	1.00	368	8.0	25.5	--	7.6
20...	1249	10.0	366	7.9	25.0	--	7.3
20...	1250	15.0	371	7.8	24.5	--	6.3
20...	1252	20.0	385	7.3	23.5	--	2.5
20...	1253	33.0	400	7.2	22.5	--	2.6
AUG							
11...	1040	1.00	336	7.6	28.5	.50	6.3
11...	1042	10.0	336	7.5	28.5	--	5.6
11...	1044	20.0	344	6.9	28.0	--	.5
11...	1046	34.0	348	6.9	28.0	--	.0

DATE	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN							
27...	100	.78	.64	1.4	.010	30	10
27...	100	.78	.75	1.5	.020	70	20
27...	102	.76	.69	1.5	.020	50	40
APR							
20...	94	--	--	--	--	--	--
20...	89	--	--	--	--	--	--
20...	76	--	--	--	--	--	--
20...	30	--	--	--	--	--	--
20...	30	--	--	--	--	--	--
AUG							
11...	81	<.10	1.10	--	.030	20	10
11...	72	--	--	--	--	--	--
11...	6	--	--	--	--	--	--
11...	0	<.10	1.40	--	.080	110	270

304108097215101 GRANGER LAKE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
JAN										
27...	1121	1.00	412	8.1	10.0	1.40	11.0	98	<1	44
27...	1123	10.0	412	8.1	9.5	--	11.0	97	--	--
27...	1125	20.0	412	8.1	9.5	--	11.0	97	--	--
27...	1128	32.0	412	8.1	9.5	--	10.8	96	--	--
MAY										
20...	1100	1.00	338	7.7	23.5	.43	6.7	80	77	96
20...	1102	10.0	340	7.7	23.5	--	6.6	79	--	--
20...	1104	20.0	340	7.5	22.5	--	5.1	59	--	--
20...	1106	30.0	410	7.4	20.5	--	4.9	55	--	--
20...	1108	40.0	415	7.4	20.0	--	4.9	54	--	--
20...	1110	48.0	415	7.4	20.0	--	4.8	53	--	--
AUG										
11...	1100	1.00	339	7.5	28.0	.70	5.6	71	K1	25
11...	1102	10.0	338	7.3	28.0	--	5.4	68	--	--
11...	1104	20.0	337	7.2	28.0	--	3.5	44	--	--
11...	1106	30.0	339	7.1	27.5	--	2.4	30	--	--
11...	1108	42.0	348	7.1	27.5	--	1.7	22	--	--

## BRAZOS RIVER BASIN

## GRANGER LAKE NEAR GRANGER, TX--Continued

304108097215101 GRANGER LAKE SITE CC--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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									
27...	190	14	61	10	10	.3	3.0	180	15
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	200	19	63	10	11	.4	3.0	180	15
MAY									
20...	150	14	49	7.7	9.5	.3	3.0	140	20
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	200	19	63	10	8.0	.3	2.8	180	19
AUG									
11...	140	13	42	9.2	14	.5	3.2	130	21
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	150	18	44	9.3	13	.5	3.2	130	20

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
27...	12	7.7	227	.83	.58	1.4	.010	280	3
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	.83	.77	1.6	.020	70	20
27...	13	7.9	231	.83	.67	1.5	.020	16	10
MAY									
20...	11	8.0	192	.80	1.10	1.9	.040	6	2
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	.80	1.20	2.0	.050	10	10
20...	--	--	--	.70	1.00	1.7	.060	<10	<10
20...	--	--	--	--	--	--	--	--	--
20...	12	9.7	233	.70	1.40	2.1	.130	14	20
AUG									
11...	17	6.4	191	<.10	1.20	--	.020	<3	1
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.10	1.20	1.3	.030	<10	10
11...	--	--	--	.10	1.20	1.3	.050	10	20
11...	17	7.0	192	.11	1.60	1.7	.090	11	25

303947097231401 GRANGER LAKE SITE DC

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
JAN										
27...	1157	1.00	463	7.7	11.5	.50	9.7	90	37	740
27...	1158	.80	--	--	--	--	--	--	--	--
27...	1159	10.0	449	7.7	10.0	--	9.7	87	--	--
27...	1201	20.0	500	7.6	8.5	--	9.6	83	--	--
27...	1203	28.0	500	7.6	8.5	--	9.5	82	--	--
MAY										
20...	1150	1.00	408	7.8	23.5	.60	7.3	87	180	160
20...	1151	1.00	--	--	--	--	--	--	--	--
20...	1152	10.0	441	7.6	20.0	--	7.1	79	--	--
20...	1154	20.0	441	7.6	20.0	--	6.9	77	--	--
20...	1156	30.0	441	7.6	20.0	--	6.6	73	--	--
AUG										
11...	1120	1.00	365	7.3	28.5	.80	5.1	65	22	130
11...	1121	1.40	--	--	--	--	--	--	--	--
11...	1122	5.00	362	7.1	28.0	--	4.6	58	--	--
11...	1124	10.0	359	6.9	28.0	--	.7	9	--	--
11...	1126	20.0	371	6.8	27.5	--	.0	0	--	--
11...	1128	28.0	375	6.8	27.5	--	.0	0	--	--

## BRAZOS RIVER BASIN

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## GRANGER LAKE NEAR GRANGER, TX--Continued

303947097231401 GRANGER LAKE SITE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
JAN									
27...	220	21	67	13	13	.4	2.4	200	16
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	230	17	68	14	15	.5	1.8	210	23
MAY									
20...	200	11	64	10	8.7	.3	2.7	190	18
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	220	19	68	12	9.0	.3	2.5	200	20
AUG									
11...	150	14	45	10	14	.5	3.1	140	20
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	170	16	50	10	13	.5	3.1	150	22
DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
JAN									
27...	14	5.7	251	1.6	.68	2.3	.020	73	13
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	1.3	.84	2.1	.030	270	20
27...	--	--	--	--	--	--	--	--	--
27...	19	5.3	272	2.2	.84	3.0	.020	<10	4
MAY									
20...	11	10	239	.70	1.20	1.9	.130	5	4
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--
20...	11	9.6	252	.70	1.20	1.9	.050	7	62
AUG									
11...	18	7.7	202	<.10	1.00	--	.020	<3	5
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.11	1.10	1.2	.030	40	40
11...	--	--	--	--	--	--	--	--	--
11...	19	8.9	217	<.10	1.40	--	.080	470	370

## BRAZOS RIVER BASIN

GRANGER LAKE NEAR GRANGER, TX--Continued

304132097200801 GRANGER LAKE SITE AC

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 27,82 0938	MAY 20,82 1316	AUG 11,82 1001			
TOTAL CELLS/ML	1600	5100	14000			
DIVERSITY: DIVISION	1.2	1.4	1.0			
..CLASS	1.2	1.4	1.0			
..ORDER	2.2	2.1	1.5			
...FAMILY	2.7	2.7	1.8			
....GENUS	2.7	3.4	1.9			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
...NITZSCHIAEAE						
....NITZSCHIA	--	-	28	1	--	-
...EUPODISCALES						
...COSCINODISCACEAE						
....CYCLOTELLA	430#	27	470	9	120	1
....MELOSIRA	--	-	1000#	20	260	2
....STEPHANODISCUS	--	-	--	-	*	0
...FRAGILARIALES						
...FRAGILARIACEAE						
....SYNEDRA	330#	21	55	1	290	2
...NAVICULALES						
...NAVICULACEAE						
....NAVICULA	--	-	--	-	72	1
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	--	-	--	-	*	0
....TETRAEDRON	--	-	--	-	72	1
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	55	1	--	-
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	--	-	110	2	240	2
...HYDRODICTYACEAE						
....PEDIASTRUM	320#	20	440	9	170	1
...OOCYSTACEAE						
....ANKISTRODESMUS	100	6	170	3	*	0
....OOCYSTIS	--	-	220	4	220	2
...SCENEDESMACEAE						
....COELASTRUM	--	-	220	4	310	2
....CRUCIGENIA	57	4	170	3	--	-
....SCENEDESMUS	--	-	110	2	380	3
....TETRASTRUM	--	-	--	-	96	1
...VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	1100#	22	120	1
....CHLAMYDOMONAS	72	4	280	5	*	0
...VOLVOCAEAE						
....PANDORINA	230	14	--	-	--	-
CHRYSTOPHYTA						
..XANTHOPHYCEAE						
...MISCHOCOCCALES						
...SCIADACEAE						
....OPHIOCYTIUM	--	-	55	1	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	72	1
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	-	9700#	71
...OSCILLATORIALES						
...OSCILLATORIAEAE						
....OSCILLATORIA	--	-	--	-	1300	9

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

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



## BRAZOS RIVER BASIN

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## GRANGER LAKE NEAR GRANGER, TX--Continued

304132097200801 GRANGER LAKE SITE AC--Continued

## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 27,82 0938		MAY 20,82 1316		AUG 11,82 1001	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
....EUGLENACEAE						
.....EUGLENA	--	-	--	-	*	0
....TRACHELOMONAS	72	4	550	11	--	-
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...DINOKONTAE						
....PERIDINIACEAE						
.....PERIDINIUM	--	-	--	-	96	1

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

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

303947097231401 GRANGER LAKE SITE DC

## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 27,82 1158		MAY 20,82 1151		AUG 11,82 1121	
TOTAL CELLS/ML	720		3800		4600	
DIVERSITY: DIVISION	1.2		1.1		2.1	
..CLASS	1.2		1.1		2.1	
...ORDER	2.3		2.0		3.0	
....FAMILY	2.6		2.9		3.4	
.....GENUS	2.9		3.4		3.9	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
....NITZSCHIA	57	8	--	-	24	1
.....EUPODISCALES						
....COSCIINODISCACEAE						
.....CYCLOTETRA	240#	34	260	7	190	4
....FRAGILARIALES						
.....FRAGILARIALES						
.....SYNEDRA	29	4	--	-	120	3
....NAVICULACEAE						
.....NAVICULA	43	6	160	4	72	2

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

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

BRAZOS RIVER BASIN  
GRANGER LAKE NEAR GRANGER, TX--Continued

303947097231401 GRANGER LAKE SITE DC--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	JAN 27,82 1158		MAY 20,82 1151		AUG 11,82 1121	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....SCHROEDERIA	--	-	420	11	48	1
....TETRAEDRON	--	-	32	1	190	4
...DICTYOSPHAERIACEAE						
....DICTYOSPHAERIUM	--	-	64	2	--	-
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	190	5	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	29	4	350	9	24	1
....KIRCHNERIELLA	--	-	--	-	96	2
...OOCYSTIS	110#	16	--	-	96	2
...SCENEDESMACEAE						
....COELASTRUM	--	-	--	-	170	4
....CRUCIGENIA	57	8	130	3	190	4
...SCENEDESMUS	57	8	320	8	240	5
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	800#	21	--	-
...CHLAMYDOMONAS	57	8	670#	18	96	2
...POLYBLEPHARIDACEAE						
....SPERMATOOZOPSIS	--	-	32	1	48	1
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	48	1
...ZYGNEMATAACEAE						
....MOUGEOTIA	--	-	--	-	550	12
CHRYSOPHYTA						
..XANTHOPHYCEAE						
...MISCHOCOCCALES						
...SCIADACEAE						
....OPHIOCYTIUM	--	-	96	3	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	29	4	64	2	790#	17
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	380	8
...ANACYSTIS	--	-	--	-	190	4
...NOSTOCALES						
...HAMMATOIDEACEAE						
....RAPHIDIOPSIS	--	-	--	-	650	14
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	240	5
...TRACHELOMONAS	--	-	130	3	120	3
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...DINOKONTAE						
...PERIDINIACEAE						
....PERIDINIUM	--	-	64	2	--	-

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

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

## BRAZOS RIVER BASIN

405

08105700 SAN GABRIEL RIVER AT LANEPORT, TX

LOCATION.--Lat 30°41'40", long 97°16'43", Williamson County, Hydrologic Unit 12070205, on right bank at downstream side of county bridge (revised), 0.2 mi (0.3 km) north of Laneport, 3.4 mi (5.5 km) downstream from Willis Creek, 7.5 mi (12.1 km) northwest of Thrall, and 26.2 mi (42.2 km) upstream from mouth.

DRAINAGE AREA.--738 mi<sup>2</sup> (1,911 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WRD TX-74-1: 1965(M), 1966(P), 1967(M), 1968, 1969(P), 1973(P). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 412.60 ft (125.760 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow partly regulated by Granger Lake (station 08105600) since Jan. 21, 1980.

AVERAGE DISCHARGE.--14 years (water years 1966-79) unregulated, 289 ft<sup>3</sup>/s (8.184 m<sup>3</sup>/s), 209,400 acre-ft/yr (258 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,200 ft<sup>3</sup>/s (884 m<sup>3</sup>/s) Oct. 31, 1974, gage height, 30.80 ft (9.388 m); minimum daily, 0.28 ft<sup>3</sup>/s (0.008 m<sup>3</sup>/s) Aug. 25-28, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1910, occurred September 1921, 39.6 ft (12.07 m); April 1957, 34.6 ft (10.55 m); and October 1959, 33.8 ft (10.30 m); from floodmarks at present site and datum. Discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,890 ft<sup>3</sup>/s (81.8 m<sup>3</sup>/s) May 17 at 1900 hours, gage height, 13.85 ft (4.221 m); minimum daily, 0.19 ft<sup>3</sup>/s (0.005 m<sup>3</sup>/s) Sept. 18-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	11	207	131	45	62	2.1	419	679	692	18	.80
2	3.6	6.7	207	131	46	62	2.2	131	418	695	18	.51
3	3.5	5.3	190	131	45	62	2.7	216	196	694	16	.51
4	3.0	346	138	130	45	62	3.2	355	135	689	15	.80
5	2.9	707	138	130	45	62	5.3	354	136	684	3.0	.81
6	11	861	138	130	46	63	8.0	359	136	347	1.6	.68
7	12	1130	138	128	46	62	9.5	351	137	7.3	1.7	.68
8	6.1	1020	138	128	46	63	9.9	353	103	5.0	1.7	.58
9	4.5	1010	137	127	46	63	8.1	228	11	3.8	1.5	.80
10	4.3	1000	137	125	46	64	2.3	130	9.0	3.3	1.4	.51
11	3.7	993	137	125	47	53	2.1	131	7.8	2.8	1.3	.45
12	3.2	761	137	127	61	61	2.5	136	11	2.2	1.1	.45
13	335	364	137	125	122	62	2.1	278	7.2	2.3	1.3	.38
14	433	28	137	124	124	63	1.9	153	6.3	2.0	1.0	.33
15	8.6	25	137	124	125	63	2.1	151	61	1.6	.92	.33
16	464	24	98	124	125	62	82	1070	134	1.4	.80	.36
17	920	73	55	124	126	62	367	2370	132	1.5	.92	.20
18	916	251	40	124	125	62	369	2570	135	1.6	1.1	.19
19	911	364	6.1	123	127	61	370	2450	131	2.0	1.1	.19
20	909	362	4.3	123	128	61	234	2390	131	19	1.1	.19
21	910	362	4.1	102	128	61	6.2	1560	130	18	.92	.28
22	910	362	41	48	127	60	6.2	193	129	20	1.1	.28
23	906	190	131	46	114	61	5.5	17	127	21	.92	.23
24	901	11	132	45	62	67	7.1	16	127	21	.58	.33
25	895	52	132	45	62	38	6.7	14	191	20	.68	.27
26	889	205	131	44	63	3.7	475	12	258	19	.68	.23
27	885	205	131	45	62	3.1	1200	373	278	19	.68	.30
28	886	205	131	45	62	3.1	1100	719	265	19	1.0	.28
29	890	205	130	45	---	2.6	1090	859	490	18	1.0	.35
30	887	207	130	45	---	2.4	993	887	696	17	.92	.37
31	455	---	130	45	---	1.9	---	880	---	17	.95	---
TOTAL	14372.0	11346.0	3679.5	3089	2246	1538.8	6375.7	20125	5407.3	4065.8	97.97	12.67
MEAN	464	378	119	99.6	80.2	49.6	213	649	180	131	3.16	.42
MAX	920	1130	207	131	128	67	1200	2570	696	695	18	.81
MIN	2.9	5.3	4.1	44	45	1.9	1.9	12	6.3	1.4	.58	.19
AC-FT	28510	22500	7300	6130	4450	3050	12650	39920	10730	8060	194	25
CAL YR 1981	TOTAL	182512.09	MEAN 500	MAX 5060	MIN .68	AC-FT 362000						
WTR YR 1982	TOTAL	72355.74	MEAN 198	MAX 2570	MIN .19	AC-FT 143500						

## BRAZOS RIVER BASIN

08105700 SAN GABRIEL RIVER AT LANEPOR, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: July 1972 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: December 1976 to March 1982 (discontinued).

INSTRUMENTATION.--Continuous recording of temperature was discontinued March 1982.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: Maximum daily, 37.5°C July 9, 1978; minimum daily, 1.5°C Jan. 28, 1978.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 04...	1415	649	369	7.8	18.0	20	28	10.6	113	1.6	180
DEC 09...	1240	137	406	7.9	14.0	5	11	10.8	105	1.0	190
MAR 10...	1155	65	424	8.2	13.0	5	9.6	11.5	111	1.4	190
APR 14...	1225	2.9	634	7.3	23.0	5	6.6	11.1	131	2.8	280
JUN 23...	1115	134	393	8.0	25.0	10	12	7.3	89	1.2	170
AUG 25...	1140	1.0	634	7.6	27.0	<1	3.1	8.2	105	.6	270

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 04...	17	57	8.3	9.2	.3	3.2	160	9.0	12	.2	9.1
DEC 09...	17	60	9.0	9.5	.3	3.1	170	10	19	.3	8.5
MAR 10...	14	61	10	12	.4	2.9	180	25	17	.3	6.1
APR 14...	22	88	15	24	.7	2.7	260	47	27	.3	13
JUN 23...	19	53	8.9	12	.4	3.1	150	23	18	.3	7.2
AUG 25...	20	85	14	26	.7	1.9	250	48	25	.3	13

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, 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 04...	204	70	17	.75	.040	.79	.110	.51	.62	.030	3.5
DEC 09...	222	25	11	.72	.020	.74	<.070	--	.70	.030	3.0
MAR 10...	243	19	11	--	<.020	.80	.360	.47	.83	.020	4.2
APR 14...	373	28	5	--	<.020	3.0	.080	.32	.40	.020	3.2
JUN 23...	216	30	12	.63	.030	.66	.120	2.1	2.20	.050	4.0
AUG 25...	364	<2	<1	3.5	.030	3.5	.120	1.8	1.90	.080	1.9

## BRAZOS RIVER BASIN

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08105700 SAN GABRIEL RIVER AT LANEPORT, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 09...	1240	3	53	<1	<10	1	<10
APR 14...	1225	2	82	<3	10	1	<9
AUG 25...	1140	2	78	<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)
DEC 09...	2	2	<.1	<1	<1	<3
APR 14...	2	<3	<.1	1	<1	<12
AUG 25...	<1	6	<.1	1	<1	<3

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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

08105700 SAN GABRIEL RIVER AT LANEPORT, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	10.5	10.0	10.0	13.0	11.0	12.0						
2	11.0	10.5	11.0	13.0	11.0	12.0						
3	10.5	8.5	10.0	14.0	12.5	13.5						
4	8.5	8.5	8.5	15.0	13.5	14.0						
5	8.5	6.5	8.0	13.5	11.5	12.5						
6	6.5	5.5	6.0	11.5	10.5	11.0						
7	7.0	6.0	6.5	12.5	10.5	11.5						
8	8.0	7.0	7.5	12.5	10.5	12.0						
9	8.5	7.5	8.0	13.5	12.0	13.0						
10	7.0	7.0	7.0	14.5	13.0	13.5						
11	8.0	6.5	7.5	16.0	14.0	14.5						
12	9.5	8.0	9.0	16.5	15.5	16.0						
13	8.5	7.0	7.5	17.5	16.0	16.5						
14	8.5	6.5	7.5	17.5	16.0	17.0						
15	10.0	8.0	9.0	16.5	15.5	16.0						
16	10.5	8.0	9.5	17.0	16.0	16.5						
17	11.0	8.0	9.5	17.0	11.0	16.0						
18	10.5	8.5	9.5	17.5	16.5	17.0						
19	10.5	9.5	10.0	17.5	17.0	17.5						
20	11.0	10.0	10.5	18.0	16.5	17.0						
21	12.0	10.0	10.5	17.0	15.0	16.0						
22	12.5	9.5	11.0	15.5	14.5	15.5						
23	12.0	10.5	11.0	16.0	16.0	16.0						
24	12.5	12.0	12.0	16.0	16.0	16.0						
25	12.0	10.0	11.0	16.5	16.0	16.0						
26	10.5	10.0	10.5	16.5	16.5	16.5						
27	12.5	10.0	11.0	---	---	---						
28	12.5	10.5	11.5	---	---	---						
29	---	---	---	---	---	---						
30	---	---	---	---	---	---						
31	---	---	---	---	---	---						
MONTH	12.5	5.5	9.5	18.0	10.5	15.0						

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1												
2												
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31												
MONTH												



BRAZOS RIVER BASIN

409

08106310 SAN GABRIEL RIVER NEAR ROCKDALE, TX.

LOCATION.--Lat 30°43'29", long 97°02'19", Milam County, Hydrologic Unit 12070204, on left bank at downstream side of Farm Road 486, 1.2 mi (1.9 km) downstream from Brushy Creek, 4.3 mi (6.9 km) upstream from mouth, and 5.3 mi (8.5 km) north of Rockdale

DRAINAGE (corrected).--1,359 mi<sup>2</sup> (3,520 km<sup>2</sup>).

PERIOD OF RECORD.--October 1974 to current year. Prior to October 1980, gage-height record only (not published).

GAGE.--Water-stage recorder. Datum of gage is 311.59 ft (94.973 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow is largely regulated by Granger Lake (station 08105600). Flow is affected at times times by discharge from the flood-detention pools of 46 floodwater-retarding structures with a combined detention capacity of 46,140 acre-ft (56.9 hm<sup>3</sup>). These structures control runoff from 144 mi<sup>2</sup> (373 km<sup>2</sup>) in the Brushy Creek drainage basin. Gage-height telemeter is installed at station. Several observations of water temperature were made during the year. Backwater will occur at times from Little River.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 32.91 ft (10.031 m) July 27, 1979 (discharge not determined), but may have been in backwater from Little River). Maximum discharge, 15,600 ft<sup>3</sup>/s (442 m<sup>3</sup>/s) June 14, 1981, gage height, 32.11 ft (9.787 m); minimum daily, 1.5 ft<sup>3</sup>/s (0.042 m<sup>3</sup>/s) Sept. 29, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,800 ft<sup>3</sup>/s (306 m<sup>3</sup>/s) May 14 at 2200 hours, gage height, 30.66 ft (9.345 m); minimum daily, 1.5 ft<sup>3</sup>/s (0.042 m<sup>3</sup>/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	100	229	164	73	96	29	889	972	786	24	2.3
2	20	93	229	166	74	93	27	266	645	775	24	2.2
3	20	84	231	165	73	91	25	232	461	762	24	2.1
4	19	81	188	163	72	90	24	411	177	751	24	2.0
5	18	671	169	164	71	87	24	436	192	743	23	1.9
6	31	688	170	164	71	88	24	448	192	704	15	3.3
7	128	1130	170	161	71	87	21	475	192	93	7.6	4.2
8	376	1050	170	160	72	89	20	495	189	39	6.3	5.9
9	236	1050	170	160	72	87	18	453	113	32	5.5	5.2
10	141	1060	170	159	71	87	17	241	59	29	3.9	4.5
11	101	1030	169	158	71	87	17	220	50	26	10	4.0
12	89	977	169	158	72	74	17	213	55	23	12	3.6
13	79	546	168	163	124	85	17	3830	184	22	5.2	3.2
14	800	178	167	167	166	85	17	10100	153	21	3.4	2.8
15	125	77	166	169	169	85	17	8060	87	21	3.0	2.6
16	525	70	165	165	169	84	16	2020	306	18	2.8	2.4
17	970	66	93	163	171	84	263	2790	232	15	2.6	2.3
18	980	165	80	162	169	84	381	3110	183	13	2.5	2.2
19	990	363	63	159	169	83	384	2910	173	11	2.3	2.1
20	980	368	45	162	169	81	430	2740	166	22	2.2	2.8
21	980	367	43	162	169	80	996	2640	162	27	2.3	4.5
22	1000	368	41	107	169	80	1100	894	825	26	2.5	4.5
23	1010	354	109	79	170	82	2510	280	532	28	2.9	3.6
24	1050	94	161	76	121	84	1420	456	200	29	2.8	3.0
25	1020	55	164	75	87	85	2140	1410	173	31	2.6	2.6
26	990	157	164	73	92	55	574	517	315	25	2.4	2.2
27	980	226	164	71	94	32	1270	303	978	26	2.2	1.9
28	970	227	164	72	98	32	1290	899	674	26	2.9	1.7
29	960	248	160	73	---	41	1230	955	484	26	2.8	1.5
30	950	234	162	72	---	34	1210	1050	789	24	2.6	1.6
31	530	---	165	72	---	31	---	1030	---	24	2.5	---
TOTAL	17090	12177	4678	4184	3169	2363	15528	50773	9913	5198	231.8	88.7
MEAN	551	406	151	135	113	76.2	518	1638	330	168	7.48	2.96
MAX	1050	1130	231	169	171	96	2510	10100	978	786	24	5.9
MIN	18	55	41	71	71	31	16	213	50	11	2.2	1.5
AC-FT	33900	24150	9280	8300	6290	4690	30800	100700	19660	10310	460	176
CAL YR 1981	TOTAL	293207.8	MEAN	803	MAX	12900	MIN	7.3	AC-FT	581600		
WTR YR 1982	TOTAL	125393.5	MEAN	344	MAX	10100	MIN	1.5	AC-FT	248700		

## BRAZOS RIVER BASIN

08106350 LITTLE RIVER NEAR ROCKDALE, TX

LOCATION.--Lat 30°45'38", long 97°00'49", Milam County, Hydrologic Unit 12070204, on right bank downstream from Alcoa pumping station, 200 ft (61 m) downstream from mouth of San Gabriel River, and 6.8 mi (10.9 km) north of Rockdale.

DRAINAGE AREA.--6,959 mi<sup>2</sup> (18,024 km<sup>2</sup>).

PERIOD OF RECORD.--February 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 299.12 ft (91.172 m) National Geodetic Vertical Datum of 1929 (corrected).

REMARKS.--Records good. Daily discharge are not published above 1,000 ft<sup>3</sup>/s (28.3 m<sup>3</sup>/s). There are numerous diversions for irrigation and municipal supply above station. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station No. 08106310. The Aluminum Co. of America diverted water from Little River to their plant reservoir. Gage-height telemeter at station. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 35.67 ft (10.872 m) June 15, 1981 (discharge not determined); minimum daily discharge, 29 ft<sup>3</sup>/s (0.82 m<sup>3</sup>/s) Sept. 28, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 33.31 ft (10.153 m) May 14 at 1530 hours (discharge not determined); minimum daily discharge, 29 ft<sup>3</sup>/s (0.82 m<sup>3</sup>/s) Sept. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	205	590	383	309	269	287	675	---	---	---	135	106
2	199	637	398	310	237	274	670	---	---	---	131	89
3	195	434	379	310	219	267	687	995	---	---	125	87
4	195	370	339	306	221	264	678	---	870	---	121	83
5	196	791	311	302	220	259	674	---	820	---	119	80
6	217	838	309	370	208	256	670	---	800	---	96	78
7	266	---	309	456	203	258	645	---	790	---	87	74
8	768	---	326	454	207	266	567	---	778	---	86	77
9	612	---	320	454	208	258	552	---	691	---	115	70
10	462	---	314	457	203	250	564	915	481	---	158	66
11	337	---	311	454	201	251	576	879	310	---	104	67
12	250	---	311	466	202	240	564	952	336	---	92	64
13	245	---	308	477	233	245	502	---	373	---	85	65
14	526	495	304	383	276	247	245	---	382	1000	80	63
15	607	326	306	342	279	254	169	---	278	965	76	54
16	---	293	313	342	281	258	154	---	554	937	74	58
17	---	269	251	335	280	251	299	---	430	834	71	53
18	---	328	223	321	279	247	401	---	371	667	70	73
19	---	516	210	318	276	244	408	---	341	640	68	52
20	---	526	189	318	275	242	451	---	324	635	73	45
21	---	610	187	316	276	238	907	---	321	538	76	43
22	---	678	188	285	265	236	---	---	988	235	81	40
23	---	681	241	240	250	273	---	---	---	167	76	38
24	---	467	315	230	212	302	---	---	614	136	76	34
25	---	402	314	221	181	766	---	---	440	133	77	37
26	---	470	314	209	248	788	---	---	555	130	77	39
27	---	455	313	209	365	762	---	---	---	134	80	30
28	997	386	312	208	330	762	---	---	---	147	82	29
29	993	399	307	210	---	759	---	---	---	144	91	30
30	988	383	306	211	---	689	---	---	---	138	136	39
31	978	---	310	216	---	687	---	---	---	134	161	---
TOTAL	---	---	9221	10039	6904	11380	---	---	---	---	2979	1763
MEAN	---	---	297	324	247	367	---	---	---	---	96.1	58.8
MAX	---	---	398	477	365	788	---	---	---	---	161	106
MIN	---	---	187	208	181	236	---	---	---	---	68	29
AC-FT	---	---	18290	19910	13690	22570	---	---	---	---	5910	3500

NOTE.--Daily discharges are not published above 1000 ft<sup>3</sup>/s.

## 08106500 LITTLE RIVER AT CAMERON, TX

LOCATION.--Lat 30°49'53", long 96°57'01", Milam County, Hydrologic Unit 12070204, on right bank at site of old McCowan Bridge, 2,020 ft (616 m) upstream from bridge on U.S. Highway 77, 1.1 mi (1.8 km) upstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 2 mi (3 km) southeast of Cameron, and 33.6 mi (54.1 km) upstream from mouth.

DRAINAGE AREA.--7,065 mi<sup>2</sup> (18,298 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1916 to current year.

REVISED RECORDS.--WSP 718: 1918-20, 1922. WSP 1512: 1918-20(M), 1921, 1922(M), 1924(M), 1926, 1929-30, 1934, 1935(M), 1936, 1940(M), 1941, 1944-45(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 281.89 ft (85.920 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Nov. 2, 1916, to Sept. 30, 1922, nonrecording gage at site 1.8 mi (2.9 km) upstream at different datum. Oct. 1, 1922, to Apr. 8, 1926, nonrecording gage at McCowan Bridge 30 ft (9 m) downstream at same datum. Apr. 9, 1926, to Oct. 9, 1933, nonrecording gage at bridge on U.S. Highway 77, 2,020 ft (616 m) downstream at 1.58 ft (0.482 m) lower datum.

REMARKS.--Water-discharge records good. Many small diversions for irrigation and municipal supply affect very low flows. Since 1954, at least 10 percent of the drainage area has been regulated by reservoirs. Some regulation by Belton Lake (station 08102000) on Leon River beginning Mar. 8, 1954, and by Stillhouse Hollow Lake (station 08104050) on Lampasas River beginning Sept. 2, 1966. The Aluminum Co. of America diverts water from the river upstream from the gage for use at their Rockdale plant. The city of Cameron diverts water from the river and returns treated effluent to the river upstream from gage. Flow is affected at times by discharge from the flood-detention pools of 65 flood-water-retarding structures with a combined detention capacity of 68,500 acre-ft (84.5 hm<sup>3</sup>). These structures control runoff from 209 mi<sup>2</sup> (541 km<sup>2</sup>) in the Nolan, Donahoe, and Brushy Creeks drainage basins. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--36 years (water years 1918-53) unregulated, 1,807 ft<sup>3</sup>/s (51.17 m<sup>3</sup>/s), 1,309,000 acre-ft/yr (1.61 km<sup>3</sup>/yr); 29 years (water years 1954-82) regulated, 1,617 ft<sup>3</sup>/s (45.79 m<sup>3</sup>/s), 1,172,000 acre-ft/yr (1.45 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 647,000 ft<sup>3</sup>/s (18,300 m<sup>3</sup>/s) Sept. 10, 1921, gage height, 53.2 ft (16.22 m), present datum, from floodmark, from rating curve extended above 110,000 ft<sup>3</sup>/s (3,120 m<sup>3</sup>/s) on basis of slope-area measurement of 647,000 ft<sup>3</sup>/s (18,300 m<sup>3</sup>/s); no flow July 12-27, 1956. Maximum stage since 1852, that of Sept. 10, 1921.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1852 reached about the same stage as that of Sept. 10, 1921. Flood in December 1913 reached a stage of 49.0 ft (14.94 m). Stages based on information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,800 ft<sup>3</sup>/s (447 m<sup>3</sup>/s) May 14 at 1900 hours, gage height, 29.79 ft (9.080 m); minimum daily, 32 ft<sup>3</sup>/s (0.91 m<sup>3</sup>/s) Sept. 25, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	214	729	424	325	262	309	787	2840	2370	2080	132	86
2	207	764	436	326	263	294	774	1360	1610	2060	133	67
3	202	540	424	327	233	281	792	1070	1150	2020	128	64
4	200	431	386	324	225	279	786	1150	911	2000	124	62
5	198	794	340	319	233	271	777	1220	867	1980	121	59
6	238	975	335	349	217	267	771	1160	843	1970	111	58
7	339	1290	335	489	210	267	758	1300	825	1540	87	55
8	896	1590	345	492	211	271	660	1260	809	1330	96	58
9	649	1820	349	492	214	269	633	1170	757	1170	94	58
10	517	1910	339	495	210	264	636	995	541	1150	177	55
11	371	1740	335	493	207	262	662	924	356	1140	120	53
12	276	1690	333	498	207	255	650	950	395	1140	103	53
13	257	1300	329	516	223	255	607	5500	348	1120	96	51
14	6010	695	323	451	286	257	313	15600	444	1040	91	52
15	8500	380	319	373	290	262	176	13400	304	1000	87	50
16	1620	338	329	356	293	267	152	5970	519	953	83	54
17	1840	302	285	359	296	267	255	5250	492	885	79	52
18	2490	337	226	339	294	262	455	6400	401	667	77	68
19	2470	530	217	333	292	259	458	6290	366	631	75	56
20	2420	596	187	327	291	254	496	6080	345	621	74	43
21	2400	647	179	329	291	251	920	5920	334	576	75	40
22	2400	771	178	309	283	247	1280	4230	881	286	77	37
23	2440	777	199	248	264	272	3680	2540	1660	188	75	35
24	2340	588	325	237	239	301	3020	2390	727	145	66	33
25	1410	456	327	231	180	803	3250	4050	478	139	56	32
26	1220	487	327	226	250	925	2090	3430	537	134	54	42
27	1190	543	327	218	374	905	1750	2970	1480	129	52	37
28	1160	437	327	216	386	858	3200	3080	3110	146	52	34
29	1150	447	324	216	---	919	3200	3070	1490	145	54	32
30	1150	433	319	219	---	804	3140	2700	2010	142	68	42
31	1160	---	322	222	---	797	---	2580	---	138	139	---
TOTAL	47934	24337	9750	10654	7224	12454	37128	116849	27360	28665	2856	1518
MEAN	1546	811	315	344	258	402	1238	3769	912	925	92.1	50.6
MAX	8500	1910	436	516	386	925	3680	15600	3110	2080	177	86
MIN	198	302	178	216	180	247	152	924	304	129	52	32
AC-FT	95080	48270	19340	21130	14330	24700	73640	231800	54270	56860	5660	3010
CAL YR 1981	TOTAL	590767	MEAN	1619	MAX	37900	MIN 68	AC-FT	1172000			
WTR YR 1982	TOTAL	326729	MEAN	895	MAX	15600	MIN 32	AC-FT	648100			

## BRAZOS RIVER BASIN

08106500 LITTLE RIVER AT CAMERON, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1959 to September 1974. Chemical and biochemical analyses: January 1968 to current year.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1959 to current year.

WATER TEMPERATURES: October 1959 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, 1,280 micromhos Sept. 25, 26, 1963; minimum daily, 154 micromhos Sept. 13, 1974.

WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 6, 1964, Aug. 1, 1969; minimum daily, 3.0 °C Jan. 3, 14, 15, 1979.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 793 micromhos Sept. 27; minimum daily, 218 micromhos Oct. 15.

WATER TEMPERATURES: Maximum daily, 29.5°C Aug. 18, 20; minimum daily, 4.0°C Jan. 13, 14, 17.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV											
03...	0845	567	580	7.8	16.0	20	9.2	93	.9	1100	860
DEC											
08...	0930	338	607	7.9	13.0	8.0	9.8	92	.9	80	400
MAR											
09...	0925	274	591	8.2	12.0	10	12.1	112	1.4	110	36
APR											
13...	0845	629	442	7.3	16.0	44	9.0	92	1.0	100	720
JUN											
22...	0830	403	535	8.1	26.0	120	6.9	86	1.4	7900	7300
AUG											
24...	0910	72	676	8.0	28.5	1.5	6.0	78	2.2	56000	1000

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)
NOV											
03...	210	11	68	10	32	1.0	3.2	200	43	35	.4
DEC											
08...	250	21	79	13	28	.8	3.0	230	35	33	.3
MAR											
09...	230	15	67	14	35	1.1	3.1	210	42	38	.4
APR											
13...	170	5	51	9.2	23	.8	3.6	160	28	27	.4
JUN											
22...	210	22	65	12	29	.9	3.2	190	36	30	.4
AUG											
24...	240	6	68	16	47	1.4	3.7	230	53	46	.4

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, NITRATE TOTAL (MG/L AS N)	NITRO- GEN, NITRATE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)
NOV										
03...	9.9	334	322	2.8	--	.050	.050	2.9	2.9	.230
DEC										
08...	8.4	348	338	--	1.70	--	.320	--	2.0	--
MAR										
09...	5.9	340	332	1.4	--	.030	--	1.4	1.4	.370
APR										
13...	6.9	258	245	--	--	<.020	--	.75	.83	.140
JUN										
22...	9.1	308	299	--	--	--	--	--	1.3	--
AUG										
24...	11	430	383	1.7	--	.040	--	1.7	1.7	.270

## BRAZOS RIVER BASIN

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08106500 LITTLE RIVER AT CAMERON, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	PHENOLS (UG/L)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 03...	.120	.97	1.20	.670	.540	.510	--	122	187	100
DEC 08...	.150	--	.75	.290	.450	.320	--	56	51	73
MAR 09...	.120	.73	1.10	.360	.330	.300	--	--	--	--
APR 13...	.180	.57	.71	.330	.390	.240	--	130	221	99
JUN 22...	.530	--	2.80	.180	.250	.140	5	274	298	98
AUG 24...	.380	.83	1.10	.490	.290	.400	--	52	10	94

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDEDED TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDEDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
NOV 03...	0845	4	0	4	<100	--	58	<1	<1	10
MAR 09...	0925	3	0	3	<100	--	55	<1	<1	10
APR 13...	0845	2	0	2	100	50	48	<1	<3	<10
AUG 24...	0910	6	1	5	100	20	77	<1	<1	<10

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDEDED RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDEDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDEDED RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 03...	<10	3	--	<3	7	5	2	2400	2400	16
MAR 09...	<10	1	0	1	5	--	<1	200	190	8
APR 13...	<10	<1	--	<1	18	17	1	1100	--	<9
AUG 24...	10	<1	--	<1	3	1	2	850	--	<3

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDEDED RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDEDED RECOV. (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDEDED RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
NOV 03...	5	4	1	80	80	2	.1	--	<.1	12
MAR 09...	17	16	1	60	20	37	.2	.1	.1	4
APR 13...	7	6	1	70	70	5	.1	--	<.1	5
AUG 24...	<1	--	<1	50	50	2	<.1	--	<.1	10



## BRAZOS RIVER BASIN

08106500 LITTLE RIVER AT CAMERON, TX--Continued

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	NICKEL, SUS- PENDE RECov- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, SUS- PENDE TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECov- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECov- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECov- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 03...	11	1	<1	--	<1	<1	<1	20	--	<3
MAR 09...	3	1	1	0	1	<1	<1	10	--	<4
APR 13...	4	1	1	--	<1	<1	<1	20	--	<12
AUG 24...	8	2	1	0	1	<1	<1	10	5	5

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	47934	368	203	26200	24	3090	22	2800	150
NOV.	1981	24337	490	272	17900	33	2160	32	2070	190
DEC.	1981	9750	601	336	8840	42	1100	42	1100	230
JAN.	1982	10654	585	326	9390	40	1160	40	1160	230
FEB.	1982	7224	614	343	6690	43	834	43	844	240
MAR.	1982	12454	530	294	9900	36	1210	35	1180	210
APR.	1982	37128	415	229	22900	27	2720	25	2500	170
MAY	1982	116849	359	197	62300	23	7290	21	6510	150
JUNE	1982	27360	423	234	17300	28	2060	26	1900	170
JULY	1982	28665	418	230	17800	27	2120	25	1950	170
AUG.	1982	2856	651	365	2810	46	354	47	363	250
SEPT	1982	1518	654	367	1500	46	189	48	195	250
TOTAL		326729	**	**	204000	**	24300	**	22600	**
WTD. AVG.		895	418	231	**	28	**	26	**	170



## BRAZOS RIVER BASIN

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08106500 LITTLE RIVER AT CAMERON, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	587	488	554	589	656	597	443	415	393	397	638	615
2	585	602	560	587	657	604	454	426	405	400	646	620
3	582	572	565	589	653	603	445	441	429	404	650	635
4	588	560	567	588	649	548	442	440	450	401	652	631
5	589	526	577	589	655	550	443	429	479	402	651	619
6	586	436	588	594	662	568	442	427	475	403	647	601
7	579	438	593	608	654	581	441	436	477	415	650	597
8	650	433	591	587	642	583	444	457	479	422	654	585
9	510	440	594	545	633	588	442	443	478	426	652	576
10	487	450	590	538	628	587	435	433	483	420	640	657
11	410	437	586	532	633	579	424	446	513	417	634	653
12	466	429	603	530	644	597	435	445	561	413	637	637
13	504	443	608	538	641	592	442	350	509	414	649	630
14	275	456	597	541	636	598	452	269	600	417	640	641
15	218	540	606	554	583	597	489	259	515	397	631	649
16	328	578	601	565	577	590	508	349	455	404	671	643
17	397	607	593	580	580	591	525	360	443	414	675	638
18	412	633	635	584	578	594	590	375	504	409	676	650
19	400	616	653	595	577	598	481	383	518	419	665	657
20	403	575	668	588	576	600	488	386	529	423	657	645
21	402	508	686	587	575	599	462	387	532	428	669	654
22	401	528	694	588	574	597	416	395	415	475	674	658
23	399	518	696	624	580	598	346	406	354	517	665	694
24	405	499	688	658	579	587	353	414	442	546	667	721
25	403	558	617	662	587	510	350	379	450	556	671	760
26	408	570	600	639	628	477	386	387	492	563	669	788
27	412	556	593	653	626	435	455	386	425	582	667	793
28	420	525	595	652	602	441	444	409	327	602	663	777
29	423	526	587	652	---	475	430	392	338	625	660	774
30	424	554	582	661	---	487	415	401	379	639	661	755
31	431	---	590	662	---	442	---	395	---	638	610	---
MEAN	454	520	608	595	617	561	444	397	462	464	655	665

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

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

## 08109000 BRAZOS RIVER NEAR BRYAN, TX

LOCATION.--Lat 30°36'52", long 96°29'10", Brazos-Burleson County line, Hydrologic Unit 12070101, on left bank 2.4 mi (3.9 km) downstream from Little Brazos River, 5 mi (8 km) downstream from Texas and New Orleans Railroad Co. bridge, 9 mi (14 km) southwest of Bryan, and at mile 281.1 (452.3 km).

DRAINAGE AREA.--39,515 mi<sup>2</sup> (102,344 km<sup>2</sup>), approximately, of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

PERIOD OF RECORD.--August 1899 to December 1902, February 1918 to January 1926, June 1926 to current year. Monthly figures only for some periods, published in WSP 1312. Prior to September 1925, published as "near College Station".

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 192.33 ft (58.622 m) National Geodetic Vertical Datum of 1929. Aug. 1, 1899, to Dec. 31, 1902, and Feb. 23, 1918, to Sept. 17, 1925, nonrecording gage at site 7.5 mi (12.1 km) downstream at different datum. Sept. 11, 1925, to Oct. 24, 1932, nonrecording gage at site 3,000 ft (910 m) upstream at present datum.

REMARKS.--Records fair. Flow is partly regulated by four upstream reservoirs with a combined capacity of 4,447,600 acre-ft (5.48 km<sup>3</sup>), of which 3,200,800 acre-ft (3.95 km<sup>3</sup>) is for flood control. Many small diversions above station for irrigation, municipal and industrial uses, and oilfield operation. Flow is affected at times by discharge from the flood-detention pools of 143 floodwater-retarding structures with a combined detention capacity of 152,100 acre-ft (188 hm<sup>3</sup>). These structures control runoff from 448 mi<sup>2</sup> (6,160 km<sup>2</sup>). Since 1941, at least 10 percent of drainage area is regulated by upstream reservoirs.

AVERAGE DISCHARGE.--24 years (water years 1900-1902, 1919-25, 1927-40) unregulated, 5,652 ft<sup>3</sup>/s (160.1 m<sup>3</sup>/s), 4,095,000 acre-ft/yr (5.05 km<sup>3</sup>/yr); 42 years (water years 1941-82) regulated, 4,980 ft<sup>3</sup>/s (141.0 m<sup>3</sup>/s), 3,608,000 acre-ft/yr (4.45 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 54 ft (16.5 m) Sept. 12, 1921, present site and datum (discharge not determined); minimum daily, 89 ft<sup>3</sup>/s (2.52 m<sup>3</sup>/s) Aug. 24, 1934.  
Maximum stage since at least 1854, that of Sept. 12, 1921.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 5, 1913, reached a stage of 51 ft (15.5 m), present site and datum, from information by Texas and New Orleans Railroad Co. at their bridge 5 mi (8 km) upstream and from comparison of maximum stages reached by floods in 1913 and 1921 at gage near College Station. Flood in 1854 reached about the same stage as flood of Dec. 5, 1913.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35,000 ft<sup>3</sup>/s (991 m<sup>3</sup>/s) May 14 at 1800 hours, gage height, 20.18 ft (6.151 m); minimum daily, 343 ft<sup>3</sup>/s (9.71 m<sup>3</sup>/s) Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	22300	1630	786	1500	2780	3010	5600	26400	26000	2690	1510
2	1070	11200	2060	776	1730	2510	2430	4700	26200	25600	1980	1570
3	1150	7220	1640	772	1860	2520	2140	2630	26200	25400	1360	1670
4	771	15800	1270	751	2000	2010	2000	2120	24600	25400	1130	1390
5	628	22400	3390	738	1940	1450	1820	2570	18700	25300	917	1060
6	1130	23700	2170	727	2310	1340	1690	3310	11200	25100	1250	642
7	1310	18000	1770	848	1640	1230	1660	3110	8100	24500	1250	505
8	1490	11700	1610	1020	2720	1430	1660	3100	6490	23600	1220	469
9	2820	8790	1190	960	2600	1730	2330	2710	6030	20900	1120	514
10	2600	8230	1060	893	2060	1780	1800	2520	5790	16900	995	436
11	2750	7290	975	1780	1620	2500	1420	2370	5470	12900	765	407
12	2010	7110	924	1810	2070	2700	1300	2620	5240	7590	859	437
13	1590	6700	885	2630	1980	2340	1170	7600	5210	6600	811	435
14	10300	5400	1200	2560	1610	1530	1060	31100	4150	7540	767	373
15	31300	4240	1470	2170	1440	1600	1090	32000	4830	7190	988	343
16	20800	3280	1110	2540	1500	1600	970	24400	4980	6830	1060	427
17	20800	3180	1540	1960	1090	1330	715	20100	5160	6810	1560	662
18	27400	3230	2570	1430	819	1040	812	21600	5090	6600	1800	573
19	27300	3160	2040	2460	769	880	1240	20400	4890	6870	1270	670
20	24300	3250	2650	2460	685	787	1160	15200	4910	5720	712	935
21	25100	3320	2150	2050	685	715	1320	19800	4830	4750	549	1070
22	26300	3410	1890	1560	880	781	2680	24200	4990	4990	654	1000
23	26800	3350	1770	1760	1250	1480	4220	21000	13500	4710	542	598
24	24500	2250	1570	2340	984	5520	7780	16600	19800	3360	1030	588
25	25800	1690	1260	2570	781	5660	6800	17400	21100	2970	2510	715
26	26100	1520	1180	2780	644	6160	7400	21800	21800	2840	1570	782
27	25700	1680	1020	2610	578	4870	4300	26200	23300	2760	733	857
28	25500	1430	905	1830	1930	3980	3470	27700	24900	2610	510	826
29	25200	1250	833	1400	---	4040	5100	28200	24700	2580	516	854
30	25200	1280	803	1070	---	4210	5570	27900	25100	2690	956	663
31	27000	---	792	970	---	3170	---	27000	---	2860	1220	---
TOTAL	465739	217360	47327	51011	41675	75673	80117	467560	393660	350470	35294	22981
MEAN	15020	7245	1527	1646	1488	2441	2671	15080	13120	11310	1139	766
MAX	31300	23700	3390	2780	2720	6160	7780	32000	26400	26000	2690	1670
MIN	628	1250	792	727	578	715	715	2120	4150	2580	510	343
AC-FT	923800	431100	93870	101200	82660	150100	158900	927400	780800	695200	70010	45580

CAL YR 1981 TOTAL 1946125 MEAN 5332 MAX 59200 MIN 424 AC-FT 3860000  
WTR YR 1982 TOTAL 2248867 MEAN 6161 MAX 32000 MIN 343 AC-FT 4461000

## BRAZOS RIVER BASIN

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## 08109500 BRAZOS RIVER NEAR COLLEGE STATION, TX

LOCATION.--Lat 30°32'33", long 96°25'21", Brazos County, Hydrologic Unit 12070101, at bridge on Farm Road 60, 6.5 mi (10.5 km) south of College Station, 9 mi (14 km) downstream from gaging station near Bryan, and at mile 271.9 (437.6 km).

DRAINAGE AREA.--39,599 mi<sup>2</sup> (102,561 km<sup>2</sup>), of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

PERIOD OF RECORD.--Chemical analyses: August 1961 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: August 1961 to current year.

WATER TEMPERATURES: August 1961 to current year.

REMARKS.--Sampling at this site began in September 1966. From August 1961 to September 1965, samples were collected at State Highway 21 near Bryan 17 mi (27 km) upstream, and from October 1965 to September 1966, at the gaging station near Bryan 9 mi (14 km) upstream. 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, 2,810 micromhos Aug. 27, 1978; minimum daily, 235 micromhos Feb. 14, 1977.

WATER TEMPERATURES: Maximum daily, 34.5°C June 16, 1971; minimum daily, 2.0°C on several days during winter months.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,770 micromhos Oct. 21; minimum daily, 251 micromhos Oct. 14.

WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 16; minimum daily, 2.0°C Jan. 13.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 31...	0920	26800	1420	19.5	270	170	77	18	180
DEC 31...	1205	745	1100	10.0	310	100	93	19	110
APR 14...	1130	1040	772	23.0	220	66	65	13	74
MAY 31...	1710	26600	1210	25.0	260	140	77	17	140
JUL 08...	1445	23400	1140	28.0	240	130	71	16	130

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 31...	5.1	5.6	94	170	300	.3	6.6	814
DEC 31...	2.9	4.1	210	120	180	.3	5.3	658
APR 14...	2.3	3.5	150	79	100	.4	7.6	433
MAY 31...	4.0	5.0	120	140	240	.3	5.4	697
JUL 08...	3.8	5.2	110	120	220	.2	7.3	636

## BRAZOS RIVER BASIN

08109500 BRAZOS RIVER NEAR COLLEGE STATION, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	465739	1400	800	100600	270	338100	150	189800	290
NOV.	1981	217360	1430	818	480000	270	155800	150	89600	310
DEC.	1981	47327	1340	761	97200	240	30400	140	18000	300
JAN.	1982	51011	1310	748	103000	230	32100	140	19000	300
FEB.	1982	41675	1320	751	84500	230	26300	140	15600	300
MAR.	1982	75673	997	563	115000	160	32700	100	20700	250
APR.	1982	80117	654	365	79000	86	18600	63	13600	180
MAY	1982	467560	888	501	632000	140	174100	89	112800	220
JUNE	1982	393660	1180	666	708000	190	206900	120	128200	280
JULY	1982	350470	1160	656	620000	190	180400	120	112300	280
AUG.	1982	35294	1130	639	60900	180	17500	120	11000	280
SEPT	1982	22981	1140	642	39800	180	11500	120	7190	280
TOTAL		2248867	**	**	4026000	**	1224000	**	738000	**
WTD. AVG.		6161	1170	663	**	200	**	120	**	270

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1470	1430	1120	1080	1290	1270	943	675	1200	1210	1130	1200
2	1490	1450	1250	1050	1340	1340	880	676	1180	1250	1100	1130
3	1550	1370	1330	1030	1330	1210	823	656	1170	1240	1090	1150
4	1610	1600	1220	1010	1370	1330	860	711	1180	1240	1080	1120
5	1480	1620	1390	1000	1280	1230	867	766	1170	1220	1100	1150
6	859	1590	1430	992	1340	1250	837	920	1150	1190	1070	1120
7	702	1500	1350	1010	1370	1260	817	893	1130	1170	1170	1100
8	1000	1410	1420	1070	1410	1220	768	867	1100	1150	1150	1120
9	1470	1180	1320	1050	1470	1210	876	609	1110	1140	1090	1110
10	1230	1260	1220	966	1480	1240	893	675	1120	1130	1120	1130
11	1290	1200	1150	1050	1400	1310	850	601	1150	1140	1140	1120
12	664	1280	1130	1260	1430	1390	877	784	1160	1070	1130	1130
13	600	1290	1120	1130	1440	1420	802	513	1170	1020	1090	1110
14	251	1300	1200	1360	1400	1370	751	313	1180	1050	1130	1130
15	289	1370	1340	1310	1380	1330	732	323	1180	1040	1120	1140
16	365	1400	1270	1420	1340	1400	936	377	1170	987	1100	1120
17	1350	1420	1190	1410	1320	1320	1020	574	1200	1020	1150	1030
18	1540	1470	1400	1280	1230	1240	955	696	1160	1060	1160	1120
19	1690	1500	1380	1530	1170	1200	995	592	1180	1090	1150	1150
20	1750	1480	1470	1360	1120	1190	850	595	1190	1070	1130	1160
21	1770	1460	1520	1390	1080	1120	611	866	1200	1030	1120	1030
22	1710	1420	1480	1300	1050	1100	478	1180	1190	1060	1100	1100
23	1720	1400	1470	1190	1210	1140	528	1240	1160	1080	1120	1160
24	1680	1310	1490	1420	1200	925	531	1250	1200	1100	1130	1170
25	1600	1170	1460	1480	1100	464	420	1230	1210	1110	1190	1140
26	1520	1130	1380	1520	1080	454	459	1210	1240	1140	1150	1160
27	1540	1200	1300	1540	1050	607	484	1220	1180	1150	1140	1190
28	1520	1250	1250	1470	1090	647	569	1230	1150	1140	1130	1170
29	1510	1110	1200	1450	---	673	551	1220	1140	1150	1120	1150
30	1490	1120	1140	1380	---	1100	640	1200	1190	1150	1090	1160
31	1420	---	1100	1320	---	1000	---	1210	---	1120	1210	---
MEAN	1290	1360	1310	1250	1280	1130	753	835	1170	1120	1130	1130

## BRAZOS RIVER BASIN

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08109500 BRAZOS RIVER NEAR COLLEGE STATION, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.5	18.0	16.0	---	12.0	13.5	20.5	21.0	25.5	28.0	31.0	30.0
2	28.0	18.5	15.0	15.0	11.5	14.5	21.0	21.0	25.0	28.0	31.5	31.0
3	27.0	18.5	15.5	15.5	10.0	14.0	20.0	24.0	25.5	29.0	31.5	30.0
4	27.5	18.5	13.5	14.0	9.0	15.5	20.0	26.0	25.5	28.0	31.5	30.0
5	26.5	18.5	12.5	14.5	7.0	13.5	21.5	24.5	24.5	28.5	32.0	29.0
6	25.0	18.0	13.0	16.0	4.5	9.5	19.5	23.5	25.5	28.5	31.0	30.0
7	24.0	---	14.5	---	5.0	10.0	18.5	24.5	---	28.0	31.0	30.5
8	20.5	17.0	15.0	8.5	6.0	14.0	21.0	23.5	26.0	28.0	30.0	30.0
9	20.5	15.0	16.0	9.5	6.0	14.5	17.0	23.5	27.0	29.0	30.0	30.5
10	20.5	14.5	17.0	7.0	6.0	16.0	15.0	24.5	28.0	29.0	30.5	30.5
11	23.0	15.5	16.5	4.0	9.0	18.0	17.5	25.0	28.5	29.0	30.0	31.0
12	24.5	15.5	16.0	5.0	10.0	18.0	20.0	25.0	28.0	30.0	28.0	30.5
13	24.5	16.0	13.5	2.0	9.0	19.0	23.0	21.0	28.5	29.5	32.0	30.0
14	24.5	16.0	11.0	3.5	9.0	21.5	24.0	22.0	29.0	29.5	32.0	29.0
15	24.5	17.0	12.0	6.0	12.5	21.5	24.0	24.5	29.0	30.0	32.0	29.5
16	24.5	18.0	12.0	5.0	14.5	21.5	24.0	25.5	28.5	30.0	33.0	29.5
17	24.5	18.0	10.5	2.5	16.0	---	24.5	25.0	29.0	30.0	32.0	29.5
18	22.0	19.0	7.0	6.0	16.0	24.5	21.5	25.0	29.5	29.5	31.5	27.5
19	21.0	17.0	8.5	8.0	16.5	24.5	23.0	24.5	28.5	30.0	31.5	30.5
20	20.5	15.5	8.0	10.0	16.0	22.5	---	25.0	30.0	30.5	32.0	27.5
21	21.5	14.5	10.5	13.5	17.5	22.5	18.0	25.0	30.0	30.5	29.0	25.5
22	20.0	14.0	16.0	16.5	19.0	20.5	14.5	23.5	28.5	31.0	31.0	25.0
23	18.5	16.5	12.0	14.5	19.0	18.5	16.5	23.5	28.0	30.5	31.5	---
24	18.0	17.0	10.5	13.5	18.5	18.0	15.0	23.5	28.0	31.0	31.0	26.0
25	19.0	19.0	11.0	13.5	14.0	16.5	16.0	25.0	28.0	31.0	30.0	25.0
26	18.0	19.0	---	12.0	10.0	15.5	19.0	25.0	28.0	29.5	31.0	22.0
27	18.5	16.5	12.5	12.0	10.5	13.0	20.0	26.0	27.5	31.5	31.5	26.0
28	18.0	17.5	11.5	13.5	12.5	14.0	22.0	25.5	28.5	32.0	29.0	27.0
29	18.5	18.0	11.5	15.5	---	15.0	22.0	26.0	28.0	32.0	31.5	26.5
30	19.0	18.0	10.5	15.5	---	18.5	22.0	25.0	28.5	31.5	31.0	27.0
31	19.5	---	10.0	12.0	---	19.5	---	25.0	---	31.0	31.0	---
MEAN	22.0	17.0	12.5	10.5	11.5	17.5	20.0	24.0	27.5	30.0	31.0	28.5



## BRAZOS RIVER BASIN

08109700 MIDDLE YEGUA CREEK NEAR DIME BOX, TX

LOCATION.--Lat 30°20'21", long 96°54'16", Lee County, Hydrologic Unit 12070102, on right bank 25 ft (8 m) upstream from centerline of State Highway 21, 4.5 mi (7.2 km) upstream from West Yegua Creek, 5.0 mi (8.0 km) southwest of Dime Box, and 17.5 mi (28.2 km) upstream from mouth.

DRAINAGE AREA.--236 mi<sup>2</sup> (611 km<sup>2</sup>).

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

GAGE.--Water-stage recorder. Datum of gage is 295.4 ft (90.04 m) State Department of Highways and Public Transportation datum. June 30 to July 21, 1970, nonrecording gage at same site and datum.

REMARKS.--Records fair. Several observations of water temperature made during the year.

AVERAGE DISCHARGE.--20 years, 52.9 ft<sup>3</sup>/s (1.498 m<sup>3</sup>/s), 3.04 in/yr (77 mm/yr), 38,330 acre-ft/yr (47.3 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,400 ft<sup>3</sup>/s (323 m<sup>3</sup>/s) May 24, 1975, gage height, 15.16 ft (4.621 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1851, 16 ft (4.9 m) in December 1913, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 17	2200	736 20.8	9.80 2.987	May 13	1500	1,110 31.4	10.38 3.164
Nov. 2	1700	684 19.4	9.65 2.941	May 14	1700	*4,900 139	13.15 4.008

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	376	8.9	6.2	8.7	7.0	14	15	13	3.0	.00	.00
2	.00	628	8.8	6.7	11	9.1	13	12	11	2.8	.00	.00
3	.00	417	8.4	7.4	11	8.5	12	10	11	2.8	.00	.00
4	.00	102	8.1	7.0	10	8.2	11	11	9.7	2.7	.00	.00
5	.00	41	7.8	7.2	9.7	7.4	9.6	9.1	8.9	1.9	.00	.00
6	.00	26	8.1	7.3	8.8	7.6	7.4	10	8.3	1.5	.00	.00
7	.00	18	8.2	6.8	8.3	6.9	7.6	12	7.1	1.4	.00	.00
8	.00	25	8.3	4.8	8.3	6.7	7.2	11	6.4	1.1	.00	.00
9	.00	116	8.1	4.9	7.7	6.6	6.7	8.9	5.3	.75	.00	.00
10	.00	136	8.4	5.1	7.9	6.4	6.6	7.1	4.6	.62	.00	.00
11	.00	130	9.9	6.2	8.2	6.4	6.4	5.0	3.9	.52	.00	.00
12	.00	94	10	5.0	8.4	6.2	6.4	4.1	5.5	.40	.00	.00
13	.00	48	8.8	6.5	8.0	6.4	7.1	530	5.4	.38	.00	.00
14	20	30	7.9	8.0	8.0	6.6	7.1	2260	5.2	.30	.00	.00
15	166	22	6.8	9.1	7.9	6.4	6.9	2440	4.7	.24	.00	.00
16	336	18	6.7	9.2	7.8	6.6	6.9	1400	6.8	.22	.00	.00
17	614	15	6.9	9.6	8.0	6.6	5.9	832	7.9	.17	.00	.00
18	599	13	6.9	9.4	8.3	6.6	5.4	458	6.7	.12	.00	.00
19	161	12	6.9	9.4	7.4	6.5	5.6	148	6.8	.04	.00	.00
20	46	11	6.9	9.2	7.8	6.1	6.2	134	6.1	.01	.00	.00
21	25	11	7.0	9.2	8.1	5.5	7.6	142	5.1	.00	.00	.00
22	17	9.8	7.2	9.3	8.3	5.0	17	70	4.8	.00	.00	.00
23	13	9.1	7.2	10	8.8	5.6	31	42	16	.00	.00	.00
24	12	8.5	7.2	10	9.1	8.5	77	103	27	.00	.00	.00
25	9.9	8.1	7.2	10	8.0	13	109	172	24	.00	.00	.00
26	8.7	8.2	7.2	8.6	7.5	14	109	92	14	.00	.00	.00
27	8.7	8.4	6.6	8.2	6.0	14	107	52	9.4	.00	.00	.00
28	8.4	8.4	6.4	7.6	5.2	14	66	34	7.4	.00	.00	.00
29	7.2	8.3	5.9	7.3	---	17	39	21	5.4	.00	.00	.00
30	6.7	8.4	6.0	7.3	---	17	23	17	4.0	.00	.00	.00
31	106	---	6.1	7.8	---	16	---	16	---	.00	.00	---
TOTAL	2164.60	2366.2	234.8	240.3	232.2	268.4	744.6	9078.2	261.4	20.97	.00	.00
MEAN	69.8	78.9	7.57	7.75	8.29	8.66	24.8	293	8.71	.68	.000	.000
MAX	614	628	10	10	11	17	109	2440	27	3.0	.00	.00
MIN	.00	8.1	5.9	4.8	5.2	5.0	5.4	4.1	3.9	.00	.00	.00
CFSM	.30	.33	.03	.03	.04	.04	.11	1.24	.04	.003	.000	.000
IN.	.34	.37	.04	.04	.04	.04	.12	1.43	.04	.00	.00	.00
AC-FT	4290	4690	466	477	461	532	1480	18010	518	42	.00	.00
CAL YR 1981	TOTAL	22302.87	MEAN 61.1	MAX 2440	MIN .00	CFSM .26	IN 3.52	AC-FT 44240				
WTR YR 1982	TOTAL	15611.67	MEAN 42.8	MAX 2440	MIN .00	CFSM .18	IN 2.46	AC-FT 30970				



## BRAZOS RIVER BASIN

421

08109800 EAST YEGUA CREEK NEAR DIME BOX, TX

LOCATION.--Lat 30°24'26", long 96°49'02", Burleson County, Hydrologic Unit 12070102, on left bank 49 ft (15 m) upstream from centerline of State Highway 21, 0.8 mi (1.3 km) downstream from Buffalo Creek, 3.5 mi (5.6 km) north of Dime Box, and 12.2 mi (19.6 km) upstream from mouth.

DRAINAGE AREA.--244 mi<sup>2</sup> (632 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 284.00 ft (86.56 m) State Department of Highways and Public Transportation datum. Nov. 6 to Dec. 10, 1970, nonrecording gage at present site and datum.

REMARKS.--Records good. Diversions above station for irrigation. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--20 years, 57.3 ft<sup>3</sup>/s (1.623 m<sup>3</sup>/s), 41,510 acre-ft/yr (51.2 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft<sup>3</sup>/s (396 m<sup>3</sup>/s) May 24, 1975, gage height, 13.91 ft (4.240 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1886, 17 ft (5.2 m) in 1899 and 1957, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
May 13	2300	1,660 47.0	9.99 3.045
May 15	0200	*1,980 56.1	10.26 3.127

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.86	120	4.4	4.7	6.5	7.8	13	13	9.9	5.1	.03	.00
2	.86	91	4.3	5.2	7.1	7.8	12	10	8.8	4.3	.01	.00
3	.91	24	5.2	5.9	7.8	7.5	9.8	9.0	7.9	3.8	.00	.00
4	.97	10	5.0	5.7	7.8	7.5	8.4	7.6	7.3	3.4	.00	.11
5	.80	7.3	4.3	5.4	7.1	8.2	7.4	5.4	6.9	2.9	.00	.19
6	1.0	6.1	4.1	4.9	6.4	9.5	6.5	6.3	5.7	2.5	.00	.02
7	1.4	5.1	4.1	4.8	6.2	9.2	6.2	9.2	5.0	2.2	.00	.00
8	1.4	47	4.3	4.5	6.1	7.9	5.7	5.7	4.9	2.0	.00	.00
9	1.5	97	5.2	4.3	6.0	7.1	6.6	5.7	4.4	1.8	.03	.00
10	1.8	61	5.8	4.5	5.9	6.9	8.8	5.0	4.3	1.3	.06	.00
11	2.5	24	5.8	7.0	5.9	6.8	7.3	4.4	4.4	1.4	.06	.00
12	2.6	11	5.5	5.5	5.9	6.3	6.5	4.0	5.3	1.3	.07	.00
13	2.5	7.2	5.0	5.0	5.9	6.2	5.7	742	5.1	1.1	.12	.00
14	4.7	6.0	4.9	4.5	5.7	6.5	5.5	1400	4.8	1.0	.05	.00
15	7.3	5.1	5.0	4.4	5.6	6.7	5.1	1700	4.2	.80	.00	.01
16	11	4.5	4.8	4.5	5.5	6.5	4.7	886	4.8	.97	.00	.04
17	6.9	3.9	4.5	4.5	5.7	6.1	5.1	224	4.6	1.2	.00	.16
18	4.6	4.1	4.3	4.7	5.6	5.9	5.2	83	5.5	1.2	.00	.18
19	3.3	4.0	4.3	4.8	5.5	5.9	4.9	169	5.4	.86	.00	.04
20	2.8	3.6	4.3	5.0	5.7	5.9	8.6	143	4.2	.42	.02	.04
21	2.6	3.8	4.4	6.0	6.3	5.9	20	44	3.7	.23	.00	.03
22	2.5	4.4	5.5	6.8	6.5	5.9	83	23	9.7	.29	.00	.05
23	2.4	4.4	5.6	7.4	6.4	17	148	17	14	.38	.00	.04
24	2.3	4.2	5.5	6.9	6.5	19	194	20	26	.32	.00	.01
25	2.0	4.1	4.8	6.1	6.3	13	212	62	12	.29	.00	.00
26	1.8	4.1	4.4	5.4	7.4	11	178	112	7.1	.46	.00	.00
27	2.1	4.0	4.2	5.0	7.7	14	107	57	5.4	.39	.00	.00
28	2.5	4.5	4.4	5.0	7.7	24	32	26	4.3	.32	.00	.00
29	2.9	4.6	4.6	5.7	---	23	18	18	6.9	.30	.00	.00
30	4.6	4.4	4.6	6.3	---	19	15	15	5.8	.26	.00	.00
31	84	---	4.7	6.5	---	16	---	13	---	.07	.00	---
TOTAL	169.40	584.4	147.8	166.9	178.7	310.0	1150.0	5839.3	208.3	42.86	.45	.92
MEAN	5.46	19.5	4.77	5.38	6.38	10.0	38.3	188	6.94	1.38	.015	.031
MAX	84	120	5.8	7.4	7.8	24	212	1700	26	5.1	.12	.19
MIN	.80	3.6	4.1	4.3	5.5	5.9	4.7	4.0	3.7	.07	.00	.00
AC-FT	336	1160	293	331	354	615	2280	11580	413	85	.9	1.8

CAL YR 1981	TOTAL	16733.80	MEAN	45.8	MAX	1730	MIN	.32	AC-FT	33190
WTR YR 1982	TOTAL	8799.03	MEAN	24.1	MAX	1700	MIN	.00	AC-FT	17450

## BRAZOS RIVER BASIN

08109800 EAST YEGUA CREEK NEAR DIME BOX, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 02...	1505	88	520	7.1	18.0	120	78	7.7	81	2.2	160
DEC 09...	1510	5.5	1200	7.4	16.0	10	12	9.3	93	1.3	400
MAR 08...	1500	5.7	1440	7.8	13.0	15	11	14.5	138	1.4	480
APR 12...	1510	6.5	1360	7.1	18.0	10	22	11.8	126	1.9	460
JUN 21...	1545	4.7	1250	7.9	27.0	10	6.9	8.2	104	1.4	440
AUG 23...	1550	<.01	405	7.3	26.5	50	20	3.8	48	1.3	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- 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)
NOV 02...	130	43	13	33	1.2	8.3	34	130	59	.2	16
DEC 09...	310	110	31	92	2.1	9.1	97	280	160	.3	21
MAR 08...	390	126	39	110	2.4	8.6	84	360	210	.3	19
APR 12...	370	120	38	110	2.4	8.9	89	360	190	.4	18
JUN 21...	350	120	35	98	2.2	8.2	90	320	180	.5	18
AUG 23...	28	26	7.7	35	1.7	7.3	69	34	58	.3	19

DATE	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, RESIDUE AT 105 DEG. C, SUS- PENDEDED (MG/L)	SOLIDS, VOLA- TILE, SUS- PENDEDED (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 02...	323	85	16	.16	.040	.20	.170	.83	1.00	.130	11
DEC 09...	762	30	10	--	<.020	<.10	<.070	--	.68	.030	5.7
MAR 08...	923	19	13	--	<.020	<.09	.370	.36	.73	.030	6.5
APR 12...	900	40	11	--	<.020	.16	.180	.63	.81	.050	8.5
JUN 21...	834	14	11	--	<.020	<.10	.090	.81	.90	.060	7.3
AUG 23...	229	26	10	--	.020	<.10	.150	2.3	2.40	.100	6.2

BRAZOS RIVER BASIN

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08109800 EAST YEGUA CREEK NEAR DIME BOX, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 09...	1510	1	93	<1	<10	2	<10
APR 12...	1510	1	81	<3	<10	1	17
AUG 23...	1550	1	39	<1	<10	1	95

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 09...	1	220	<.1	<1	<1	<3
APR 12...	<1	860	<.1	<1	<1	<12
AUG 23...	<1	180	<.1	<1	<1	3

## ERAZOS RIVER BASIN

08109900 SOMERVILLE LAKE NEAR SOMERVILLE, TX

LOCATION.--Lat 30°19'20", long 96°31'32", Burleson County, Hydrologic Unit 12070102, in intake structure of Somerville Dam on Yegua Creek, at the southwest edge of the city limits of Somerville, and 20.0 mi (32.2 km) upstream from mouth.

DRAINAGE AREA.--1,007 mi<sup>2</sup> (2,608 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1966 to current year. Prior to October 1970, published as Somerville Reservoir.

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

REMARKS.--The lake is formed by a rolled earthfill dam 20,210 ft (6,160 m) long, with a 4,715-foot-long (1,437 m) dike and a 1,250-foot-long (381 m) uncontrolled spillway. Deliberate impoundment began Jan. 3, 1967, and the dam was completed Oct. 27, 1967. The spillway is an uncontrolled ogee weir 1,250 ft (381 m) wide located near right end of dam. The low-flow outlet consists of one 10.0-foot-diameter (3.0 m) conduit that is controlled by two 5.0- by 10.0-foot (1.5 by 3.0 m) tractor-type gates. Capacity table is based on Geological Survey topographic maps dated 1959. The lake was designed for flood control and water conservation. 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.....	280.0	-
Design flood.....	274.5	1,028,800
Crest of spillway.....	258.0	507,500
Top of conservation pool.....	238.0	160,100
Lowest gated outlet (invert of 10-foot conduit).....	206.0	200

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

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 311,000 acre-ft (383 hm<sup>3</sup>) June 9, 1979, elevation, 248.55 ft (75.758 m); minimum, 98,070 acre-ft (121 hm<sup>3</sup>) Sept. 7, 1978, elevation, 231.80 ft (70.653 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents, 221,400 acre-ft (273 hm<sup>3</sup>) May 18, elevation, 242.82 ft (74.012 m); minimum daily, 142,900 acre-ft (176 hm<sup>3</sup>) Sept. 30, elevation, 236.45 ft (72.070 m).

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

235.0	127,900	241.0	196,800
237.0	148,900	243.0	223,900
239.0	171,800		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153900	178600	159700	158300	158400	160100	162800	164700	197900	159800	153200	147400
2	153800	181200	159500	158400	159800	160100	162900	166100	195900	159700	152900	147300
3	153700	183500	159400	158400	159500	160200	162800	165300	194000	159400	152400	147400
4	153400	184200	159200	158300	159500	160100	163000	165100	191900	159100	152200	147000
5	153800	183200	159200	158200	159900	160100	162400	163800	190000	158900	151900	146800
6	154100	181800	159300	158400	159500	160100	162400	163200	188100	158500	151700	146600
7	154400	179700	159300	157900	159500	160100	162200	163200	186000	158400	151300	146400
8	154300	180100	159300	157800	159500	159800	161800	161600	183900	158200	151700	146300
9	154400	178500	159300	157800	159400	159900	162600	159500	181700	157900	151500	146100
10	154400	177100	159400	157800	159300	160000	162800	159100	179700	157700	151700	145800
11	154900	176000	159500	157500	159300	160000	162800	159000	177700	157500	151900	145600
12	155300	174700	159400	157800	159400	160100	162500	159000	176300	157300	151700	145400
13	155300	173100	159400	157700	159500	160000	162400	172500	174200	157600	151400	145200
14	155500	171200	159300	157700	159300	160600	162600	194500	172200	157400	151100	145100
15	155700	169700	159100	157800	159300	160600	162600	206600	170000	157100	150900	145200
16	156600	168700	159000	157800	159300	160700	162800	216700	168800	156900	150700	146200
17	157800	168700	158700	157800	159300	160700	162600	220400	166800	156700	150800	146100
18	158100	168600	158700	157800	159500	160700	162600	221400	164800	156500	150800	146000
19	158300	168700	158300	157800	159500	160700	162600	218300	163000	156200	150500	145800
20	158600	167400	158700	157700	159700	160700	164300	215800	161100	156000	150300	145600
21	158600	165400	158700	158300	159900	160700	165300	214600	160500	156000	150000	145300
22	158500	163800	158500	158500	160100	160900	167800	214200	160700	155800	149700	145000
23	158300	162200	158400	158400	160100	161300	169200	213900	160600	155600	149400	144700
24	158100	160200	158400	158400	160100	161300	170600	211200	160500	155300	149100	144400
25	158200	159900	158200	158400	160600	161400	171700	209400	160300	155200	148900	144200
26	157600	159800	158200	158300	160500	161500	171900	208600	160800	154900	148700	144000
27	157600	159700	158200	158300	160200	162100	171300	207300	160700	154700	148500	143700
28	157500	159500	158200	158300	160100	162100	170600	205500	160500	154400	148400	143400
29	157300	159800	158100	158400	---	162100	169900	204100	160100	154200	148100	143100
30	158400	159900	158200	158700	---	162500	168500	202100	159900	153900	147900	142900
31	173000	---	158400	158500	---	162500	---	200100	---	153700	147600	---
MAX	173000	184200	159700	158700	160600	162500	171900	221400	197900	159800	153200	147400
MIN	153400	159500	158100	157500	158400	159800	161800	159000	159900	153700	147600	142900
(†)	239.10	237.98	237.85	237.86	238.00	238.21	238.72	241.25	237.98	237.43	236.88	236.45
(‡)	+18700	-13100	-1400	+100	+1600	+2400	+6000	+31600	-40200	-6200	-6100	-4700

CAL YR 1981 MAX 184800 MIN 110300 ‡ +47200  
WTR YR 1982 MAX 221400 MIN 142900 ‡ -11400

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

## BRAZOS RIVER BASIN

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08109900 SOMERVILLE LAKE NEAR SOMERVILLE, TX--Continued

## WATER-QUALITY RECORDS

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

301908096313101 SOMERVILLE LAKE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (M)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
FEB										
18...	1115	1.00	377	8.4	11.0	.60	11.8	106	<1	K1
18...	1116	1.00	--	--	--	--	--	--	--	--
18...	1117	10.0	377	8.4	11.0	--	11.6	105	--	--
18...	1119	20.0	377	8.2	10.5	--	11.4	102	--	--
18...	1121	28.0	377	8.0	10.5	--	9.2	82	--	--
JUN										
02...	1400	1.00	353	7.6	27.5	.90	7.9	100	K2	K5
02...	1401	1.50	--	--	--	--	--	--	--	--
02...	1402	10.0	353	7.4	27.5	--	7.3	92	--	--
02...	1404	20.0	353	6.4	26.0	--	2.4	30	--	--
02...	1406	29.0	380	6.3	23.5	--	.0	0	--	--
AUG										
12...	1020	1.00	368	7.3	29.0	.70	6.0	77	K3	K1
12...	1021	1.20	--	--	--	--	--	--	--	--
12...	1022	10.0	368	7.2	29.0	--	5.9	76	--	--
12...	1024	20.0	368	6.9	29.0	--	4.3	55	--	--
12...	1026	27.0	370	6.5	29.0	--	1.1	14	--	--

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 CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
FEB										
18...	110	57	32	7.3	29	1.3	6.8	53	62	47
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--
18...	110	53	31	7.3	29	1.3	6.8	54	63	44
JUN										
02...	100	51	29	6.6	26	1.2	6.5	49	57	47
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
02...	110	47	32	7.1	28	1.2	6.4	62	56	44
AUG										
12...	100	45	29	7.0	29	1.3	6.5	56	54	43
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
12...	100	44	29	7.0	28	1.3	6.5	57	53	44

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)
FEB									
18...	.2	12	228	.25	1.10	1.4	.030	68	31
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	.25	1.10	1.4	.040	<10	10
18...	--	12	226	.25	1.10	1.4	.040	<10	87
JUN									
02...	.2	8.4	210	<.10	1.30	--	.020	6	5
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	<.10	1.50	--	.030	30	20
02...	--	--	--	<.10	1.30	--	.020	50	300
02...	--	12	226	<.10	1.90	--	.100	800	2100
AUG									
12...	.2	13	215	<.10	1.30	--	.060	<3	5
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	<.10	1.50	--	.050	10	30
12...	--	--	--	--	--	--	--	--	--
12...	--	13	215	<.10	2.20	--	.070	6	280

## BRAZOS RIVER BASIN

## SOMERVILLE LAKE NEAR SOMERVILLE, TX--Continued

301940096315801 SOMERVILLE LAKE SITE AL

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
18...	1155	1.00	377	8.4	11.0	11.8	106
18...	1157	10.0	377	8.3	11.0	11.7	105
18...	1159	20.0	377	7.9	9.5	10.4	90
18...	1201	27.0	377	7.8	9.5	9.7	84
JUN							
02...	1450	1.00	350	7.8	27.5	8.3	105
02...	1452	10.0	350	7.6	27.5	7.9	100
02...	1454	18.0	350	7.5	27.5	7.4	94
AUG							
12...	1040	1.00	368	7.6	29.5	6.8	88
12...	1042	10.0	368	7.2	29.0	5.5	71
12...	1044	16.0	368	7.2	29.0	5.2	67

302026096341501 SOMERVILLE LAKE BC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
18...	1212	1.00	378	8.1	11.0	10.9	98
18...	1214	11.0	378	8.0	11.0	10.5	95
JUN							
02...	1505	1.00	360	7.8	28.0	8.6	110
02...	1507	10.0	360	7.7	28.0	8.3	106
02...	1509	16.0	360	6.6	27.5	4.6	58
AUG							
12...	1050	1.00	368	7.5	29.5	6.0	78
12...	1052	11.0	368	7.3	29.0	4.4	56

301805096332501 SOMERVILLE LAKE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
18...	1410	1.00	377	8.3	11.5	11.0	100
18...	1412	10.0	377	8.3	11.5	11.0	100
JUN							
02...	1645	1.00	345	7.6	28.0	8.1	104
02...	1647	5.00	345	7.5	27.5	7.8	99
02...	1649	11.0	345	6.7	26.5	3.4	42
AUG							
12...	1210	1.00	366	8.0	29.5	8.4	109
12...	1212	10.0	368	7.4	28.5	5.7	73



## BRAZOS RIVER BASIN

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## SOMERVILLE LAKE NEAR SOMERVILLE, TX--Continued

301847096334601 SOMERVILLE LAKE DR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
18...	1400	1.00	379	8.3	11.0	11.3	102
18...	1402	10.0	379	8.2	11.0	11.2	101
18...	1404	22.0	379	8.0	10.5	10.6	95
JUN							
02...	1545	1.00	335	7.5	27.5	8.1	103
02...	1547	10.0	340	7.3	27.0	7.4	94
02...	1549	15.0	340	6.7	26.5	4.4	55
02...	1551	20.0	360	6.4	25.5	.5	6
02...	1553	24.0	360	6.7	25.0	.0	0
AUG							
12...	1115	1.00	369	7.4	29.0	6.3	81
12...	1117	10.0	371	7.1	29.0	4.9	63
12...	1119	22.0	372	7.0	29.0	2.9	37

301904096335601 SOMERVILLE LAKE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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- TOCOC- CI, FECAL, KF AGAR (COLS. PER 100 ML)
FEB										
18...	1222	1.00	379	8.5	11.0	.60	11.8	106	<1	K1
18...	1224	10.0	379	8.3	10.5	--	11.5	103	--	--
18...	1226	20.0	379	7.9	9.5	--	10.6	92	--	--
18...	1228	27.0	379	7.7	9.0	--	9.0	78	--	--
JUN										
02...	1515	1.00	342	7.9	28.0	.90	9.3	119	<1	K2
02...	1517	10.0	342	7.3	27.5	--	7.1	90	--	--
02...	1519	20.0	346	6.4	26.0	--	2.5	31	--	--
02...	1521	27.0	360	6.5	25.0	--	.0	0	--	--
AUG										
12...	1100	1.00	369	7.6	29.5	.60	6.6	86	K8	K11
12...	1102	10.0	372	7.2	29.0	--	5.2	67	--	--
12...	1104	15.0	372	7.0	29.0	--	4.0	51	--	--
12...	1106	20.0	372	7.0	29.0	--	3.9	50	--	--
12...	1108	25.0	372	7.0	29.0	--	3.5	45	--	--

DATE	HARD- NESS (MG/L AS CAO3)	HARD- NESS, NONCAR- BONATE (MG/L CAO3)	CALCIUM DIS- SOLVED (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 CAO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
FEB									
18...	110	55	31	7.3	28	1.2	6.7	52	61
18...	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--
18...	110	58	32	7.5	29	1.3	6.5	53	62
JUN									
02...	97	49	28	6.5	25	1.2	6.5	48	56
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	100	47	30	6.8	26	1.2	5.9	56	55
AUG									
12...	110	54	32	7.1	28	1.2	6.6	55	55
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	100	45	29	7.1	31	1.4	6.7	57	54

## BRAZOS RIVER BASIN

## SOMERVILLE LAKE NEAR SOMERVILLE, TX--Continued

301904096335601 SOMERVILLE LAKE DC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
18...	48	11	224	.24	1.70	1.9	.030	25	5
18...	--	--	--	.24	1.70	1.9	.030	50	20
18...	--	--	--	.24	1.10	1.3	.030	60	40
18...	47	12	228	.24	1.10	1.3	.050	<10	44
JUN									
02...	41	8.4	200	<.10	1.40	--	.030	16	4
02...	--	--	--	<.10	1.20	--	.030	10	40
02...	--	--	--	<.10	1.30	--	.010	110	360
02...	42	10	212	<.10	1.90	--	.080	890	1300
AUG									
12...	44	13	219	<.10	1.50	--	.060	<3	<1
12...	--	--	--	<.10	1.60	--	.060	10	20
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	44	13	219	<.10	2.00	--	.100	<3	160

301817096364101 SOMERVILLE LAKE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
FEB							
18...	1305	1.00	383	8.1	10.5	11.0	98
18...	1307	10.0	383	8.1	10.5	10.9	97
18...	1310	23.0	383	7.9	10.5	10.3	92
JUN							
02...	1600	1.00	300	7.0	27.5	7.2	91
02...	1602	10.0	300	6.9	27.0	6.6	84
02...	1604	15.0	304	6.8	27.0	6.3	80
02...	1606	23.0	317	6.5	26.0	1.8	22
AUG							
12...	1130	1.00	370	7.4	29.0	6.2	79
12...	1132	10.0	370	7.2	29.0	5.4	69
12...	1134	22.0	370	7.2	28.5	4.8	62

301754096380801 SOMERVILLE LAKE FC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
FEB									
18...	1330	1.00	470	8.1	13.5	.30	10.4	99	K2
18...	1331	.50	--	--	--	--	--	--	--
18...	1332	8.00	475	8.0	13.0	--	10.1	95	--
JUN									
02...	1614	1.00	302	7.4	28.0	.50	8.5	109	K1
02...	1615	.80	--	--	--	--	--	--	--
02...	1616	5.00	302	7.4	28.0	--	8.6	110	--
02...	1618	10.0	317	6.4	27.0	--	3.5	44	--
02...	1620	13.0	312	6.4	27.0	--	3.4	43	--
AUG									
12...	1145	1.00	396	7.4	29.5	.40	6.2	81	K3
12...	1146	.70	--	--	--	--	--	--	--
12...	1147	5.00	396	7.0	29.0	--	4.9	63	--
12...	1149	12.0	403	7.0	29.0	--	3.2	41	--

## BRAZOS RIVER BASIN

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SOMERVILLE LAKE NEAR SOMERVILLE, TX--Continued

301754096380801 SOMERVILLE LAKE FC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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- LITY FIELD (MG/L AS CACO3)
FEB									
18...	32	130	85	38	9.4	36	1.4	6.5	49
18...	--	--	--	--	--	--	--	--	--
18...	--	140	88	39	9.6	36	1.4	7.0	49
JUN									
02...	38	85	40	24	6.0	22	1.1	6.4	45
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	95	47	27	6.7	24	1.1	6.7	48
AUG									
12...	20	110	51	31	7.8	32	1.4	6.8	59
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	--	110	51	31	7.7	31	1.4	6.7	58

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 CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
FEB									
18...	85	59	12	275	<.10	1.90	.060	10	7
18...	--	--	--	--	--	--	--	--	--
18...	88	64	12	285	<.10	1.10	.060	29	16
JUN									
02...	49	34	9.8	178	<.10	1.00	.030	81	6
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--
02...	48	43	12	197	<.10	1.40	.040	87	190
AUG									
12...	58	48	13	232	<.10	1.70	.080	240	140
12...	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--
12...	59	48	13	231	<.10	1.80	.120	9	200

## SOMERVILLE LAKE NEAR SOMERVILLE, TX--Continued

301908096313101 SOMERVILLE LAKE AC

## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	FEB 18,82 1116	JUN 2,82 1401	AUG 12,82 1021			
TOTAL CELLS/ML	86000	87000	210000			
DIVERSITY: DIVISION	1.5	0.7	0.4			
..CLASS	1.5	0.7	0.4			
..ORDER	1.7	1.7	1.4			
...FAMILY	2.4	1.8	1.5			
....GENUS	3.3	1.9	1.6			
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
....NITZSCHIAEAE						
.....NITZSCHIA	1400	2	* 0	--	--	--
...EUPODISCALES						
....COSCINODISCACEAE						
.....CYCLOTILLA	4100	5	* 0	1600	1	
....MELOSIRA	1400	2	--	--	--	--
...FRAGILARIALES						
....FRAGILARIAEAE						
.....FRACILARIA	--	--	* 0	--	--	--
....SYNEDRA	1700	2	930	1	1300	1
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
....CHLOROCOCCACEAE						
.....SCHROEDERIA	480	1	--	--	--	--
....TETRAEDRON	*	0	1300	2	* 0	
...DICTYOSPHAERIAEAE						
.....DICTYOSPHAERIUM	4600	5	1600	2	--	--
...OOCYSTACEAE						
....ANKISTRODESMUS	5000	6	--	--	2600	1
....CHODATELLA	2200	3	--	--	--	--
....KIRCHNERIELLA	8900	10	--	--	--	--
....TREUBARIA	--	--	* 0	--	--	--
...SCENEDESMACEAE						
....COELASTRUM	--	--	1700	2	--	--
....CRUCIGENIA	960	1	--	--	--	--
...SCENEDESMUS	3800	4	1900	2	2600	1
....TETRASTRUM	13000#	16	--	--	--	--
...VOLVOCALES						
....CHLAMYDOMONADACEAE						
.....CHLAMYDOMONAS	480	1	530	1	--	--
...ZYGNEATALES						
....DESMIDIACEAE						
.....COSMARIUM	*	0	--	--	--	--
....EUASTRUM	--	--	* 0	--	* 0	
....STAUSTRUM	--	--	* 0	--	--	--
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
....CHROOCOCCACEAE						
.....AGMENELLUM	12000	13	24000#	28	--	--
....ANACYSTIS	24000#	28	--	--	3300	2
...NOSTOCALES						
....NOSTOCACEAE						
.....ANABAENA	--	--	2000	2	6900	3
....CYLINDROSPERMUM	--	--	--	--	74000#	35
...OSCILLATORIALES						
....OSCILLATORIAEAE						
.....OSCILLATORIA	--	--	50000#	58	120000#	55
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
....EUGLENACEAE						
.....TRACHELOMONAS	1700	2	* 0	2000	1	
PYRRHOPHYTA (FIRE ALGAE)						
..DINOPHYCEAE						
...DINOKONTAE						
....PERIDINIACEAE						
.....PERIDINIUM	--	--	* 0	--	--	--

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

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

## SOMERVILLE LAKE NEAR SOMERVILLE, TX--Continued

301754096380801 SOMERVILLE LAKE FC

## PHYTOPLANKTON ANALYSES, OCTOBER 1981 TO AUGUST 1982

DATE TIME	FEB 18, 82 1331		JUN 2, 82 1615		AUG 12, 82 1146	
TOTAL CELLS/ML	36000		73000		170000	
DIVERSITY: DIVISION	1.2		1.3		0.8	
..CLASS	1.2		1.3		0.8	
..ORDER	1.3		1.9		1.7	
...FAMILY	2.2		2.2		1.8	
....GENUS	2.6		3.2		2.5	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)						
..BACILLARIOPHYCEAE						
...BACILLARIALES						
....NITZSCHIA	--	-	830	1	--	-
...EUPODISCALES						
....COSCINODISCACEAE						
...CYCLOTELLA	--	-	4000	5	5100	3
....MELOSIRA	--	-	830	1	--	-
...FRAGILARIALES						
....FRAGILARIACEAE						
...FRAGILARIA	280	1	690	1	1100	1
....SYNEDRA	12000#	35	--	-	*	0
...NAVICULALES						
....NAVICULACEAE						
...NAVICULA	--	-	960	1	2200	1
CHLOROPHYTA (GREEN ALGAE)						
..CHLOROPHYCEAE						
...CHLOROCOCCALES						
....CHLOROCOCCACEAE						
...SCHROEDERIA	1900	5	--	-	--	-
....CHODATELLA	550	2	*	0	--	-
...KIRCHNERIELLA	550	2	2200	3	--	-
....OOCYSTIS	--	-	1700	2	*	0
...QUADRIGULA	--	-	550	1	--	-
....SELENASTRUM	--	-	410	1	1800	1
...SCENEDESMACEAE						
...ACTINASTRUM	--	-	1100	2	--	-
....CRUCIGENIA	--	-	--	-	1400	1
...SCENEDESMUS	1700	5	2200	3	3600	2
....TETRASTRUM	5500#	15	550	1	--	-
..TETRASPORALES						
...GLOEOCYSTACEAE						
....GLOEOCYSTIS	--	-	*	0	--	-
...VOLVOCALES						
....CHLAMYDOMONADACEAE						
...CARTERIA	--	-	550	1	1100	1
....CHLAMYDOMONAS	550	2	830	1	--	-
...ZYCNEMATALES						
....DESMIDIACEAE						
...COSMARIUM	--	-	--	-	*	0
CHRYSTOPHYTA						
..XANTHOPHYCEAE						
...MISCHOCOCCALES						
....SCIADACEAE						
...CENTRITRACTUS	--	-	*	0	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
..CRYPTOPHYCEAE						
...CRYPTOMONADALES						
....CRYPTOCHRYSIDACEAE						
...CHROOMONAS	--	-	--	-	*	0
....CRYPTOMONADACEAE						
...CRYPTOMONAS	--	-	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
..CYANOPHYCEAE						
...CHROOCOCCALES						
....CHROOCOCCACEAE						
...ACMENELLUM	2200	6	21000#	29	--	-
....ANACYSTIS	--	-	21000#	29	14000	9
...NOSTOCALES						
....NOSTOCACEAE						
...ANABAENA	--	-	--	-	3200	2
....ANABAENOPSIS	--	-	--	-	5800	3
...CYLINDROSPERMUM	--	-	--	-	6900	4
...OSCILLATORIALES						
....OSCILLATORIACEAE						
...LYNCEYA	--	-	1700	2	25000#	15
....OSCILLATORIA	--	-	5000	7	89000#	53
EUGLENOPHYTA (EUGLENOIDS)						
..EUGLENOPHYCEAE						
...EUGLENALES						
....EUGLENACEAE						
...TRACHELOMONAS	--	-	690	1	--	-

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

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

## BRAZOS RIVER BASIN

08110000 YEGUA CREEK NEAR SOMERVILLE, TX

LOCATION.--Lat 30°19'18", long 96°30'26", Burleson County, Hydrologic Unit 12070102, on left bank 40 ft (12 m) downstream from bridge on State Highway 36, 860 ft (262 m) downstream from Gulf, Colorado, and Santa Fe Railway Co. bridge, 1.0 mi (1.6 km) downstream from Somerville Lake, 2.0 mi (3.2 km) south of Somerville, 5.0 mi (8.0 km) upstream from Davidson Creek, and 18.4 mi (29.6 km) upstream from mouth.

DRAINAGE AREA.--1,009 mi<sup>2</sup> (2,613 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1924 to current year.

REVISED RECORDS.--WSP 1512: 1926(M), 1929, 1935. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 199.21 ft (60.719 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 30, 1934, nonrecording gage at railway bridge 860 ft (262 m) upstream at datum 34.30 ft (10.455 m) higher. Jan. 30, 1934, to Nov. 30, 1970, water-stage recorder at highway bridge 100 ft (30 m) upstream at same datum.

REMARKS.--Water-discharge records good above 1.0 ft<sup>3</sup>/s (0.028 m<sup>3</sup>/s) and fair below. Flow regulated by Somerville Lake (station 08109900) since Feb. 3, 1966. Gage-height telemeter located at station.

AVERAGE DISCHARGE.--41 years (water years 1925-65) unregulated, 290 ft<sup>3</sup>/s (8.312 m<sup>3</sup>/s), 210,100 acre-ft/yr (259 hm<sup>3</sup>/yr); 17 years (water years 1966-82) regulated, 292 ft<sup>3</sup>/s (8.269 m<sup>3</sup>/s), 211,600 acre-ft/yr (261 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,800 ft<sup>3</sup>/s (1,610 m<sup>3</sup>/s) July 1, 1940, gage height, 19.27 ft (5.873 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1875, 22 ft (6.7 m) Dec. 5, 1913, present site and datum, from information by Gulf, Colorado, and Santa Fe Railway Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,630 ft<sup>3</sup>/s (74.5 m<sup>3</sup>/s) May 20, gage height, 8.87 ft (2.704 m), from estimated graph; no flow Sept. 8-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.31	56	1.6	1.0	.49	.97	.51	873	1110	.57	.05	.10
2	.33	9.2	1.4	1.0	2.4	.92	.44	873	1110	.54	.04	.07
3	.35	5.3	1.4	1.0	5.5	.92	.33	702	1110	.48	.04	.07
4	.37	246	1.3	.97	2.6	.92	.27	47	1100	.43	.03	.06
5	.38	726	1.3	.92	1.9	.92	.28	508	1090	.28	.02	.05
6	.52	779	1.3	.92	1.6	.92	.21	1160	1080	.24	.02	.03
7	.70	962	1.3	.92	1.5	1.0	.17	1140	1070	.15	.02	.02
8	.71	1010	1.3	.88	1.4	.92	.19	1110	1070	.12	.04	.00
9	.74	1020	1.3	.90	1.4	.92	.31	1110	1070	.11	.08	.00
10	.81	1000	1.3	.93	1.3	.92	.77	733	1070	.05	.10	.00
11	.76	995	1.3	1.1	1.3	.88	.75	18	1070	.06	.10	.00
12	.79	986	1.3	1.3	1.2	.88	.57	3.9	1070	.05	.11	.00
13	1.0	987	1.3	1.4	1.2	.70	.46	3.3	1070	.92	.08	.00
14	1.1	988	1.3	1.4	1.1	.70	.39	2.4	1070	.88	.10	.00
15	.80	992	1.2	1.4	1.1	.70	.34	2.0	1070	.57	.12	.00
16	.68	809	1.2	1.4	1.2	.73	.33	393	1080	.43	.12	.10
17	.64	67	1.1	1.3	1.2	.73	.31	854	1080	.36	.15	.30
18	.83	3.5	1.1	1.3	1.2	.66	.28	1280	1080	.33	.20	.29
19	.74	1.7	1.1	1.3	1.1	.63	.31	2390	1080	.28	.22	.32
20	.67	218	1.1	1.3	1.3	.60	.57	1710	1080	.24	.18	.32
21	.63	883	1.3	1.4	2.1	.60	6.2	1150	719	.20	.18	.38
22	.63	930	1.3	1.4	1.6	.60	15	1150	27	.18	.15	.31
23	.63	939	1.2	1.4	1.3	1.0	9.5	1150	2.2	.16	.16	.30
24	.63	937	.98	1.2	1.2	3.7	3.8	1150	.54	.15	.15	.31
25	.65	624	.88	1.2	1.0	2.4	4.7	1150	.24	.13	.13	.34
26	.70	25	.86	1.0	1.2	1.3	360	1120	.12	.12	.14	.34
27	.69	3.0	.86	.89	1.2	4.3	860	1110	.63	.10	.14	.38
28	.70	1.9	.90	.81	1.1	7.5	869	1110	.66	.10	.12	.51
29	.72	1.9	.92	.81	---	1.9	869	1110	.66	.07	.10	.53
30	.80	2.0	.94	.78	---	1.1	873	1110	.63	.06	.10	.63
31	150	---	1.0	.63	---	.80	---	1110	---	.06	.10	---
TOTAL	170.01	16207.5	36.64	34.16	42.69	41.74	3877.99	27332.6	22381.68	8.42	3.29	5.76
MEAN	5.48	540	1.18	1.10	1.52	1.35	129	882	746	.27	.11	.19
MAX	150	1020	1.6	1.4	5.5	7.5	873	2390	1110	.92	.22	.63
MIN	.31	1.7	.86	.63	.49	.60	.17	2.0	.12	.05	.02	.00
AC-FT	337	32150	73	68	85	83	7690	54210	44390	17	6.5	11

CAL YR 1981 TOTAL 36905.68 MEAN 101 MAX 1090 MIN .05 AC-FT 73200  
WTR YR 1982 TOTAL 70142.48 MEAN 192 MAX 2390 MIN .00 AC-FT 139100



## BRAZOS RIVER BASIN

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08110000 YEGUA CREEK NEAR SOMERVILLE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: September 1961 to September 1967, October 1968 to September 1980. Chemical and biochemical analyses: October 1980 to current year. Water temperatures: September 1961 to September 1967.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (FTU)	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 CAC03)
FEB 18...	1010	.70	1510	7.2	15.0	10	19	9.4	93	3.0	420
JUN 03...	0800	2080	362	6.9	24.5	10	7.4	7.4	89	2.9	110
AUG 12...	1250	.46	1360	7.3	30.5	20	10	7.4	97	46	390

DATE	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- LILITY 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)
FEB 18...	370	130	24	140	3.1	10	54	290	290	.3	13
JUN 03...	56	31	6.8	27	1.2	6.5	49	55	43	.2	9.0
AUG 12...	340	120	23	120	2.8	11	56	230	280	.3	14

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, 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)
FEB 18...	931	32	4	<.020	<.10	.060	1.6	1.70	.100	8.8
JUN 03...	208	16	6	<.020	<.10	.080	1.6	1.70	.030	7.0
AUG 12...	833	59	16	<.020	<.10	.080	1.5	1.60	.060	12

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 18...	1010	1	160	<1	10	1	<10
JUN 03...	0800	2	97	<1	<10	1	15
AUG 12...	1250	1	200	2	<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)
FEB 18...	2	760	<.1	<1	<1	<3
JUN 03...	22	140	<.1	<1	<1	7
AUG 12...	<1	560	<.1	<1	<1	8

## BRAZOS RIVER BASIN

08110100 DAVIDSON CREEK NEAR LYONS, TX

LOCATION.--Lat 30°25'10", long 96°32'24", Burleson County, Hydrologic Unit 12070102, on left bank 83 ft (25 m) downstream from Farm Road 60, 1.2 mi (1.9 km) downstream from Berry Creek, 2.8 mi (4.5 km) northeast of Lyons, and 10.7 mi (17.2 km) upstream from mouth.

DRAINAGE AREA.--195 mi<sup>2</sup> (505 km<sup>2</sup>).

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

Water-quality records: Sediment records: June 1966 to September 1975.

GAGE.--Water-stage recorder. Datum of gage is 220.26 ft (67.135 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. The city of Caldwell discharges sewage effluent into creek above station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--20 years, 66.9 ft<sup>3</sup>/s (1.895 m<sup>3</sup>/s), 4.08 in/yr (104 mm/yr), 48,470 acre-ft/yr (59.8 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,200 ft<sup>3</sup>/s (657 m<sup>3</sup>/s) June 24, 1968, gage height, 18.67 ft (5.691 m); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1902, that of June 24, 1968. Flood in 1947 reached a stage of 17 ft (5.2 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft<sup>3</sup>/s (42.5 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Discharge (m <sup>3</sup> /s)	Gage height (ft)	Gage height (m)
Oct. 31	1900	3,090	87.5	15.35	4.679
May 13	2330	*10,600	300	17.13	5.221

Minimum discharge, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
1	.13	2000	5.4	4.0	3.4	5.8	6.2	15	7.3	1.0	.00	.00		
2	.11	462	3.3	2.4	14	7.1	3.3	11	11	.90	.00	.00		
3	.10	99	2.1	4.4	18	6.0	3.2	7.5	5.6	.90	.00	.00		
4	.09	50	6.5	3.4	12	4.8	2.8	6.5	4.6	1.0	.00	.00		
5	.08	24	7.8	3.4	12	3.8	2.4	5.8	4.2	.80	.00	.00		
6	.11	13	7.8	3.4	9.8	3.8	2.1	17	3.6	.65	.00	.00		
7	3.5	6.5	6.7	10	6.0	3.6	1.9	126	3.4	.72	.00	.00		
8	2.4	49	6.7	4.0	6.2	3.1	1.7	69	3.5	.74	.00	.00		
9	1.5	391	4.8	3.1	6.7	3.3	1.7	33	3.2	.45	.00	.00		
10	2.1	178	2.9	2.9	5.8	3.3	2.0	14	3.0	.33	.00	.00		
11	1.5	66	5.2	2.6	5.8	2.9	1.9	6.9	2.7	.48	.00	.00		
12	.99	43	4.4	2.8	5.2	2.8	1.9	5.4	2.9	.46	.00	.00		
13	.83	19	3.3	3.3	5.0	2.6	1.7	2600	3.4	.86	.00	.00		
14	2.5	10	3.3	3.4	5.4	2.8	1.7	5300	2.8	.46	.00	.00		
15	7.5	7.1	2.2	4.0	5.2	3.1	1.7	1320	2.6	.39	.00	.00		
16	20	4.6	2.1	5.2	4.6	2.8	1.7	442	2.9	.39	.00	.00		
17	15	2.1	2.1	6.0	4.2	2.9	1.6	175	2.6	.37	.00	.00		
18	5.8	1.3	2.1	5.8	3.6	3.2	1.5	300	2.1	.31	.00	.00		
19	3.9	2.6	2.0	6.0	3.8	3.1	1.6	94	1.7	.30	.00	.00		
20	4.6	2.0	1.7	5.2	4.6	3.1	8.8	59	1.6	.31	.00	.00		
21	4.6	.53	2.1	5.0	4.4	2.6	422	42	1.5	.26	.00	.93		
22	3.2	.46	2.9	5.4	3.6	2.4	771	24	1.7	.25	.00	.27		
23	.60	1.0	4.2	8.2	3.3	2.6	1230	17	2.8	.20	.00	.12		
24	1.6	3.1	7.1	8.2	3.3	39	516	137	4.6	.19	.00	.06		
25	1.4	4.6	4.0	7.5	4.0	23	682	171	2.8	.23	.00	.04		
26	1.4	5.2	3.6	5.4	4.0	4.2	250	55	2.1	.11	.00	.00		
27	1.4	4.6	3.7	3.8	3.8	15	96	32	2.1	.08	.00	.00		
28	1.3	1.0	3.6	3.3	4.0	95	51	21	1.3	.04	.00	.00		
29	1.2	2.9	4.1	3.1	---	51	31	12	1.0	.00	.00	.00		
30	2.1	4.6	5.3	3.4	---	28	21	7.3	1.2	.00	.00	.00		
31	1670	---	4.0	3.4	---	13	---	6.2	---	.00	.00	---		
TOTAL	1761.54	3458.19	127.0	142.0	171.7	349.7	4121.4	11131.6	95.8	13.18	.00	1.42		
MEAN	56.8	115	4.10	4.58	6.13	11.3	137	359	3.19	.43	.000	.047		
MAX	1670	2000	7.8	10	18	95	1230	5300	11	1.0	.00	.93		
MIN	.08	.46	1.7	2.4	3.3	2.4	1.5	5.4	1.0	.00	.00	.00		
CFSM	.29	.59	.02	.02	.03	.06	.70	1.84	.02	.002	.000	.000		
IN.	.34	.66	.02	.03	.03	.07	.79	2.12	.02	.00	.00	.00		
AC-FT	3490	6860	252	282	341	694	8170	22080	190	26	.00	2.8		
CAL YR 1981	TOTAL	17033.62	MEAN	46.7	MAX	2000	MIN	.00	CFSM	.24	IN	3.25	AC-FT	33790
WTR YR 1982	TOTAL	21373.53	MEAN	58.6	MAX	5300	MIN	.00	CFSM	.30	IN	4.08	AC-FT	42390

## 08110200 BRAZOS RIVER AT WASHINGTON, TX

LOCATION.--Lat 30°21'40", long 96°09'18", Washington County, Hydrologic Unit 12070101, near right bank beneath floor of bridge on State Highway 105, 2.4 mi (3.9 km) upstream from Navasota River, 2.5 mi (4.0 km) north of Washington, and at mile 228.8 (368.1 km).

DRAINAGE AREA.--41,192 mi<sup>2</sup> (106,687 km<sup>2</sup>), approximately, of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

PERIOD OF RECORD.--November 1965 to current year. Gage heights collected in this vicinity since 1915 are contained in reports of the National Weather Service.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 140.13 ft (42.712 m) National Geodetic Vertical Datum of 1929. Auxiliary water-stage recorder 1.8 mi (2.9 km) downstream at same datum.

REMARKS.--Records good. Backwater at times from Navasota River. Many diversions above station for irrigation, municipal, industrial, and oilfield operations. At times, flow is affected by five upstream reservoirs with a combined capacity of 4,955,000 acre-ft (6.11 km<sup>3</sup>). Flow is also affected at times by discharge from the flood-dentention pools of 145 floodwater-retarding structures with a combined detention capacity of 152,600 acre-ft (188 km<sup>3</sup>). These structures control runoff from 449 mi<sup>2</sup> (1,163 km<sup>2</sup>) above station. Several observations of water temperature were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--16 years, 5,291 ft<sup>3</sup>/s (150 m<sup>3</sup>/s), 3,833,000 acre-ft/yr (4.73 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 82,500 ft<sup>3</sup>/s (2,340 m<sup>3</sup>/s) Jan. 24, 1968, gage height, 33.60 ft (10.241 m); maximum gage height, 36.74 ft (11.198 m) Apr. 28, 1966 (backwater from Navasota River); minimum discharge, 170 ft<sup>3</sup>/s (4.81 m<sup>3</sup>/s) Oct. 22, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1856, 62.0 ft (18.90 m) Dec. 6, 1913, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 49,300 (1,400 m<sup>3</sup>/s) May 15 at 0100 hours, gage height, 23.11 ft (7.0439 m); maximum gage height, 24.77 ft (7.550 m) Nov. 1 at 0500 hours (backwater from Navasota River); minimum daily discharge, 330 ft<sup>3</sup>/s (9.35 m<sup>3</sup>/s) Sept. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	32500	1790	776	905	1770	3160	6830	29800	21200	3040	1250
2	1110	20100	2100	762	1490	2900	2950	6860	29500	25100	2700	1540
3	1170	12400	2590	746	1900	2430	2350	4600	29300	24700	2020	1650
4	1240	11300	2040	723	1830	2320	2100	2680	28800	23800	1460	1780
5	779	21300	1910	716	1490	1780	1970	2600	21600	22700	1240	1510
6	587	24600	4230	688	1430	1370	1720	4580	14300	22200	1110	1150
7	1470	23900	2550	666	1690	1230	1610	6230	8880	22400	1380	716
8	1960	17400	2230	783	1790	1120	1590	4900	7940	22500	1360	535
9	1810	14600	1910	1000	2550	1390	1670	5040	7470	21000	1350	453
10	2900	12400	1450	908	2520	1540	2270	3970	7130	17000	1190	481
11	2780	11400	1260	994	1690	1550	1750	3170	7250	15000	1060	426
12	3000	10000	1130	2020	1520	2070	1400	2560	6920	10800	861	378
13	2340	9640	1060	1700	1890	2290	1220	5200	6600	8570	854	377
14	2870	9360	1010	2660	1690	1850	1050	22100	6400	8040	921	383
15	21700	8170	1330	2560	1410	1310	941	42700	6100	8980	1010	340
16	24900	6640	1570	2190	1360	1500	982	28000	4490	8070	1170	330
17	16400	5310	1260	2540	1340	1250	872	20100	5750	8160	1270	419
18	22500	4690	1830	1620	990	1120	626	18700	5320	8080	1710	576
19	25900	4690	2720	1540	792	829	702	26000	6200	8020	2040	545
20	24100	4520	2240	3120	717	670	1140	15100	5500	8040	1460	611
21	22700	5190	3030	2730	661	556	2170	22300	5480	6870	901	882
22	24700	5700	2450	1970	649	495	3600	29500	5870	6270	687	1090
23	26000	5900	2080	1270	911	607	5750	21900	6590	6250	720	1020
24	25000	5300	1960	1850	1030	2020	6960	16100	18300	5830	635	616
25	24200	4020	1720	2250	858	5420	9510	20000	20500	4190	1000	525
26	26100	2690	1390	3230	736	6110	8260	26500	19000	3890	2740	653
27	24900	2060	1260	3340	597	6520	8090	29200	18900	3590	1700	712
28	24800	2160	1070	2680	625	5220	5060	30600	18600	3340	820	805
29	25300	1980	905	1790	---	4500	4480	32300	22300	3080	558	767
30	25300	1770	832	1360	---	4640	6720	31400	23100	2980	479	772
31	33000	---	809	1020	---	4290	---	30000	---	2990	869	---
TOTAL	442636	301690	55716	52202	37061	72667	92673	521720	403890	363640	40315	23292
MEAN	14280	10060	1797	1684	1324	2344	3089	16830	13460	11730	1300	776
MAX	33000	32500	4230	3340	2550	6520	9510	42700	29800	25100	3040	1780
MIN	587	1770	809	666	597	495	626	2560	4490	2980	479	330
AC-FT	878000	598400	110500	103500	73510	144100	183800	1035000	801100	721300	79960	46200
CAL YR 1981 TOTAL	2206813	MEAN	6046	MAX	60500	MIN	514	AC-FT	4377000			
WTR YR 1982 TOTAL	2407502	MEAN	6596	MAX	42700	MIN	330	AC-FT	4775000			

## BRAZOS RIVER BASIN

08110300 LAKE MEXIA NEAR MEXIA, TX

LOCATION.--Lat 31°38'37", long 96°34'43", Limestone County, Hydrologic Unit 12070103, 550 ft (168 m) downstream from Cedar Creek, 610 ft (186 m) upstream from spillway of dam on Navasota River, 1.0 mi (1.6 km) upstream from Echo Dam, 1.6 mi (2.6 km) upstream from Jacks Creek, 6 mi (10 km) southwest of Mexia, and 180.0 mi (289.6 km) upstream from mouth.

DRAINAGE AREA.--196 mi<sup>2</sup> (508 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 420.0 ft (128.02 m) National Geodetic Vertical Datum of 1929.

REMARKS.--The lake is formed by an earthfill dam, 1,645 ft (501 m) long, including a 520-foot (158 m) uncontrolled concrete ogee-type spillway near the center of dam. The dam was completed and deliberate impoundment of water began June 5, 1961. 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.....	42.3	-
Crest of spillway.....	28.3	9,400
Lowest gated outlet (invert).....	2.1	531

COOPERATION.--Capacity table was computed from data furnished by Fowler and Grafe, Inc., Consulting Engineers, Dallas. Data was based on a preconstruction survey in 1958 and was not adjusted for borrow in the lake area. Diversions from lake for municipal use were furnished by the Bistone Municipal Water Supply District.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 22,460 acre-ft (27.7 hm<sup>3</sup>) May 11, 1979, gage height, 35.36 ft (10.778 m); minimum, 3,730 acre-ft (4.60 hm<sup>3</sup>) Jan. 15, 1964, gage height, 21.40 ft (6.523 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 14,390 acre-ft (17.71 hm<sup>3</sup>) Oct. 14 at 1000 hours, gage height, 31.43 ft (9.580 m); minimum, 6,550 acre-ft (8.08 hm<sup>3</sup>) Sept. 30, gage height, 25.89 ft (7.891 m).

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

26.0	6,650	30.0	12,010
28.0	8,970	32.0	15,410

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7300	9640	9240	8960	8980	9520	9580	9480	9420	9510	8330	7340
2	7270	9550	9220	8980	9080	9480	9570	9470	9390	9450	8290	7320
3	7230	9520	9220	9000	8980	9470	9510	9440	9380	9420	8240	7270
4	7220	9500	9180	8940	9000	9450	9500	9410	9440	9380	8190	7220
5	7200	9500	9150	8930	9010	9450	9450	9370	9390	9340	8150	7170
6	7240	9470	9150	8940	8970	9390	9420	9420	9350	9310	8100	7160
7	7810	9440	9170	8910	8960	9380	9410	9380	9320	9270	8050	7130
8	7910	9550	9150	8880	8980	9350	9390	9350	9280	9220	8070	7100
9	7960	9500	9150	8870	8940	9350	9380	9320	9250	9170	8040	7030
10	7940	9480	9120	8840	8940	9350	9410	9310	9220	9140	8000	7010
11	7920	9480	9140	8820	8930	9350	9390	9280	9180	9100	7980	6990
12	7890	9470	9100	8850	8930	9350	9380	9280	9190	9100	7940	6960
13	11530	9450	9190	8890	8920	9320	9380	9580	9170	9050	7900	6940
14	12930	9440	9190	8880	8910	9370	9390	9740	9110	9010	7870	6910
15	10210	9440	9180	8880	8920	9350	9380	9610	9080	8970	7830	6900
16	9710	9420	9180	8890	8910	9350	9390	9540	9080	8930	7790	6940
17	9600	9410	9150	8870	8910	9340	9350	10080	9050	8890	7760	6920
18	9640	9410	9120	8880	8910	9310	9320	10420	9030	8850	7820	6900
19	9600	9370	9100	8880	8890	9310	9370	9800	9000	8820	7780	6850
20	9520	9340	9080	8880	8890	9310	9410	9640	9040	8780	7760	6820
21	9520	9310	9110	8880	8880	10400	9470	9570	9030	8740	7720	6780
22	9580	9290	9120	8930	8870	11460	9700	9520	9000	8700	7690	6740
23	9630	9310	9080	8910	8850	10040	9710	9500	8970	8670	7650	6710
24	9570	9280	9070	8880	8840	9700	9730	9500	9030	8630	7600	6700
25	9570	9250	9040	8870	8940	9570	9770	9520	9120	8620	7570	6670
26	9470	9280	9040	8850	9570	9540	9630	9880	9240	8550	7530	6630
27	9450	9250	9030	8850	9640	10480	9550	9850	9250	8530	7480	6600
28	9420	9220	9010	8840	9570	10180	9510	9660	9270	8520	7470	6590
29	9420	9250	9000	8840	---	9780	9510	9550	9350	8440	7440	6590
30	9920	9270	8980	8980	---	9660	9500	9510	9520	8410	7410	6550
31	9940	---	8980	8980	---	9660	---	9470	---	8370	7370	---
MAX	12930	9640	9240	9000	9640	11460	9770	10420	9520	9510	8330	7340
MIN	7200	9220	8980	8820	8840	9310	9320	9280	8970	8370	7370	6550
(†)	28.68	28.61	28.01	28.01	28.42	28.44	28.37	28.35	28.39	27.52	26.68	25.90
(+)	+2620	-670	-290	0	+590	+90	-160	-30	+50	-1150	-1000	-820
(††)	250	202	217	200	163	118	104	97	137	152	202	188

CAL YR 1981 MAX 12930 MIN 4940 ± -3820 †† 2539  
WTR YR 1982 MAX 12930 MIN 6550 ± -770 †† 2030

† Gage-height, in feet, at end on month.

± Change in contents, in acre-feet.

†† Diversions, in acre-feet, for municipal use by Bistone Municipal Water Supply District.

## BRAZOS RIVER BASIN

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08110300 LAKE MEXIA NEAR MEXIA, TX--Continued

## WATER-QUALITY RECORDS

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

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAY 12...	1145	239	23.0	100	12	36	2.8	9.5
DATE	SODIUM AD- SOKP- 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)
MAY 12...	.4	5.1	89	17	12	.2	1.1	137



## BRAZOS RIVER BASIN

08110325 NAVASOTA RIVER ABOVE GROESBECK, TX

LOCATION.--Lat 31°34'27", long 96°31'14", Limestone County, Hydrologic Unit 12070103, in city of Groesbeck water supply pumping plant, 1.2 mi (1.9 km) downstream from Springfield Lake, 3.7 mi (6.0 km) north of Groesbeck, and 161.4 mi (259.7 km) upstream from mouth.

DRAINAGE AREA.--239 mi<sup>2</sup> (619 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1975 to May 1978 (periodic gage-height and low-flow measurements only), June 1978 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 396.65 ft (120.899 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is partly regulated by Lake Mexia (station 08110300) 7.4 mi (11.9 km) upstream, capacity 9,400 acre-ft (11.6 hm<sup>3</sup>), and Springfield Lake 1.2 mi (1.9 km) upstream, approximate capacity 3,100 acre-ft (3.81 hm<sup>3</sup>). Several diversions above station for irrigation, municipal supply, and oilfield operation (total amount unknown). The city of Groesbeck diverts water from pool at gage for municipal use and returns wash-water and sewage effluent into river downstream from gage. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,200 ft<sup>3</sup>/s (770 m<sup>3</sup>/s) May 11, 1979, gage height, 15.06 ft (4.590 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1910, 26 ft (7.925 m) in 1910 and 1944, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,250 ft<sup>3</sup>/s (234 m<sup>3</sup>/s) Oct. 14 at 1600 hours, gage height, 9.95 ft (3.033 m); no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	233	6.5	1.7	1.5	65	95	29	35	.70	.36	.62
2	.20	93	2.0	1.4	2.7	53	75	22	20	.54	.19	.48
3	.11	59	1.3	2.6	7.6	42	59	19	13	.38	.00	.34
4	.01	41	2.4	1.8	1.6	37	35	12	20	.26	.00	.23
5	.01	29	1.1	.78	2.9	28	38	7.1	13	.20	.00	.14
6	.10	23	.89	.73	3.4	26	19	9.3	8.8	.13	.05	.11
7	1.0	16	.89	1.9	1.3	14	11	7.1	4.6	.13	.49	.02
8	.74	18	.86	1.1	.81	8.9	13	2.4	2.1	.06	1.6	.02
9	2.3	32	.92	.68	3.1	5.9	6.1	1.1	1.1	.00	1.3	.00
10	1.1	22	.92	.93	1.5	6.0	4.3	.58	.39	.00	1.3	.00
11	.83	16	1.2	1.0	.96	5.2	4.3	.39	.14	.00	1.1	.08
12	.78	12	1.4	.63	2.9	4.2	2.9	.48	.69	.32	1.1	.42
13	6.6	10	1.5	.64	1.8	4.6	2.9	16	.58	8.7	1.1	.78
14	5620	7.8	3.7	.60	.90	5.1	2.5	53	.39	6.6	1.1	.29
15	3680	6.7	2.3	.36	.92	5.3	2.5	96	.31	2.2	1.0	.07
16	538	6.0	1.4	.28	2.4	6.1	2.9	85	1.1	.64	.95	.00
17	149	4.9	4.5	.33	1.7	5.0	4.2	71	.69	.27	.31	.00
18	83	4.3	2.0	.33	1.3	3.4	2.1	608	.39	.25	1.0	.00
19	67	10	.82	.57	.90	2.3	1.7	640	.39	.14	.62	.00
20	57	4.8	.78	.73	1.0	2.9	4.8	221	.31	.05	.24	.00
21	43	1.9	.91	.87	1.1	57	4.1	120	.39	.04	.12	.00
22	38	1.4	6.1	1.2	1.0	1280	17	82	.39	.00	.04	.00
23	36	1.7	2.6	2.2	.99	1480	71	55	.39	.00	.00	.00
24	41	1.9	.86	1.1	.97	383	117	41	.88	.00	.00	.00
25	46	1.4	.69	1.1	1.4	181	174	32	.69	.00	.00	.00
26	44	2.6	1.2	.99	12	94	181	31	.44	.00	.00	.00
27	26	3.9	1.2	.73	31	245	113	178	.43	.00	.11	.05
28	19	2.5	1.5	.77	57	865	79	210	.67	.18	.84	.54
29	13	2.2	1.2	.88	---	461	60	134	.95	.28	1.3	1.1
30	12	5.0	.96	6.8	---	228	45	85	.66	.23	1.4	1.2
31	218	---	1.4	12	---	145	---	59	---	.28	.83	---
TOTAL	10743.99	673.0	56.00	47.73	146.65	5748.9	1247.3	2927.45	128.87	22.58	18.45	6.49
MEAN	347	22.4	1.81	1.54	5.24	185	41.6	94.4	4.30	.73	.60	.22
MAX	5620	233	6.5	12	57	1480	181	640	35	8.7	1.6	1.2
MIN	.01	1.4	.69	.28	.81	2.3	1.7	.39	.14	.00	.00	.00
AC-FT	21310	1330	111	95	291	11400	2470	5810	256	45	37	13
CAL YR 1981	TOTAL	29822.64	MEAN	81.7	MAX	5620	MIN	.01	AC-FT	59150		
WTR YR 1982	TOTAL	21767.41	MEAN	59.6	MAX	5620	MIN	.00	AC-FT	43180		



## BRAZOS RIVER BASIN

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08110325 NAVASOTA RIVER ABOVE GROESBECK, TX--Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1967 to current year.

WATER TEMPERATURES: November 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, 6,590 micromhos Oct. 8, 9, 1969; minimum daily, 71 micromhos June 4, 1973.

WATER TEMPERATURES: Maximum daily, 38.0°C on several days during July 1974, May 28, 1978; minimum daily, 1.5°C Jan. 10, 1973.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 485 micromhos Oct. 12; minimum daily, 133 micromhos Oct. 16.

WATER TEMPERATURES: Maximum daily, 30.5°C Aug. 1, 2, Sept. 3; minimum daily, 5.5°C Jan. 17.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 20...	1120	59	162	20.5	65	1	23	1.8	5.0
DEC 03...	1420	1.4	305	13.5	130	8	46	3.2	11
FEB 18...	1045	1.4	472	12.0	200	14	74	4.6	20
MAR 31...	0800	78	249	16.5	100	17	34	3.8	15
MAY 12...	0935	.60	367	21.5	140	11	50	4.0	20
JUL 31...	0800	.18	414	30.0	190	5	68	3.8	13

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 20...	.3	4.8	64	6.0	5.5	.2	10	94
DEC 03...	.4	4.5	120	5.0	18	.2	9.1	169
FEB 18...	.6	3.3	190	18	31	.1	12	277
MAR 31...	.7	5.1	84	15	26	.2	7.7	157
MAY 12...	.8	4.9	130	16	27	.2	2.8	203
JUL 31...	.4	3.2	180	10	18	.2	12	236

## BRAZOS RIVER BASIN

08110325 NAVASOTA RIVER ABOVE GROESBECK, TX--Continued

## MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	10743.99	228	128	3700	16	454	11	307	83
NOV.	1981	673.0	213	119	216	15	27	10	19	75
DEC.	1981	56.00	348	198	30	21	3.1	13	1.9	140
JAN.	1982	47.73	420	242	31	23	3.0	13	1.7	180
FEB.	1982	146.65	356	203	80	21	8.3	13	5.1	150
MAR.	1982	5748.9	265	149	2310	18	272	12	180	99
APR.	1982	1247.3	275	155	522	18	61	12	40	100
MAY	1982	2927.45	276	156	1230	18	143	12	94	100
JUNE	1982	128.87	300	170	59	19	6.6	12	4.3	120
JULY	1982	22.58	381	218	13	22	1.3	13	0.8	160
AUG.	1982	18.45	411	236	12	23	1.1	13	0.7	180
SEPT	1982	6.49	425	244	4.3	23	0.4	13	0.2	190
TOTAL		21767.41	**	**	8210	**	981	**	654	**
WTD. AVG.		60	249	140	**	17	**	11	**	92

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	472	211	290	396	434	265	241	296	294	377	411	417
2	476	197	297	399	431	247	337	300	296	370	413	415
3	464	199	305	404	423	248	250	303	298	373	---	418
4	441	204	304	407	425	259	269	306	294	389	---	419
5	481	207	310	406	422	273	258	310	297	391	---	413
6	478	204	312	410	424	279	260	313	298	394	420	415
7	465	210	320	411	426	286	264	316	302	393	412	421
8	479	217	325	406	425	306	269	323	304	396	411	425
9	473	218	331	412	422	305	274	321	308	---	413	---
10	474	220	333	416	423	307	280	330	309	---	411	---
11	475	219	331	414	422	312	284	340	312	---	409	430
12	485	217	335	417	418	322	286	367	314	405	411	422
13	477	221	338	418	421	325	290	316	316	378	407	421
14	223	223	343	401	419	333	295	326	320	376	410	418
15	262	228	350	424	422	334	300	289	322	384	411	425
16	133	236	353	423	425	331	303	269	324	382	420	---
17	143	243	358	425	432	340	314	271	332	390	425	---
18	148	246	361	431	418	343	316	273	331	397	407	---
19	153	253	363	430	408	340	321	265	340	404	406	---
20	159	257	364	420	403	352	324	274	345	401	408	---
21	162	261	372	427	410	354	327	279	347	406	417	---
22	166	260	380	429	411	300	331	281	352	---	422	---
23	171	263	383	430	406	262	333	282	427	---	---	---
24	178	267	390	432	405	244	272	284	360	---	---	---
25	181	272	391	431	385	245	261	285	355	---	---	---
26	182	277	394	420	384	253	255	290	363	---	---	---
27	186	280	395	423	350	267	272	280	366	---	435	430
28	187	293	397	429	300	252	283	275	369	414	411	432
29	193	297	398	404	---	225	289	278	360	424	413	434
30	199	299	403	426	---	241	293	280	369	420	411	430
31	209	---	402	430	---	249	---	286	---	416	412	---
MEAN	302	240	353	418	411	290	288	297	331	395	414	423

## BRAZOS RIVER BASIN

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08110325 NAVASOTA RIVER ABOVE GROESBECK, TX--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

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

## BRAZOS RIVER BASIN

08110430 BIG CREEK NEAR FREESTONE, TX

LOCATION.--Lat 31°30'25", long 96°19'31", Limestone County, Hydrologic Unit 12070103, on left bank at downstream side of bridge on State Highway 164, 5.1 mi (8.2 km) southwest of Freestone, and 8.2 mi (13.2 km) upstream from mouth.

DRAINAGE AREA.--57.1 mi<sup>2</sup> (147.9 km<sup>2</sup>).

PERIOD OF RECORD.--July 1975 to June 1978 (periodic gage-height and low-flow measurements only), July 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 362.94 ft (110.624 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,040 ft<sup>3</sup>/s (57.8 m<sup>3</sup>/s) Oct. 14, 1982, gage height, 14.03 ft (4.276 m); no flow Sept 23-26, 1978, and Aug. 4-8, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1950, 19 ft (5.8 m) in April 1957, from information by local residents.

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

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 9	1530	1,730 49.0	13.75 4.191
Oct. 14	0200	*2,040 57.8	14.03 4.276
May 14	1430	1,030 29.2	12.93 3.941

Minimum daily discharge, 0.03 ft<sup>3</sup>/s (0.001 m<sup>3</sup>/s) Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	26	7.8	2.4	9.7	18	16	4.4	1.4	.50	.04	.05
2	.29	12	5.9	2.5	6.6	14	14	4.0	1.2	.46	.04	.05
3	.30	7.3	4.3	2.8	6.1	12	12	3.7	1.2	.36	.03	.05
4	.29	5.7	3.5	2.8	5.6	11	10	3.3	1.2	.29	.04	.05
5	.28	4.6	2.9	2.6	5.0	10	10	3.0	1.2	.25	.05	.05
6	.34	4.0	2.7	2.4	4.8	11	9.9	2.8	1.2	.21	.05	.05
7	.45	4.0	2.9	2.2	4.5	14	8.9	2.8	1.1	.19	.05	.05
8	.35	7.7	3.2	2.0	4.7	13	7.6	3.0	.95	.15	.14	.06
9	787	26	3.3	1.8	5.1	11	7.3	2.6	.82	.12	.12	.06
10	743	14	3.4	1.8	5.1	11	7.6	2.3	.72	.12	.12	.06
11	74	8.4	3.6	1.6	4.8	10	7.9	2.1	.61	.13	.10	.06
12	10	6.1	3.6	1.9	4.6	10	8.5	1.9	.55	.12	.08	.06
13	254	4.9	3.4	2.9	4.4	10	7.9	296	.49	.16	.07	.06
14	1340	4.2	4.1	4.0	4.1	9.8	7.0	865	.46	.24	.06	.05
15	395	3.9	4.3	4.4	4.0	9.0	6.2	643	.48	3.5	.07	.05
16	30	3.7	3.9	5.2	4.3	9.1	6.2	207	.52	1.1	.07	.05
17	9.7	3.6	3.5	4.4	4.5	8.8	6.2	33	.44	.60	.09	.05
18	9.0	3.6	3.1	3.5	4.3	8.3	5.5	17	.44	.37	.09	.05
19	6.9	3.8	2.8	3.3	3.9	8.1	4.8	36	.47	.23	.09	.05
20	5.8	4.0	2.6	3.3	3.7	7.4	4.9	23	.46	.16	.08	.05
21	4.6	3.7	2.7	3.2	3.4	7.8	8.7	7.3	.42	.14	.08	.05
22	4.2	3.4	3.3	3.8	3.1	38	29	4.7	.39	.13	.08	.05
23	4.5	3.5	3.5	5.8	2.9	49	53	2.6	.36	.12	.07	.05
24	4.7	3.8	3.0	4.7	2.6	22	34	2.1	.40	.11	.07	.05
25	4.4	3.7	2.6	3.3	3.3	15	43	2.0	.41	.09	.07	.05
26	4.1	4.9	2.4	2.6	61	11	30	2.4	.54	.08	.07	.05
27	3.9	5.1	2.3	2.3	70	59	15	6.9	.58	.07	.07	.05
28	3.5	4.8	2.4	2.1	31	196	8.5	6.2	.49	.06	.07	.05
29	3.4	4.8	2.4	2.3	---	76	5.9	3.0	.51	.06	.07	.06
30	3.9	6.3	2.4	3.1	---	31	4.8	2.0	.50	.05	.07	.07
31	25	---	2.4	12	---	21	---	1.6	---	.05	.05	---
TOTAL	3733.17	201.5	104.2	103.0	277.1	741.3	400.3	2196.7	20.51	33.98	2.25	1.59
MEAN	120	6.72	3.36	3.32	9.90	23.9	13.3	70.9	.68	1.10	.073	.053
MAX	1340	26	7.8	12	70	196	53	865	1.4	.24	.14	.07
MIN	.27	3.4	2.3	1.6	2.6	7.4	4.8	1.6	.36	.05	.03	.05
CFSM	2.10	.12	.06	.06	.17	.42	.23	1.24	.01	.02	.001	.001
IN.	2.43	.13	.07	.07	.18	.48	.26	1.43	.01	.02	.00	.00
AC-FT	7400	400	207	204	550	1470	794	4360	41	67	4.5	3.2

CAL YR 1981	TOTAL	10924.49	MEAN 29.9	MAX 1340	MIN .04	CFSM .52	IN 7.12	AC-FT 21670
WTR YR 1982	TOTAL	7815.60	MEAN 21.4	MAX 1340	MIN .03	CFSM .38	IN 5.09	AC-FT 15500

## 08110470 LAKE LIMESTONE NEAR MARQUEZ, TX

LOCATION.--Lat 31°19'30", long 96°19'08", Leon County, Hydrologic Unit 12070103, in left end bypass pier of Sterling C. Robertson Dam on the Navasota River, 7.5 mi (12.1 km) northwest of Marquez, and 124 mi (200 km) upstream from mouth.

DRAINAGE AREA.--675 mi<sup>2</sup> (1,748 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1978 to current year.

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

REMARK.--The lake is formed by a rolled earthfill dam 11,395 ft (3,473 m) long, including the spillway. The lake was built for water conservation. Deliberate impoundment began on Oct. 16, 1978. The spillway is an uncontrolled broad-crested weir 3,000 ft (914 m) long located near left end of dam. The spillway for normal flood releases is a gated concrete gravity structure with an ogee weir section and stilling basin located near center of dam. It is controlled by five 40- by 28-foot (12 by 9 m) tainter gates. There are two 4- by 8-foot (1 by 2 m) slide gates, located one each in the two center piers of the spillway that discharge into the stilling basin. These gates can also be opened during extreme floods. A low-flow outlet, consisting of a 10-inch-diameter (0.25 m) cast iron pipe, is located in the left end of the pier. In addition, there are two 36-inch (0.91 m, outside diameter) steel cylinder pipes located in the right end pier for water supply releases. The lowest invert from low flow and for water supply releases is at elevation 325.50 ft (99.212 m). The city of Mexia releases various amounts of sewage effluent into stream above lake. Gage-height telemeter at station. Figures given herein represent total contents. Data regarding dam and lake are given in the following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam.....	380.0	-
Design flood.....	370.0	334,735
Crest of spillway.....	369.6	327,760
Top of gates.....	365.0	253,905
Top of conservation pool.....	363.0	225,445
Concrete gated spillway.....	337.0	21,125
Lowest gated outlet (invert).....	322.0	265

COOPERATION.--Records of daily lake elevations are obtained in cooperation with the Brazos River Authority. Area and capacity tables were furnished by the Brazos River Authority and are based on Geological Survey topographic maps.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 241,100 acre-ft (297 hm<sup>3</sup>) May 30, 1979, elevation, 364.12 ft (110.984 m); minimum, 10,740 acre-ft (13.2 hm<sup>3</sup>) Nov. 30, 1978, elevation, 332.63 ft (101.386 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 235,100 acre-ft (290 hm<sup>3</sup>) May 15 at 0200 hours, elevation, 363.69 ft (110.853 m); minimum, 197,900 acre-ft (244 hm<sup>3</sup>) Sept 30 at 1200 hours, elevation, 360.91 ft (110.005 m).

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

360.0	186,600
362.0	212,000
364.0	239,400

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210500	224200	224100	221100	223400	225400	225200	226100	225700	221400	212900	204900
2	209700	224500	223800	221700	224800	225000	224900	226300	225300	221100	212500	204900
3	209000	224900	224600	221900	224100	225900	224000	226100	225200	220900	212300	204800
4	209000	224600	223600	221000	223700	226100	223000	226000	225300	220500	212000	204400
5	209000	224800	223200	221300	224900	226600	223300	225700	224900	220200	211700	204000
6	209300	224600	223600	221700	223700	226300	222100	226800	224600	220100	211500	203700
7	210500	224200	223700	221800	223200	225900	221800	226100	224400	219900	210800	203500
8	209700	225200	223700	220700	223400	226000	222100	225700	224100	219800	211400	203200
9	215100	225900	223700	220700	223300	226000	221900	225400	224100	219300	211200	202900
10	220300	225300	223300	221800	223200	226100	222100	225300	223800	219100	210700	202700
11	220900	225300	223800	219400	223000	226000	221300	225300	223800	219000	210100	202600
12	221000	225300	223600	223400	223400	226300	221400	225200	223800	219100	209400	201900
13	230000	225300	223600	223200	222900	226400	221900	223300	223400	219300	209400	201900
14	230200	224900	223600	222600	222600	227000	221800	224900	222800	219000	209200	202300
15	226100	225300	223200	222900	222900	226800	221800	223300	222500	218700	208900	202300
16	223800	225300	224100	223400	222900	227300	222400	227700	223300	218500	208800	202200
17	224500	225200	223600	222200	223000	227300	222100	226300	223000	218200	208600	202000
18	224100	224900	222600	222400	222900	227000	221800	226400	222800	217900	208800	201900
19	223600	225400	222200	222600	222800	227000	221900	226600	222600	217800	208400	201600
20	223200	224600	222100	222900	222900	227400	223300	226100	222200	217500	208100	201800
21	223300	224200	221800	222800	222900	228100	223800	226000	222600	217100	207900	200900
22	224200	224100	223600	223600	222800	228200	225900	225700	222200	216700	207600	200400
23	223400	224500	222500	223300	222800	228900	226300	225600	221900	216200	207100	199700
24	222600	224100	222100	223200	223300	227100	227300	225900	222600	215900	206700	199700
25	224100	223600	221500	223600	224500	226600	227100	226000	222400	215100	206400	199400
26	222600	224600	221900	222800	225400	225700	226600	225900	222100	214700	206200	198900
27	222400	224100	221700	223000	225400	227500	226100	225200	222100	214400	206000	198400
28	222200	224000	222100	223000	225400	229100	226000	226000	221900	214000	205900	198200
29	222200	223800	221500	222400	---	229200	226100	226100	221700	213800	205800	198200
30	223200	224400	221400	224100	---	227300	226300	226000	221800	213500	205400	198200
31	224400	---	221800	223700	---	226400	---	227100	---	213100	205100	---
MAX	230200	225900	224600	224100	225400	229200	227300	234900	225700	221400	212900	204900
MIN	209000	223600	221400	219400	222600	225000	221300	225200	221700	213100	205100	198200
(†)	362.92	362.92	362.73	362.87	363.00	363.07	363.06	363.12	362.73	362.08	361.47	360.93
(‡)	+14500	0	-2600	+1900	+1700	+1000	-100	+800	-5300	-8700	-8000	-6900
CAL YR 1981	MAX	230200	MIN	190900	‡	+30400						
WTR YR 1982	MAX	234900	MIN	198200	‡	-11700						

† Elevation, in feet, at end of month.

‡ Change in contents, in acre-feet.

## BRAZOS RIVER BASIN

08110470 LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

## WATER-QUALITY RECORDS

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

## 311937096194601 LAKE LIMESTONE SITE AR

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
16...	1330	1.00	240	7.9	14.0	9.9	98
16...	1332	10.0	240	7.9	14.0	9.7	96
16...	1334	20.0	240	7.8	13.5	9.5	92
16...	1336	30.0	240	7.8	13.5	9.4	91
16...	1338	40.0	244	7.6	12.5	7.0	67
MAY							
06...	1230	1.00	245	7.1	20.0	6.5	72
06...	1232	10.0	245	6.8	18.5	4.7	51
06...	1234	20.0	245	6.8	18.5	3.9	42
06...	1236	30.0	245	6.8	18.0	2.9	31
06...	1238	35.0	245	6.8	18.0	2.7	29
AUG							
04...	1330	1.00	271	6.9	29.5	4.7	62
04...	1332	10.0	271	6.8	29.0	4.0	52
04...	1334	20.0	271	6.6	28.5	.4	5
04...	1336	30.0	274	6.5	28.0	.0	0
04...	1338	36.0	304	6.5	25.0	.0	0

## 311941096191401 LAKE LIMESTONE SITE AC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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 CAC03)
MAR									
16...	1300	1.00	240	7.9	14.5	1.00	9.9	99	76
16...	1302	10.0	240	7.9	14.0	--	9.7	96	--
16...	1304	20.0	240	7.9	13.5	--	9.6	93	--
16...	1306	30.0	240	7.8	13.0	--	9.2	88	--
16...	1308	40.0	240	7.7	13.0	--	9.0	87	--
16...	1310	45.0	247	7.5	12.0	--	6.8	64	79
MAY									
06...	1245	1.00	245	7.1	20.0	1.00	6.6	73	81
06...	1248	10.0	245	6.9	19.0	--	5.0	54	--
06...	1250	20.0	245	6.8	18.5	--	4.5	48	--
06...	1252	30.0	245	6.7	18.0	--	3.2	34	--
06...	1254	40.0	245	6.7	18.0	--	2.9	31	--
06...	1256	45.0	253	6.7	17.5	--	1.8	19	83
AUG									
04...	1345	1.00	268	7.0	29.5	1.60	5.3	70	89
04...	1347	10.0	268	6.8	29.5	--	4.5	59	--
04...	1349	20.0	268	6.7	29.0	--	2.2	29	--
04...	1350	25.0	268	6.6	28.5	--	1.7	22	--
04...	1351	30.0	277	6.5	27.0	--	.0	0	--
04...	1353	40.0	309	6.5	23.0	--	.0	0	--
04...	1355	51.0	350	6.5	22.0	--	.0	0	110



## BRAZOS RIVER BASIN

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## LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

311941096191401 LAKE LIMESTONE SITE AC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAR									
16...	2	23	4.4	14	.7	5.3	74	6.0	19
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	2	24	4.6	15	.8	5.0	77	6.0	21
MAY									
06...	13	25	4.4	16	.8	4.7	68	13	25
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	8	26	4.5	16	.8	4.9	75	14	23
AUG									
04...	9	27	5.3	19	.9	5.2	80	15	27
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	0	33	5.9	19	.8	5.2	130	11	24
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)
MAR									
16...	.2	.0	116	.16	.79	.95	.000	<3	12
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	.16	.70	.86	.030	60	50
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	.9	123	.14	1.10	1.2	.000	<3	680
MAY									
06...	.2	.7	139	.19	1.00	1.2	.030	<9	25
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	.26	1.70	2.0	.030	10	130
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	1.8	136	.35	1.80	2.1	.040	<9	780
AUG									
04...	.2	2.5	149	<.10	1.30	--	.040	6	37
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	<.10	1.10	--	.020	70	280
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	<.10	1.10	--	.300	240	2400
04...	--	--	--	--	--	--	--	--	--
04...	--	14	205	<.10	4.60	--	.870	6900	8300

BRAZOS RIVER BASIN  
LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

312458096205101 LAKE LIMESTONE SITE BC  
WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
MAR									
16...	1355	1.00	242	7.9	16.5	.70	9.9	103	76
16...	1357	10.0	242	7.8	16.0	--	9.5	98	--
16...	1359	20.0	245	7.7	15.5	--	9.2	94	--
16...	1401	25.0	245	7.7	15.5	--	8.9	91	76
MAY									
06...	1330	1.00	257	7.8	22.0	--	8.0	92	82
06...	1332	10.0	257	7.7	22.0	--	7.3	84	--
06...	1334	20.0	259	7.6	21.5	--	7.2	83	--
06...	1336	25.0	270	7.1	21.5	--	5.2	60	--
06...	1338	30.0	281	6.7	20.5	--	1.7	19	--
06...	1340	40.0	283	6.7	19.5	--	.6	7	91
AUG									
04...	1445	1.00	279	7.5	30.5	.90	7.5	100	92
04...	1447	10.0	279	7.1	30.0	--	5.2	68	--
04...	1449	20.0	279	7.1	30.0	--	5.2	68	--
04...	1451	30.0	279	7.1	29.5	--	5.1	67	--
04...	1453	40.0	351	6.6	25.5	--	.0	.0	92

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- LITY FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
MAR									
16...	2	23	4.4	15	.8	5.0	74	6.0	19
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	4	23	4.4	15	.8	5.0	72	5.0	20
MAY									
06...	8	25	4.8	16	.8	5.1	74	14	25
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	9	28	5.0	18	.9	4.9	82	14	27
AUG									
04...	10	28	5.3	20	1.0	5.2	82	16	29
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	0	28	5.3	21	1.0	5.4	130	11	27

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)
MAR								
16...	.0	116	.16	.74	.90	.000	10	2
16...	--	--	.16	.78	.94	.030	30	10
16...	--	--	--	--	--	--	--	--
16...	.1	116	.18	.84	1.0	.000	13	5
MAY								
06...	.7	135	<.10	1.40	--	.050	<9	7
06...	--	--	--	--	--	--	--	--
06...	--	--	<.10	1.30	--	.050	40	50
06...	--	--	--	--	--	--	--	--
06...	--	--	<.10	1.70	--	.050	70	320
06...	2.5	149	<.10	1.50	--	.080	13	510
AUG								
04...	2.8	156	<.10	1.70	--	.060	5	17
04...	--	--	<.10	1.50	--	.030	40	40
04...	--	--	--	--	--	--	--	--
04...	--	--	<.10	1.50	--	.040	60	60
04...	3.1	180	<.10	4.10	--	.870	58	450

## BRAZOS RIVER BASIN

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## LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

## 312625096205901 LAKE LIMESTONE SITE CC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
16...	1420	1.00	270	7.9	18.0	9.8	105
16...	1422	10.0	264	7.7	17.5	8.9	95
16...	1424	19.0	276	7.3	16.5	5.3	55
MAY							
06...	1411	1.00	280	8.2	24.0	6.7	81
06...	1414	10.0	280	8.0	23.0	5.7	67
06...	1416	19.0	320	6.9	21.5	.9	10
AUG							
04...	1530	1.00	286	7.8	31.0	8.3	111
04...	1532	10.0	286	7.2	30.0	5.4	71
04...	1534	19.0	286	7.1	30.0	4.7	62

## 312622096224201 LAKE LIMESTONE SITE DC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)
MAR							
16...	1440	1.00	259	7.9	18.5	9.5	103
16...	1442	10.0	265	7.7	18.0	9.0	97
16...	1444	15.0	288	7.4	16.5	7.2	75
16...	1446	23.0	410	7.3	14.0	3.0	30
MAY							
06...	1440	1.00	305	--	23.5	7.0	83
06...	1442	10.0	305	--	23.0	6.1	72
06...	1444	20.0	332	--	21.5	2.7	31
06...	1446	26.0	437	--	20.0	.7	8
AUG							
04...	1550	1.00	301	7.8	31.0	8.1	108
04...	1552	10.0	305	7.4	30.5	7.1	95
04...	1554	20.0	312	7.2	30.5	4.5	60

## 312726096240001 LAKE LIMESTONE SITE EC

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (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)
MAR									
16...	1500	1.00	290	7.9	20.0	--	9.7	109	89
16...	1502	10.0	284	7.3	17.5	--	6.5	69	--
16...	1504	19.0	458	7.3	14.0	--	1.0	10	140
MAY									
06...	1500	1.00	316	8.0	24.5	.50	8.5	102	110
06...	1503	10.0	300	--	23.0	--	4.5	53	--
06...	1505	15.0	400	--	20.5	--	.3	3	--
06...	1506	19.0	494	7.3	19.0	--	.4	4	150
AUG									
04...	1600	1.00	323	7.8	32.5	.70	9.6	132	100
04...	1602	10.0	323	6.8	30.5	--	2.9	39	--
04...	1604	15.0	487	6.4	30.0	--	.0	0	--
04...	1608	20.0	710	6.2	28.5	--	.0	0	190

## BRAZOS RIVER BASIN

## LAKE LIMESTONE NEAR MARQUEZ, TX--Continued

312726096240001 LAKE LIMESTONE SITE EC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
MAR									
16...	13	28	4.6	19	.9	5.3	76	15	28
16...	--	--	--	--	--	--	--	--	--
16...	25	43	6.7	33	1.3	5.0	110	39	50
MAY									
06...	21	34	5.0	23	1.0	4.9	85	21	35
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	34	50	7.0	41	1.5	4.8	120	35	61
AUG									
04...	7	32	5.4	25	1.1	5.5	95	18	36
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	23	59	11	64	2.1	5.1	170	42	96

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
MAR								
16...	1.9	148	.18	.83	1.0	.000	13	5
16...	--	--	.22	.95	1.2	.060	<10	60
16...	5.5	249	<.10	1.50	--	.000	8	340
MAY								
06...	2.1	176	<.10	1.30	--	.070	9	29
06...	--	--	--	--	--	--	--	--
06...	--	--	<.10	2.00	--	.150	320	1100
06...	7.5	281	<.10	2.10	--	.300	1300	1400
AUG								
04...	3.6	183	<.10	1.80	--	.070	5	22
04...	--	--	<.10	1.80	--	.050	420	290
04...	--	--	<.10	2.40	--	.040	1000	1700
04...	12	400	<.10	4.00	--	.930	5900	2500

## 08110500 NAVASOTA RIVER NEAR EASTERLY, TX

LOCATION.--Lat 31°10'12", long 96°17'51", Leon-Robertson County line, hydrologic Unit 12070103, at left downstream end of bridge on U.S. Highway 79, 1.0 mi (1.6 km) upstream from Missouri Pacific Railroad Co. bridge, 7 mi (11 km) northeast of Easterly, and 105.7 mi (170.1 km) upstream from mouth.

DRAINAGE AREA.--968 mi<sup>2</sup> (2,507 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1924 to current year.

REVISED RECORDS.--WSP 898: 1924, 1926-27, 1928(M), 1929-30, 1931(M). WSP 1512: 1932(M), 1936. WDR TX-76-2: Drainage area. WDR TX-78-2: 1974(M), 1977.

GAGE.--water-stage recorder. Datum of gage is 271.46 ft (82.741 m) National Geodetic Vertical Datum of 1929. Prior to June 11, 1932, nonrecording gage at railroad bridge 1.0 mi (1.6 km) downstream at 19.86-foot (6.053 m) higher datum. June 11, 1932, to Sept. 30, 1978, water-stage recorder 46 ft (14 m) upstream at 5.00-foot (1.524 m) higher datum.

REMARKS.--water-discharge records fair. Flow is largely regulated by Lakes Mexia and Limestone (stations 08110300 and 08110470). Numerous diversions above station for irrigation, municipal supply, and oilfield operation. Gage-height telemeter at station.

AVERAGE DISCHARGE.--36 years (water years 1925-60) unregulated, 406 ft<sup>3</sup>/s (11.50 m<sup>3</sup>/s), 5.70 in/yr (145 mm/yr), 294,100 acre-ft/yr (363 hm<sup>3</sup>/yr); 22 years (water years 1961-82) regulated, 445 ft<sup>3</sup>/s (12.60 m<sup>3</sup>/s), 332,400 acre-ft/yr (398 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,300 ft<sup>3</sup>/s (1,710 m<sup>3</sup>/s) May 2, 1944, gage height, 27.13 ft (8.269 m) no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1845, 29 ft (8.8 m) June 1899, from information by local residents, discharge, 90,000 ft<sup>3</sup>/s (2,550 m<sup>3</sup>/s), from rating curve extended above 60,000 ft<sup>3</sup>/s (1,700 m<sup>3</sup>/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,600 ft<sup>3</sup>/s (385 m<sup>3</sup>/s) Oct. 15 at 2400 hours, gage height, 22.25 ft (6.782 m); minimum daily, 0.24 ft<sup>3</sup>/s (0.007 m<sup>3</sup>/s) Aug. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	33	17	15	28	36	748	42	25	5.6	1.9	1.4
2	.30	35	17	15	29	26	745	36	25	4.0	1.1	1.4
3	.30	33	19	16	33	20	489	33	23	3.6	.77	1.3
4	.30	25	18	15	29	17	418	29	20	6.7	.65	1.2
5	.30	19	17	14	25	14	417	26	17	4.0	.59	1.4
6	.30	16	18	15	23	16	382	25	16	3.0	.44	1.2
7	.30	14	18	15	27	25	103	24	15	2.5	.33	1.1
8	.30	24	17	22	20	19	35	22	15	2.4	.27	1.0
9	.72	43	16	17	19	15	22	20	14	2.6	.24	1.0
10	1.5	36	17	11	20	13	61	19	14	4.9	2.6	1.1
11	19	56	19	17	20	13	30	19	11	3.2	.80	1.2
12	100	39	19	22	18	13	24	23	10	2.6	171	1.4
13	53	29	18	14	17	12	22	246	13	12	130	1.9
14	537	23	17	17	20	11	23	1830	11	12	22	2.6
15	7070	20	17	19	18	11	24	4390	8.3	73	7.5	3.9
16	11400	19	18	20	18	11	22	4270	8.9	46	4.6	3.5
17	6730	17	17	27	17	11	20	3730	8.0	18	3.3	4.0
18	2820	16	23	26	17	13	20	2040	6.5	9.4	2.7	4.0
19	382	16	21	21	17	19	19	660	5.7	4.9	2.6	5.2
20	81	19	16	20	17	19	72	886	5.4	3.0	2.3	4.6
21	51	19	17	28	16	19	73	599	5.8	54	2.1	1.8
22	33	13	17	28	16	36	259	142	6.3	103	1.9	1.5
23	25	13	16	30	15	687	435	84	5.2	103	1.9	1.6
24	23	14	21	25	15	1380	708	66	7.4	104	1.6	1.6
25	18	14	16	20	21	1770	1160	56	7.7	102	1.4	1.8
26	15	14	16	22	44	1070	878	46	8.0	100	1.4	1.8
27	14	14	16	21	59	218	656	44	5.0	99	1.3	1.8
28	11	14	17	18	52	330	376	37	4.1	99	1.3	2.1
29	9.9	14	15	17	---	774	152	34	4.7	59	1.3	2.2
30	9.7	16	15	22	---	819	54	30	4.4	11	1.3	2.1
31	30	---	15	22	---	768	---	27	---	5.4	1.3	---
TOTAL	29436.22	677	540	611	670	8205	8447	19535	330.4	1062.8	451.69	62.7
MEAN	950	22.6	17.4	19.7	23.9	265	282	630	11.0	34.3	14.6	2.09
MAX	11400	56	23	30	59	1770	1160	4390	25	104	171	5.2
MIN	.30	13	15	11	15	11	19	19	4.1	2.4	.24	1.0
AC-FT	58390	1340	1070	1210	1330	16270	16750	38750	655	2110	896	124

CAL YR 1981 TOTAL 101391.63 MEAN 278 MAX 11400 MIN .28 AC-FT 201100  
WTR YR 1982 TOTAL 70028.81 MEAN 192 MAX 11400 MIN .24 AC-FT 138900

## BRAZOS RIVER BASIN

08110500 NAVASOTA RIVER NEAR EASTERLY, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1968 to current year. Sediment records: October 1968 to September 1973.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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...	1945	134	260	22.0	82	19	24	5.4	19
DEC 02...	1345	17	448	11.0	120	52	32	9.1	44
FEB 17...	1100	17	572	12.5	140	83	38	12	54
MAR 30...	1225	823	299	15.5	90	10	26	6.1	22
MAY 11...	0920	19	541	23.0	140	72	39	11	50
JUN 22...	1210	7.0	646	27.5	150	76	41	12	66
SEP 30...	0950	1.9	629	24.0	130	61	34	11	74

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 19...	1.0	6.1	63	12	32	.2	12	149
DEC 02...	1.9	4.9	65	57	65	.2	13	264
FEB 17...	2.1	4.1	61	84	93	.1	9.5	331
MAR 30...	1.1	5.4	80	19	40	.3	2.4	169
MAY 11...	1.9	5.2	71	60	83	.2	11	302
JUN 22...	2.5	4.3	76	81	100	.2	13	364
SEP 30...	3.0	3.9	69	85	94	.2	13	357



## BRAZOS RIVER BASIN

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08111000 NAVASOTA RIVER NEAR BRYAN, TX

LOCATION.--Lat 30°52'10", long 96°11'32", Brazos-Madison County line, Hydrologic Unit 12070103, on right bank at upstream side of bridge on U.S. Highway 190, 2.5 mi (4.9 km) upstream from Shepard Creek, 17 mi (27 km) northeast of Bryan, and 68.4 mi (110.1 km) upstream from mouth.

DRAINAGE AREA.--1,454 mi<sup>2</sup> (3,766 km<sup>2</sup>).

PERIOD OF RECORD.--January 1951 to current year.

Water-quality records: chemical and biochemical analysis: October 1958 to September 1981.. Sediment records: October 1973 to September 1981.

REVISED RECORDS.--WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 224.64 ft (68.470 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Flow is largely regulated by Lakes Mexia and Limestone (stations 08110300 and 08110470). There are numerous diversions above station for irrigation, municipal, and oilfield operation.

AVERAGE DISCHARGE.--9 years (water years 1952-60) unregulated, 437 ft<sup>3</sup>/s (12.38 m<sup>3</sup>/s), 316,600 acre-ft/yr (390 hm<sup>3</sup>/yr); 22 years (water years 1961-82) regulated, 593 ft<sup>3</sup>/s (16.79 m<sup>3</sup>/s), 429,600 acre-ft/yr (530 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,200 ft<sup>3</sup>/s (1,080 m<sup>3</sup>/s) Apr. 29, 1966, gage height, 16.57 ft (5.951 m); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since about 1840, 19.5 ft (5.94 m) in June 1899, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,000 ft<sup>3</sup>/s (312 m<sup>3</sup>/s) Oct. 18 at 1600 hours, gage height, 14.17 ft (4.319 m); minimum daily, 4.1 ft<sup>3</sup>/s (0.12 m<sup>3</sup>/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	443	51	42	70	150	790	217	55	21	40	6.2
2	20	282	57	46	77	128	751	143	48	20	24	6.0
3	20	191	59	49	111	107	710	114	43	18	17	6.3
4	19	151	57	51	115	93	641	100	40	17	13	6.6
5	18	126	53	53	108	83	453	89	38	15	11	6.1
6	21	106	50	52	94	77	362	94	35	14	10	5.7
7	104	92	49	49	86	74	338	439	33	14	9.6	5.8
8	213	114	56	47	81	86	268	242	31	13	9.3	6.3
9	209	406	58	45	78	93	145	152	29	13	9.5	6.3
10	330	243	55	43	75	88	125	107	28	12	9.6	6.0
11	202	187	54	42	70	78	132	86	27	11	9.7	4.7
12	151	147	54	43	66	72	134	74	26	11	10	4.6
13	127	129	54	42	63	71	113	1500	37	17	20	4.3
14	637	114	54	57	59	72	96	4960	47	30	102	4.3
15	2320	97	54	69	56	73	82	2770	36	48	103	4.4
16	2560	90	52	77	56	73	72	2080	32	39	49	4.3
17	2700	81	51	85	57	72	116	2370	30	42	24	4.6
18	9530	74	51	81	57	70	121	3520	28	57	19	5.4
19	8250	68	49	75	54	68	82	4290	27	36	17	6.0
20	5890	65	46	77	52	65	289	3720	24	25	11	6.0
21	3670	60	48	76	50	66	1480	2360	22	19	9.5	6.8
22	1750	55	49	74	49	66	1290	1440	22	15	8.7	6.8
23	687	54	48	79	48	67	1570	886	24	16	8.1	6.8
24	316	54	50	92	45	157	1240	472	25	64	7.7	6.7
25	199	53	49	96	44	616	1440	247	29	85	7.3	6.2
26	151	52	45	85	54	973	1380	151	30	86	7.2	5.4
27	121	52	44	74	120	1290	1380	115	30	87	6.9	4.9
28	99	52	43	66	160	1440	1320	96	28	86	6.6	4.4
29	82	51	42	63	---	936	937	84	26	85	6.6	4.1
30	73	49	42	60	---	670	477	73	23	84	6.5	4.1
31	141	---	42	61	---	762	---	63	---	71	6.4	---
TOTAL	40631	3738	1566	1951	2055	8736	18334	33054	953	1171	599.2	166.1
MEAN	1311	125	50.5	62.9	73.4	282	611	1066	31.8	37.8	19.3	5.54
MAX	9530	443	59	96	160	1440	1570	4960	55	87	103	6.8
MIN	18	49	42	42	44	65	72	63	22	11	6.4	4.1
AC-FT	80590	7410	3110	3870	4080	17330	36370	65560	1890	2320	1190	329
CAL YR 1981	TOTAL	152803.1	MEAN	419	MAX	9530	MIN	8.0	AC-FT	303100		
WTR YR 1982	TOTAL	112954.3	MEAN	309	MAX	9530	MIN	4.1	AC-FT	224000		

## BRAZOS RIVER BASIN

08111010 NAVASOTA RIVER NEAR COLLEGE STATION, TX

LOCATION.--Lat 30°36'26", long 96°10'53", Grimes County, Hydrologic Unit 12070103, on left bank at downstream side of bridge on State Highway 30, 0.5 mi (0.8 km) downstream from Wickson Creek, 9.8 mi (15.8 km) east of the post office in College Station, and 35.2 mi (56.6 km) upstream from mouth.

DRAINAGE AREA.--1,809 mi<sup>2</sup> (4,685 km<sup>2</sup>).

PERIOD OF RECORD.--May 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 178.00 ft (54.254 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since 1961, flow regulated to some extent by upstream reservoirs. Numerous diversions above station for irrigation, municipal, and oilfield operation. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years (water years 1978-82), 572 ft<sup>3</sup>/s (16.20 m<sup>3</sup>/s), 414,400 acre-ft/yr (511 hm<sup>3</sup>/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,400 ft<sup>3</sup>/s (748 m<sup>3</sup>/s) June 2, 1979, gage height, 22.13 ft (6.745 m); minimum daily, 0.07 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s) Aug. 31, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1896, 41 ft (12 m)  $\pm$  3 ft (1 m) in 1899. Flood of 1913 reached a stage of about 36 ft (11 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,700 ft<sup>3</sup>/s (331 m<sup>3</sup>/s) May 15 at 0700 hours, gage height, 19.74 ft (6.017 m); minimum daily, 1.9 ft<sup>3</sup>/s (0.054 m<sup>3</sup>/s) Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	1490	69	56	77	165	774	972	89	45	80	4.7
2	22	2360	67	54	90	189	726	529	80	32	68	4.5
3	20	1770	66	55	183	173	723	291	72	25	47	4.8
4	18	784	66	55	213	145	692	177	64	23	30	4.4
5	18	341	66	58	184	121	662	131	59	22	22	3.5
6	18	215	66	59	181	108	581	116	54	20	18	4.2
7	170	156	65	59	133	102	464	204	51	19	15	6.9
8	366	216	64	58	125	93	397	542	48	18	13	6.1
9	435	1360	63	56	114	89	351	534	44	18	12	4.8
10	326	1910	64	53	105	97	246	311	40	18	12	4.0
11	280	1590	65	50	101	102	163	175	37	18	12	3.7
12	286	756	65	51	97	98	152	122	35	16	11	3.3
13	207	361	64	54	90	90	153	728	34	41	11	2.9
14	405	242	63	54	85	86	143	6160	33	52	11	2.5
15	4550	189	63	57	82	85	120	11300	41	54	17	2.2
16	6440	153	63	64	78	85	102	7890	56	43	84	2.4
17	4500	130	62	75	75	85	88	5240	50	51	88	9.7
18	4040	117	61	86	72	86	93	3760	40	46	56	4.1
19	3910	108	60	95	73	87	195	2660	35	47	35	3.0
20	5740	96	59	92	73	83	145	2520	32	56	24	2.4
21	7330	89	59	89	72	78	120	3140	30	45	22	1.9
22	6210	84	58	124	69	74	177	3660	30	33	18	2.2
23	4910	79	57	122	66	74	576	3320	29	25	14	4.4
24	3580	74	58	105	66	85	2180	2390	27	20	11	6.5
25	1900	73	58	105	65	90	3190	1460	34	19	9.4	8.0
26	697	72	59	109	66	289	2680	676	38	55	8.5	8.2
27	304	69	59	110	71	559	2270	331	60	81	7.4	8.5
28	187	67	56	99	94	952	1860	196	49	84	6.8	7.8
29	139	67	54	90	---	1210	1570	142	202	84	6.5	6.8
30	115	69	54	84	---	1370	1340	117	87	83	6.0	5.6
31	273	---	56	80	---	1110	---	102	---	82	5.2	---
TOTAL	57421	15087	1909	2358	2800	8060	22933	59896	1580	1275	780.8	144.0
MEAN	1852	503	61.6	76.1	100	260	764	1932	52.7	41.1	25.2	4.80
MAX	7330	2360	69	124	213	1370	3190	11300	202	84	88	9.7
MIN	18	67	54	50	65	74	88	102	27	16	5.2	1.9
AC-FT	113900	29930	3790	4680	5550	15990	45490	118800	3130	2530	1550	286
CAL YR 1981	TOTAL	207693.3	MEAN	569	MAX	7700	MIN	7.2	AC-FT	412000		
WTR YR 1982	TOTAL	174243.8	MEAN	477	MAX	11300	MIN	1.9	AC-FT	345600		

## 08111500 BRAZOS RIVER NEAR HEMPSTEAD, TX

LOCATION (revised).--Lat 30°07'44", long 96°11'15", Washington-Waller County line, Hydrologic Unit 12070101, at downstream side of bridge on U.S. Highway 290, 6,000 ft (1,830 m) upstream from Texas and New Orleans Railroad Co. bridge, 6.5 mi (10.5 km) northwest of Hempstead, 10.5 mi (16.9 km) upstream from Caney Creek, and at mile 193.8 (311.8 km).

DRAINAGE AREA.--43,880 mi<sup>2</sup> (113,649 km<sup>2</sup>), approximately, of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

PERIOD OF RECORD.--October 1938 to current year. Gage-height records collected in this vicinity at intermittent periods since 1903 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1512: 1941. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 117.90 ft (35.936 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1940, nonrecording gage at railroad bridge 6,000 ft (1,830 m) downstream at datum 5.80 ft (1.768 m) lower. Nov. 1, 1940, to Sept. 30, 1963, nonrecording gage at site 1,500 ft (457 m) downstream at present datum. Oct. 1, 1964, to July 31, 1974, water-stage recorder 1,500 ft (457 m) downstream at present datum.

REMARKS.--Records good. There are many small diversions above station for irrigation, municipal and industrial uses, and oilfield operations. At times, flow is affected by reservoirs on the Brazos River above Waco and by reservoirs on the Lampasas and Little Rivers above Cameron. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08110200. Several observations of water temperature were made during the year. Gage-height telemeters at station.

AVERAGE DISCHARGE.--44 years, 6,627 ft<sup>3</sup>/s (187.7 m<sup>3</sup>/s), 4,801,000 acre-ft/yr (5.92 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 143,000 ft<sup>3</sup>/s (4,050 m<sup>3</sup>/s) May 2, 1957, gage height, 44.21 ft (13.475 m), at site 1,500 ft (457 m) downstream; minimum daily, 137 ft<sup>3</sup>/s (3.88 m<sup>3</sup>/s) Nov. 6, 1952.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1899, 56.1 ft (17.10 m) Dec. 8, 1913, at site 1,500 ft (457 m) downstream at present datum, from information by Texas and New Orleans Railroad Co., obtained at bridge 6,000 ft (1,830 m) downstream. Flood of July 4, 1899, reached a stage of 53.6 ft (16.34 m), at site 1,500 ft (457 m) downstream at present datum, from information by Texas and New Orleans Railroad Co.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,700 ft<sup>3</sup>/s (1,440 m<sup>3</sup>/s) Nov. 1 at 0700 hours, gage height, 27.02 ft (8.236 m); minimum daily, 758 ft<sup>3</sup>/s (21.5 m<sup>3</sup>/s) Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1160	47500	1800	1210	1460	1220	5360	8730	28600	22400	3050	1100
2	1180	33000	1880	1170	1440	2320	4580	9150	28100	22900	3150	1390
3	1150	21500	2190	1160	1950	2860	3960	7900	27700	22700	2700	1650
4	1220	15800	2410	1130	2330	2640	3300	5810	27600	22600	2200	1790
5	1220	20400	1920	1100	2280	2530	2960	3890	24700	22600	1760	1850
6	1170	25200	2340	1080	2090	2060	2690	3430	19000	22500	1520	1620
7	1500	25100	3340	1070	2030	1820	2480	4440	13700	22400	1390	1300
8	1960	20100	2440	1050	2160	1660	2370	5210	9620	21800	1560	953
9	2390	19600	2260	1150	2390	1590	2330	4780	8150	20900	1530	861
10	2650	14800	1930	1300	2870	1790	2670	4770	7730	18000	1510	848
11	3340	12800	1630	1300	2620	1890	2580	4320	7460	15400	1380	840
12	3120	11900	1490	1400	1980	1960	2060	3680	7170	12600	1260	831
13	2860	11300	1380	1700	1960	2400	1710	5040	6890	8990	1070	805
14	2600	10300	1320	2030	2200	2470	1490	21200	6660	7520	1080	786
15	10400	8910	1270	2760	1970	2090	1330	37200	6040	7640	1030	774
16	26400	7500	1600	2610	1770	1750	1230	39300	5880	7840	990	762
17	21800	6020	1690	2530	1750	1850	1260	33300	6280	7160	1150	767
18	23600	4850	1440	2530	1660	1670	1080	29500	6320	7190	1260	758
19	29800	4330	2220	1910	1400	1530	936	30100	6430	7050	1800	847
20	29600	4000	2680	2150	1260	1280	1110	28700	6140	7090	1910	869
21	26900	4030	2670	3050	1220	1150	4530	24700	6060	6670	1470	881
22	28100	4690	2900	2770	1140	1110	10200	27700	5870	5650	1030	1050
23	30600	4930	2480	2170	1120	1110	12500	29500	5280	5360	853	1210
24	30800	5070	2260	1760	1350	1630	11300	26000	11200	5240	867	1130
25	29100	4480	2130	2210	1410	3780	13300	22800	17200	4620	795	867
26	29500	3680	1900	2540	1300	5670	12800	23500	18700	3630	1300	835
27	29000	2810	1650	3090	1220	6920	12300	27000	19200	3400	2450	856
28	27700	2560	1550	3160	1120	7900	10400	29900	20500	3260	1740	915
29	26600	2310	1390	2690	---	6070	8200	30500	21800	3120	1090	986
30	25700	2080	1290	2100	---	5610	8290	30400	21700	3000	877	983
31	32300	---	1240	1720	---	6370	---	29500	---	3000	863	---
TOTAL	485420	361550	60690	59600	49450	86700	151306	591950	407680	354230	46635	31114
MEAN	15660	12050	1958	1923	1766	2797	5044	19100	13590	11430	1504	1037
MAX	32300	47500	3340	3160	2870	7900	13300	39300	28600	22900	3150	1850
MIN	1150	2080	1240	1050	1120	1110	936	3430	5280	3000	795	758
AC-FT	962800	717100	120400	118200	98080	172000	300100	1174000	808600	702600	92500	61710
CAL YR 1981	TOTAL	2480217	MEAN	6795	MAX	58600	MIN	739	AC-FT	4920000		
WTR YR 1982	TOTAL	2686325	MEAN	7360	MAX	47500	MIN	758	AC-FT	5328000		

## BRAZOS RIVER BASIN

08111700 MILL CREEK NEAR BELLVILLE, TX

LOCATION.--Lat 29°52'51", long 96°12'18", Austin County, Hydrologic Unit 12070104, on left bank at upstream side of abandoned bridge pier about 5 ft (2 m) downstream from State Highway 36, 5.0 mi (8.0 km) southeast of Bellville, 6.0 mi (9.7 km) upstream from Brazos River, and 9.0 mi (14.5 km) upstream from mouth.

DRAINAGE AREA.--376 mi<sup>2</sup> (974 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 2122: 1965(P). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 122.82 ft (37.436 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair except those for period of no gage-height record, which are poor. During the year, the city of Bellville discharged about 383 acre-ft (472,000 m<sup>3</sup>) of sewage effluent into a tributary of Mill Creek above gage.

AVERAGE DISCHARGE.--19 years, 245 ft<sup>3</sup>/s (6.938 m<sup>3</sup>/s), 8.85 in/yr (225 mm/yr), 177,500 acre-ft/yr (219 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,400 ft<sup>3</sup>/s (1,260 m<sup>3</sup>/s) June 13, 1973, gage height, 17.95 ft (5.471 m); minimum daily, 0.08 ft<sup>3</sup>/s (0.002 m<sup>3</sup>/s) July 22, 23, 1971.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1899, 22.8 ft (6.95 m) in 1940, from information by local residents and the State Department of Highways and Public Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,500 ft<sup>3</sup>/s (156 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Nov. 1	1100	*36,600 1,040	17.24 5.255
May 14	1400	16,900 479	15.04 4.584

Minimum daily discharge estimated, 2.0 ft<sup>3</sup>/s (0.057 m<sup>3</sup>/s) Sept. 13-15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	24000	81	49	42	63	86	62	52	19	4.3	2.2
2	9.9	7640	64	48	45	55	68	63	47	18	4.0	2.1
3	9.9	1040	53	47	80	52	59	62	44	18	3.8	4.0
4	9.9	208	48	44	188	53	51	56	41	25	3.6	6.0
5	9.9	125	45	40	79	50	50	50	38	18	3.6	4.5
6	13	92	47	38	62	49	44	400	36	16	3.5	3.5
7	24	77	61	38	55	51	40	585	34	15	3.5	3.0
8	36	74	62	36	53	49	39	250	32	15	8.0	2.7
9	23	142	59	36	54	48	39	101	29	15	7.0	2.5
10	19	599	54	35	52	45	64	76	28	16	8.0	2.3
11	18	187	50	32	49	46	131	68	25	17	10	2.2
12	21	98	49	51	47	46	76	254	24	17	20	2.1
13	23	81	47	80	44	47	57	3990	22	19	15	2.0
14	25	72	47	79	43	46	49	14700	21	42	10	2.0
15	27	66	48	69	44	45	46	6840	23	39	8.0	2.0
16	20	62	47	60	45	46	43	1120	23	31	6.5	4.5
17	17	60	46	52	44	46	40	274	28	29	5.5	6.0
18	17	58	45	50	42	44	41	848	24	30	5.0	4.5
19	15	55	43	49	39	41	42	1120	22	32	4.5	3.5
20	14	51	45	50	49	39	39	292	21	25	4.2	3.2
21	13	47	46	50	82	37	216	145	20	20	3.8	2.9
22	14	46	47	50	83	34	545	129	21	15	3.5	2.7
23	17	47	44	49	60	39	939	160	23	16	3.3	2.6
24	16	47	41	46	51	70	689	157	22	14	3.1	2.6
25	15	47	39	43	50	147	282	253	21	12	2.9	2.5
26	15	47	38	41	110	72	175	182	20	9.0	2.8	2.5
27	14	46	38	39	128	65	115	106	20	7.0	2.7	2.4
28	14	44	40	39	81	79	87	82	20	6.0	2.6	2.3
29	14	62	40	40	---	106	74	72	20	5.5	2.5	2.3
30	14	109	39	43	---	90	66	63	19	5.0	2.4	2.2
31	630	---	44	45	---	127	---	57	---	4.6	2.3	---
TOTAL	1137.2	35329	1497	1468	1801	1827	4292	32617	820	570.1	169.9	89.8
MEAN	36.7	1178	48.3	47.4	64.3	58.9	143	1052	27.3	18.4	5.48	2.99
MAX	630	24000	81	80	188	147	939	14700	52	42	20	6.0
MIN	9.6	44	38	32	39	34	39	50	19	4.6	2.3	2.0
CFSM	.10	3.13	.13	.13	.17	.16	.38	2.80	.07	.05	.02	.008
IN.	.11	3.50	.15	.15	.18	.18	.42	3.23	.08	.06	.02	.01
AC-FT	2260	70080	2970	2910	3570	3620	8510	64700	1630	1130	337	178

CAL YR 1981 TOTAL 89431.3 MEAN 245 MAX 24000 MIN 6.5 CFSM .65 IN 8.85 AC-FT 177400  
WTR YR 1982 TOTAL 81618.0 MEAN 224 MAX 24000 MIN 2.0 CFSM .60 IN 8.07 AC-FT 161900

NOTE.--No gage-height record July 19 to Sept. 30.

## BRAZOS RIVER BASIN

08111700 MILL CREEK NEAR BELLVILLE, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1968 to current year. Sediment records: October 1966 to September 1975.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)
APR 12...	1710	69	625	20.0	230	24	87	4.1	40
AUG 04...	1300	3.8	543	31.0	150	10	53	4.4	29
SEP 22...	1400	2.7	424	27.0	130	21	45	4.4	30

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)
APR 12...	1.2	3.4	210	19	64	.3	18	362
AUG 04...	1.1	3.0	140	10	52	.2	24	260
SEP 22...	1.2	3.1	110	10	60	.2	25	244



## BRAZOS RIVER BASIN

08114000 BRAZOS RIVER AT RICHMOND, TX

LOCATION.--Lat 29°34'56", long 95°45'27", Fort Bend County, Hydrologic Unit 12070104, on right bank at downstream side of downstream bridge on U.S. Highway 59 in Richmond, 925 ft (282 m) downstream from Texas and New Orleans Railroad Co. bridge, and at mile 92.0 (148.0 km).

DRAINAGE AREA.--45,007 mi<sup>2</sup> (116,568 km<sup>2</sup>), approximately, of which 9,566 mi<sup>2</sup> (24,776 km<sup>2</sup>) probably is noncontributing.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1903 to June 1906 and October 1922 to current year. Published as "at Rosenberg" October 1922 to September 1931 and equivalent except for diversion by Richmond Irrigation Co.'s canal. June to November 1901 and June to September 1902 in U.S. Department of Agriculture, Office of Experiment Stations, Bulletin Nos. 119 and 133. Gage-height records collected in this vicinity since 1914 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1392: 1933. WSP 1632: 1958. WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 40.94 ft (12.479 m), corrected, National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1922, various types of nonrecording gages at railroad bridge 925 ft (282 m) upstream at different datums. Oct. 1, 1922, to Sept. 30, 1931, nonrecording chain gage at Rosenberg 7.6 mi (12.2 km) upstream at datum about 7 ft (2.1 m) higher; Oct. 1, 1931, to Sept. 30, 1975, water-stage recorder at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge records good. Considerable water diverted above station for irrigation and municipal supply. For statement regarding regulation by Soil Conservation Service floodwater-retarding structures, see station 08110200. Gage-height telemeters at station.

AVERAGE DISCHARGE.--20 years (water years 1904-5, 1923-40) unregulated, 7,209 ft<sup>3</sup>/s (204.2 m<sup>3</sup>/s), 5,223,000 acre-ft/yr (6.44 km<sup>3</sup>/yr); 42 years (water years 1941-82) regulated, 7,329 ft<sup>3</sup>/s (207.6 m<sup>3</sup>/s), 5,310,000 acre-ft/yr (6.55 km<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 123,000 ft<sup>3</sup>/s (3,480 m<sup>3</sup>/s) June 6, 1929, gage height, 43.6 ft (13.29 m), from floodmarks, present site and datum; minimum daily, 35 ft<sup>3</sup>/s (0.99 m<sup>3</sup>/s) Aug. 23, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, 51.2 ft (15.61 m) Dec. 10, 1913, present datum, from floodmarks on right bank 1,000 ft (305 m) upstream from gage. From information by Texas and New Orleans Railroad Co., stages of other floods at railroad bridge, present datum, are as follows: May 1884, 46.7 ft (14.23 m); June 13, 1885, 47.7 ft (14.54 m); July 1899, 48.6 ft (14.81 m); May 2, 1915, 46.3 ft (14.11 m); May 9, 1922, 43.9 ft (13.38 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 61,300 ft<sup>3</sup>/s (1,740 m<sup>3</sup>/s) Nov. 2 at 1400 hours, gage height, 28.80 ft (8.778 m); minimum daily, 688 ft<sup>3</sup>/s (19.5 m<sup>3</sup>/s) Sept. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1530	38600	4080	1440	2210	1610	6360	8360	28300	22500	3200	1030
2	1450	59000	3330	1390	1910	1380	6800	8850	27300	23100	3150	866
3	1290	45500	2800	1350	1670	1370	5790	8870	27000	23700	3180	993
4	1430	25700	2650	1290	1600	2350	5100	8350	26400	23500	3170	1350
5	1550	17800	2830	1260	2070	2990	4430	7190	25900	23400	2720	1530
6	1840	20000	2890	1220	2420	2930	3730	5320	23600	23400	2200	1660
7	1820	24800	2550	1190	2390	2780	3250	4800	19200	23300	1800	1860
8	1840	25200	2980	1240	2210	2410	2930	4960	15000	23200	1700	1700
9	1840	21400	3500	1200	2130	2120	2640	5350	11300	22800	1640	1450
10	2220	20200	2890	1180	2220	1970	2560	5240	9360	21900	1720	1190
11	2610	17100	2620	1220	2480	1890	2660	4840	8600	19400	1770	1020
12	3010	14400	2310	1420	2860	2030	2910	4660	8210	16700	1710	945
13	3590	13500	2010	1440	2670	2150	2800	5920	7890	14400	1590	882
14	3490	12900	1840	1530	2200	2300	2320	18500	7580	11200	1440	780
15	3250	12200	1730	2080	2000	2680	1920	36000	7400	8770	1270	781
16	7730	11000	1630	2200	2130	2760	1650	43600	7110	7970	1220	778
17	23200	9580	1560	2620	1980	2450	1520	42400	6510	8470	1180	751
18	21200	8100	1770	2590	1770	2140	1400	36600	6750	7860	1120	746
19	22400	6750	1870	2560	1710	2140	1360	31600	6950	7570	1170	715
20	27600	5780	1740	2500	1700	1990	1260	30900	7100	7520	1320	688
21	27900	5230	2250	2000	1520	1790	1250	28200	6950	7370	1840	751
22	26100	4910	2580	2140	1430	1580	1950	24300	6690	7300	2060	881
23	27100	5110	2680	2790	1420	1420	8500	26800	6650	6530	1730	824
24	29400	5690	2760	2650	1330	1430	13700	29200	6240	5710	1300	881
25	30000	5980	2450	2210	1330	1420	12700	25600	8920	5570	1080	1120
26	28700	5860	2190	1870	2110	1940	13100	22400	17600	5280	1030	1250
27	28900	5100	2070	2140	2240	3880	13200	22700	20100	4420	978	1030
28	28500	4290	1900	2500	1940	5970	12400	26000	20300	3720	1150	795
29	27300	3760	1660	2960	---	7720	11400	28700	21300	3530	2110	776
30	26100	4590	1530	3010	---	7570	9370	29400	22500	3380	1880	859
31	26000	---	1510	2620	---	6200	---	29200	---	3250	1350	---
TOTAL	440890	460030	73160	59810	55650	85360	160960	614810	424710	396720	54778	30882
MEAN	14220	15330	2360	1929	1988	2754	5365	19830	14160	12800	1767	1029
MAX	30000	59000	4080	3010	2860	7720	13700	43600	28300	23700	3200	1860
MIN	1290	3760	1510	1180	1330	1370	1250	4660	6240	3250	978	688
AC-FT	874500	912500	145100	118600	110400	169300	319300	1219000	842400	786900	108700	61250
CAL YR 1981	TOTAL	2725268	MEAN	7466	MAX	62800	MIN	646	AC-FT	5406000		
WTR YR 1982	TOTAL	2857760	MEAN	7829	MAX	59000	MIN	688	AC-FT	5668000		



## 08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1945 to current year. Chemical and biochemical analyses: January 1968 to current year. Pesticide analyses: February 1968 to September 1982 (discontinued).

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1945 to current year.

WATER TEMPERATURES: November 1950 to current year.

SUSPENDED-SEDIMENT DISCHARGE: January 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, 2,600 micromhos Sept. 4, 1978; minimum daily, 187 micromhos Aug. 31, 1947.

WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 5, 1951; minimum daily, 1.0°C Jan. 8, 1970.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 13,500 mg/L Apr. 4, 1979; minimum daily mean, 8 mg/L Nov. 29, 1967, Sept. 20, and Oct. 6, 7, 1980.

SEDIMENT LOADS: Maximum daily, 1,860,000 tons Apr. 4, 1979; minimum daily, 10 tons Oct. 15, 1980.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,520 micromhos Oct. 24; minimum daily, 204 micromhos May 16.

WATER TEMPERATURES: Maximum daily, 30.0°C on many days during July, August, and September; minimum daily, 4.0°C Jan. 14, 17.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,780 mg/L Oct. 17; minimum daily mean, 12 mg/L Jan. 9.

SEDIMENT LOADS: Maximum daily, 471,000 tons May 16; minimum daily, 39 tons Jan. 9.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (FTU)	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										
17...	0615	22700	--	--	25.0	--	--	--	--	--
NOV										
01...	0600	47400	--	--	7.0	--	--	--	--	--
02...	0830	59700	--	--	12.0	--	--	--	--	--
12...	0440	14700	--	--	17.0	--	--	--	--	--
17...	1310	9540	1000	8.3	17.5	160	9.6	100	1.7	170
DEC										
28...	1100	1920	1380	8.5	14.0	4.2	11.5	111	2.3	80
FEB										
07...	0950	2410	--	--	--	--	--	--	--	--
MAR										
22...	1405	1600	1230	8.3	16.5	8.0	9.2	106	4.5	210
MAY										
04...	1310	8400	510	7.6	24.0	190	9.0	107	1.7	150
07...	1030	4830	--	--	--	--	--	--	--	--
16...	0745	43400	--	--	22.0	--	--	--	--	--
JUN										
14...	1230	7620	--	--	--	--	--	--	--	--
17...	1140	5940	--	--	--	--	--	--	--	--
JUL										
29...	1050	3560	1020	8.3	31.0	200	7.0	94	1.6	190
SEP										
07...	1415	1420	1140	8.2	28.5	37	8.9	115	1.7	130

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- LITY FIELD (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)
OCT										
17...	--	--	--	--	--	--	--	--	--	--
NOV										
01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
17...	2900	220	110	65	14	110	3.4	5.2	92	120
DEC										
28...	220	300	150	90	19	170	4.5	5.0	150	160
FEB										
07...	--	--	--	--	--	--	--	--	--	--
MAR										
22...	350	270	140	75	20	150	4.2	5.3	130	140
MAY										
04...	3300	160	50	51	7.9	36	1.3	5.1	110	53
07...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
JUN										
14...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
JUL										
29...	700	260	130	76	16	120	3.4	5.5	130	120
SEP										
07...	650	280	120	80	20	130	3.6	5.1	160	130

## BRAZOS RIVER BASIN

08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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 17...	--	--	--	--	--	--	--	--	--	--
NOV 01...	--	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--
17...	190	.2	8.6	569	568	.31	.030	.34	.33	.100
DEC 28...	270	.3	6.9	812	811	--	--	--	.27	--
FEB 07...	--	--	--	--	--	--	--	--	--	--
MAR 22...	240	.3	1.5	725	710	--	--	<.10	<.10	.080
MAY 04...	51	.4	9.4	301	280	--	--	--	1.2	--
07...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
JUN 14...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
JUL 29...	190	.3	8.0	645	614	--	--	<.10	<.10	.090
SEP 07...	200	.3	40	755	701	--	--	<.10	<.10	.080

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 17...	--	--	--	--	--	--	6330	388000	85
NOV 01...	--	--	--	--	--	--	4440	568000	72
02...	--	--	--	--	--	--	1990	321000	78
12...	--	--	--	--	--	--	1220	48400	95
17...	.070	.73	.83	.070	.110	.120	91	2340	91
DEC 28...	<.070	--	.79	.080	.070	.070	19	98	97
FEB 07...	--	--	--	--	--	--	23	150	93
MAR 22...	<.060	7.2	7.30	.050	<.010	.020	40	173	92
MAY 04...	.180	--	1.30	.380	.070	.080	549	12500	87
07...	--	--	--	--	--	--	333	4340	95
16...	--	--	--	--	--	--	4050	475000	83
JUN 14...	--	--	--	--	--	--	384	7900	94
17...	--	--	--	--	--	--	339	5440	96
JUL 29...	.080	1.7	1.80	.240	.050	.030	356	3420	98
SEP 07...	.060	1.1	1.20	.070	.050	.030	20	77	95

BRAZOS RIVER BASIN

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08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDED TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDED RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDED RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
NOV 17...	1310	4	2	2	200	90	110	3	0	4
MAR 22...	1405	2	0	2	<100	--	150	1	--	<1
JUL 29...	1050	3	1	2	200	70	130	<1	--	<1
SEP 07...	1415	3	0	3	200	40	160	<1	--	1

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDED RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDED RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)
NOV 17...	10	<10	3	<3	12	9	3	6100	6100	27
MAR 22...	10	<10	1	<1	8	1	7	390	390	5
JUL 29...	10	<10	3	<1	14	9	5	6800	6800	17
SEP 07...	<10	<10	<1	<1	5	0	5	1000	990	7

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDED RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDED RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDED RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)
NOV 17...	44	43	1	210	210	2	.1	.0	.1	7
MAR 22...	45	40	5	110	110	3	.2	--	<.1	2
JUL 29...	7	2	5	240	240	3	.2	--	<.1	6
SEP 07...	2	0	3	80	80	2	.1	.0	.3	8

DATE	NICKEL, SUS- PENDED RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDED RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 17...	6	1	<1	<1	<1	<1	20	10	7
MAR 22...	0	7	<1	<1	<1	<1	90	60	30
JUL 29...	5	1	<1	<1	<1	<1	50	10	39
SEP 07...	6	2	1	<1	<1	<1	30	20	15

## BRAZOS RIVER BASIN

08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

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)	DI- AZINON, TOTAL (UG/L)
NOV 17...	1310	0	.0	.0	.0	.0	.3	.0	--
MAY 04...	1310	--	--	--	--	--	--	--	<.01

DATE	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	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)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOTAL (UG/L)
NOV 17...	.0	.0	--	.0	.0	.0	--	.0	--
MAY 04...	--	--	<.01	--	--	--	<.01	--	<.01

DATE	METHYL TRI- THION, TOTAL (UG/L)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL (UG/L)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
NOV 17...	--	.0	--	.0	--	--	--	--	--
MAY 04...	<.01	--	<.01	--	<.01	.07	<.01	<.01	<.01

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	TEMPER- ATURE (DEG C)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM	SED. SUSP. FALL DIAM. % FINER THAN .004 MM
OCT 17...	0615	22700	25.0	6330	388000	48	53
NOV 01...	0600	47400	7.0	4440	568000	34	36
02...	0830	59700	12.0	1990	321000	47	45
12...	0440	14700	17.0	1220	48400	54	54
17...	1310	9540	17.5	91	2340	--	--
DEC 28...	1100	1920	14.0	19	98	--	--
FEB 07...	0950	2410	--	23	150	--	--
MAR 22...	1405	1600	16.5	40	173	--	--
MAY 04...	1310	8400	24.0	549	12500	--	--
07...	1030	4830	--	333	4340	--	--
16...	0745	43400	22.0	4050	475000	49	55
JUN 14...	1230	7620	--	384	7900	--	--
17...	1140	5940	--	339	5440	--	--
JUL 29...	1050	3560	31.0	356	3420	--	--
SEP 07...	1415	1420	28.5	20	77	--	--

## BRAZOS RIVER BASIN

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08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. FALL DIAM. % FINER THAN .062 MM	SED. SUSP. FALL DIAM. % FINER THAN .125 MM	SED. SUSP. FALL DIAM. % FINER THAN .250 MM	SED. SUSP. FALL DIAM. % FINER THAN .500 MM
OCT 17...	62	70	77	85	98	98	100
NOV 01...	41	48	59	72	92	99	100
02...	53	68	66	78	93	99	100
12...	60	62	71	95	97	99	100
17...	--	--	--	91	--	--	--
DEC 28...	--	--	--	97	--	--	--
FEB 07...	--	--	--	93	--	--	--
MAR 22...	--	--	--	92	--	--	--
MAY 04...	--	--	--	87	--	--	--
07...	--	--	--	95	--	--	--
16...	59	67	76	83	94	99	100
JUN 14...	--	--	--	94	--	--	--
17...	--	--	--	96	--	--	--
JUL 29...	--	--	--	98	--	--	--
SEP 07...	--	--	--	95	--	--	--

MONTHLY AND ANNUAL MEANS AND LOADS FOR OCTOBER 1981 TO SEPTEMBER 1982

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.	1981	440890	1170	650	774000	210	246500	110	136500	260
NOV.	1981	460030	1050	586	728000	170	212700	100	127000	250
DEC.	1981	73160	1180	657	130000	200	39000	110	22700	270
JAN.	1982	59810	1120	621	100000	180	29400	110	17500	270
FEB.	1982	55650	1220	681	102000	210	31300	120	17900	280
MAR.	1982	85360	860	477	110000	130	30200	83	19100	220
APR.	1982	160960	442	244	106000	50	21700	41	17900	130
MAY	1982	614810	582	322	535000	79	131700	55	91600	160
JUNE	1982	424710	1120	621	712000	180	207600	110	124200	270
JULY	1982	396720	1120	623	668000	180	195000	110	116500	270
AUG.	1982	54778	1050	585	86500	170	24400	100	15000	260
SEPT	1982	30882	1050	584	48700	160	13700	100	8460	260
TOTAL		2857760	**	**	4100000	**	1183000	**	714000	**
WTD. AVG.		7829	956	531	**	150	**	93	**	230

## BRAZOS RIVER BASIN

08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
EQUIVALENT MEAN

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	671	1450	1120	1280	1340	1000	390	291	1140	1120	1030	1070
2	656	638	1140	1240	1330	915	350	284	1150	1090	1040	1060
3	652	741	1200	1220	1320	880	420	352	1160	1110	1060	1110
4	643	955	1230	1200	1310	911	440	348	1150	1140	1100	1090
5	729	933	1200	1130	1290	1100	500	505	1140	1200	1110	1070
6	731	881	1140	1100	1260	1120	530	484	1120	1190	1090	1060
7	770	1210	1180	1060	1230	1170	550	472	1100	1200	1070	1070
8	808	1360	1110	1050	1200	1100	585	377	1080	1190	1030	1030
9	1190	1500	1020	1000	1160	1110	620	445	1060	1180	1020	1140
10	1230	1460	1180	979	1120	1090	660	566	1040	1140	1030	1130
11	1120	1080	1260	1000	1060	1070	630	619	1010	1130	1020	1070
12	1160	986	1320	1110	1120	1060	575	686	983	1120	1010	1060
13	809	970	1280	1040	1150	1030	592	583	960	1110	1020	1070
14	565	955	1230	940	1230	1040	621	339	989	1100	1010	1050
15	1040	954	1220	934	1220	1050	664	251	1000	1090	1020	1040
16	900	988	1140	910	1280	1030	670	204	1010	1120	1030	1030
17	395	1010	1160	936	1260	1110	724	265	1030	1040	1060	1020
18	305	1030	1170	900	1300	1230	754	255	1030	1030	1050	1010
19	292	1050	1120	1090	1270	1260	734	280	1000	1020	1030	1000
20	704	1060	1080	1080	1260	1250	741	320	980	1030	1010	1030
21	1330	1070	1050	1220	1240	1230	767	529	1030	1000	1040	1000
22	1440	1140	1030	1230	1260	1240	673	520	1060	958	1050	968
23	1490	1290	1040	1120	1250	1260	546	510	1040	1050	1040	985
24	1520	1380	1100	1260	1280	1250	390	706	1050	1060	1070	991
25	1450	1390	1190	1190	1270	1290	326	961	1060	1060	1060	1010
26	1460	1230	1300	1210	1200	1050	343	994	1170	1050	1070	1030
27	1410	1180	1340	1250	1160	750	347	992	1150	1050	1110	1020
28	1400	1170	1390	1210	1100	410	400	1060	1230	1060	1070	1040
29	1370	1120	1380	1220	---	340	344	1090	1220	1060	1060	1030
30	1410	1010	1350	1110	---	390	360	1140	1250	1090	1080	1080
31	1440	---	1320	1270	---	430	---	1170	---	1070	1090	---
MEAN	1000	1110	1190	1110	1230	1010	542	568	1080	1090	1050	1050

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26.0	17.0	---	14.0	14.0	---	---	20.0	26.0	29.0	30.0	30.0
2	26.0	17.0	---	14.0	14.0	16.0	---	20.0	26.0	29.0	30.0	28.0
3	26.0	17.0	---	15.0	14.0	16.0	---	20.0	26.0	---	30.0	30.0
4	26.0	17.0	---	14.0	13.0	17.0	---	20.0	26.0	29.0	30.0	30.0
5	26.0	17.0	---	---	13.0	---	---	22.0	26.0	29.0	30.0	28.0
6	26.0	18.0	---	18.0	---	17.0	---	---	26.0	29.0	30.0	28.0
7	---	18.0	---	18.0	6.0	15.0	---	21.0	26.0	29.0	30.0	28.0
8	25.0	18.0	---	11.0	7.0	16.0	---	20.0	27.0	29.0	30.0	28.0
9	25.0	18.0	---	---	9.0	16.0	---	22.0	27.0	29.0	30.0	28.0
10	25.0	17.0	---	7.0	9.0	16.0	---	23.0	27.0	29.0	30.0	28.0
11	26.0	17.0	---	---	9.0	---	---	23.0	27.0	29.0	30.0	28.0
12	26.0	17.0	---	14.0	12.0	---	---	23.0	27.0	29.0	30.0	---
13	26.0	---	---	---	12.0	---	19.0	23.0	27.0	29.0	30.0	28.0
14	26.0	17.0	15.0	4.0	10.0	---	19.0	23.0	27.0	29.0	30.0	28.0
15	26.0	17.0	13.0	5.0	11.0	16.0	19.0	22.0	27.0	29.0	30.0	28.0
16	26.0	17.0	13.0	6.0	13.0	---	19.0	22.0	27.0	29.0	30.0	28.0
17	26.0	17.0	13.0	4.0	14.0	---	19.0	22.0	27.0	29.0	30.0	28.0
18	24.0	17.0	10.0	8.0	15.0	---	19.0	22.0	27.0	---	30.0	28.0
19	22.0	17.0	16.0	8.0	15.0	---	19.0	22.0	27.0	29.0	30.0	28.0
20	22.0	17.0	16.0	12.0	16.0	---	19.0	23.0	27.0	29.0	30.0	28.0
21	22.0	16.0	13.0	14.0	15.0	---	18.0	24.0	28.0	30.0	30.0	---
22	22.0	16.0	14.0	17.0	---	---	18.0	---	---	29.0	30.0	26.0
23	20.0	16.0	12.0	17.0	---	---	18.0	24.0	28.0	30.0	30.0	26.0
24	20.0	17.0	13.0	16.0	---	---	---	24.0	28.0	30.0	30.0	26.0
25	20.0	17.0	---	17.0	---	---	18.0	24.0	28.0	30.0	---	26.0
26	18.0	17.0	11.0	16.0	---	---	18.0	24.0	29.0	30.0	30.0	22.0
27	18.0	17.0	12.0	13.0	---	---	18.0	---	28.0	30.0	30.0	---
28	18.0	17.0	14.0	16.0	---	---	18.0	24.0	29.0	---	30.0	22.0
29	18.0	17.0	14.0	16.0	---	---	20.0	25.0	29.0	30.0	30.0	22.0
30	18.0	18.0	14.0	16.0	---	---	20.0	25.0	29.0	30.0	30.0	22.0
31	---	---	14.0	15.0	---	---	---	26.0	---	30.0	30.0	---
MEAN	23.5	17.0	13.5	13.0	12.0	16.0	18.5	22.5	27.0	29.5	30.0	27.0



08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	1530	35	145	38600	3730	407000	4080	180	1980
2	1450	30	117	59000	2680	418000	3330	157	1410
3	1290	45	157	45500	1720	212000	2800	142	1070
4	1430	80	309	25700	1570	109000	2650	130	930
5	1550	250	1050	17800	1220	58600	2830	127	970
6	1840	370	1840	20000	1360	73400	2890	122	952
7	1820	300	1470	24800	2050	137000	2550	125	861
8	1840	250	1240	25200	2070	141000	2980	115	925
9	1840	55	273	21400	1870	108000	3500	110	1040
10	2220	75	450	20200	1720	93800	2890	102	796
11	2610	150	1060	17100	1270	58600	2620	87	615
12	3010	220	1790	14400	760	29500	2310	80	499
13	3590	300	2910	13500	600	21900	2010	57	309
14	3490	250	2360	12900	670	23300	1840	46	229
15	3250	170	1490	12200	550	18100	1730	47	220
16	7730	2700	102000	11000	470	14000	1630	35	154
17	23200	5780	357000	9580	325	8410	1560	48	202
18	21200	3650	209000	8100	325	7110	1770	50	239
19	22400	2620	158000	6750	337	6140	1870	52	263
20	27600	2500	186000	5780	295	4600	1740	45	211
21	27900	2400	181000	5230	325	4590	2250	68	413
22	26100	1750	123000	4910	320	4240	2580	82	571
23	27100	2200	161000	5110	220	3040	2680	75	543
24	29400	2500	198000	5690	215	3300	2760	58	432
25	30000	2420	196000	5980	220	3550	2450	45	298
26	28700	2350	182000	5860	230	3640	2190	32	189
27	28900	2150	168000	5100	180	2480	2070	25	140
28	28500	2050	158000	4290	162	1880	1900	20	103
29	27300	2120	156000	3760	170	1730	1660	20	90
30	26100	1850	130000	4590	202	2500	1530	17	70
31	26000	1600	112000	---	---	---	1510	20	82
TOTAL	440890	---	2793661	460030	---	1980410	73160	---	16806

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	1440	20	78	2210	20	119	1610	41	178
2	1390	20	75	1910	22	113	1380	42	156
3	1350	22	80	1670	15	68	1370	40	148
4	1290	16	56	1600	15	65	2350	60	381
7	1190	15	48	2390	30	194	2780	65	488
8	1240	15	50	2210	15	90	2410	30	195
9	1200	12	39	2130	21	121	2120	37	212
10	1180	15	48	2220	30	180	1970	30	160
11	1220	32	105	2480	47	315	1890	27	138
12	1420	65	249	2860	47	363	2030	25	137
13	1440	67	260	2670	49	353	2150	30	174
14	1530	40	165	2200	40	238	2300	36	224
15	2080	35	197	2000	31	167	2680	38	275
16	2200	37	220	2130	27	155	2760	30	224
17	2620	57	403	1980	27	144	2450	36	238
18	2590	52	364	1770	15	72	2140	35	202
19	2560	37	256	1710	15	69	2140	45	260
20	2500	38	256	1700	20	92	1990	40	215
21	2000	30	162	1520	45	185	1790	35	169
22	2140	27	156	1430	40	154	1580	37	158
23	2790	41	309	1420	36	138	1420	20	77
24	2650	45	322	1330	42	151	1430	27	104
25	2210	42	251	1330	47	169	1420	35	134
26	1870	32	162	2110	75	427	1940	57	299
27	2140	30	173	2240	65	393	3880	116	1220
28	2500	32	216	1940	50	262	5970	177	2850
29	2960	57	456	---	---	---	7720	165	3440
30	3010	62	504	---	---	---	7570	120	2450
31	2620	42	297	---	---	---	6200	102	1710
TOTAL	59810	---	6057	55650	---	5138	85360	---	17711

## BRAZOS RIVER BASIN

08114000 BRAZOS RIVER AT RICHMOND, TX--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	6360	97	1670	8360	1270	28700	28300	2170	166000
2	6800	85	1560	8850	570	13600	27300	2100	155000
3	5790	90	1410	8870	560	13400	27000	1970	144000
4	5100	100	1380	8350	520	11700	26400	2000	143000
5	4430	127	1520	7190	450	8740	25900	1860	130000
6	3730	137	1380	5320	400	5750	23600	1750	112000
7	3250	115	1010	4800	350	4540	19200	1600	82900
8	2930	90	712	4960	430	5760	15000	1210	49000
9	2640	102	727	5350	340	4910	11300	900	27500
10	2560	120	829	5240	300	4240	9360	710	17900
11	2660	155	1110	4840	250	3270	8600	610	14200
12	2910	190	1490	4660	260	3270	8210	550	12200
13	2800	162	1220	5920	415	8610	7890	400	8520
14	2320	125	783	18500	2550	135000	7580	400	8190
15	1920	115	596	36000	3520	344000	7400	330	6590
16	1650	100	445	43600	4000	471000	7110	350	6720
17	1520	81	332	42400	3600	412000	6510	350	6150
18	1400	75	283	36600	2500	247000	6750	310	5650
19	1360	55	202	31600	2050	175000	6950	400	7510
20	1260	52	177	30900	1950	163000	7100	350	6710
21	1250	78	263	28200	1820	139000	6950	350	6570
22	1950	264	1600	24300	1820	119000	6690	350	6320
23	8500	1190	33400	26800	1720	124000	6650	400	7180
24	13700	2410	87900	29200	1870	147000	6240	370	6230
25	12700	1260	43200	25600	1700	118000	8920	699	19000
26	13100	1100	38900	22400	1550	93700	17600	2880	140000
27	13200	1150	41000	22700	1400	85800	20100	2630	143000
28	12400	1450	48500	26000	1600	112000	20300	2420	133000
29	11400	1160	35700	28700	2020	157000	21300	2550	147000
30	9370	1050	26600	29400	2200	175000	22500	2620	159000
31	---	---	---	29200	2100	166000	---	---	---
TOTAL	160960	---	375899	614810	---	3499990	424710	---	1877040
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	22500	2550	155000	3200	307	2650	1030	58	161
2	23100	2300	143000	3150	300	2550	866	45	105
3	23700	2320	148000	3180	260	2230	993	65	174
4	23500	2300	146000	3170	250	2140	1350	105	383
5	23400	2150	136000	2720	220	1620	1530	90	372
6	23400	2200	139000	2200	187	1110	1660	95	426
7	23300	2100	132000	1800	145	705	1860	95	477
8	23200	2000	125000	1700	140	643	1700	87	399
9	22800	2020	124000	1640	132	584	1450	70	274
10	21900	1970	116000	1720	117	543	1190	55	177
11	19400	1720	90100	1770	130	621	1020	44	121
12	16700	1550	69900	1710	157	725	945	40	102
13	14400	1150	44700	1590	140	601	882	30	71
14	11200	1000	30200	1440	115	447	780	35	74
15	8770	850	20100	1270	122	418	781	57	120
16	7970	800	17200	1220	115	379	778	67	141
17	8470	650	14900	1180	110	350	751	57	116
18	7860	550	11700	1120	87	263	746	55	111
19	7570	570	11700	1170	85	269	715	55	106
20	7520	520	10600	1320	106	378	688	52	97
21	7370	500	9950	1840	110	546	751	52	105
22	7300	450	8870	2060	117	651	881	52	124
23	6530	450	7930	1730	105	490	824	45	100
24	5710	450	6940	1300	85	298	881	42	100
25	5570	420	6320	1080	90	262	1120	50	151
26	5280	400	5700	1030	87	242	1250	58	196
27	4420	400	4770	978	67	177	1030	60	167
28	3720	400	4020	1150	80	248	795	47	101
29	3530	380	3620	2110	131	746	776	38	80
30	3380	350	3190	1880	115	584	859	48	111
31	3250	327	2870	1350	85	310	---	---	---
TOTAL	396720	---	1749280	54778	---	23780	30882	---	5242
YEAR	2857760		12351014						

## BRAZOS RIVER BASIN

08115000 BIG CREEK NEAR NEEDVILLE, TX

LOCATION.--Lat 29°28'35", long 95°48'45", Fort Bend County, Hydrologic Unit 12070104, near center of stream at downstream side of bridge on State Highway 36, 1.5 mi (2.4 km) downstream from Coon Creek, 5.5 mi (8.8 km) north of Needville, and 10.5 mi (16.9 km) upstream from Fairchild Creek, and 33.0 mi (53.1 km) upstream from mouth.

DRAINAGE AREA.--42.8 mi<sup>2</sup> (110.9 km<sup>2</sup>).

PERIOD OF RECORD.--May 1947 to June 1950, March 1952 to current year.

REVISED RECORDS.--WSP 1148: 1947. WSP 1712: 1957-58, 1959(M). WDR TX-76-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 59.39 ft (18.102 m) National Geodetic Vertical Datum of 1929. Prior to June 30, 1950, and May 29, 1959, to Mar. 29, 1960, nonrecording gage at 10.00 ft (3.048 m) higher datum. March 1952 to May 28, 1959, and Mar. 30, 1960, to Sept. 30, 1967, water-stage recorder at 10.00 ft (3.048 m) higher datum.

REMARKS.--Records good. Channel rectification was completed in April 1955. No diversion above station. Low flow supplemented by drainage from irrigated fields. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--32 years (water years 1948-49, 1953-82), 34.3 ft<sup>3</sup>/s (0.971 m<sup>3</sup>/s), 24,850 acre-ft/yr (30.6 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft<sup>3</sup>/s (295 m<sup>3</sup>/s) June 26, 1960, gage height, 23.81 ft (7.257 m); maximum gage height, 24.03 ft (7.324 m) Oct. 31, 1959; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1913, 24.4 ft (7.44 m) in August 1945 before channel rectification, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,200 ft<sup>3</sup>/s (34.0 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Oct. 5	2330	1,670 47.3	18.52 5.645	May 13	2400	*3,960 112	21.96 6.693
Oct. 8	0200	2,530 71.6	20.14 6.139	May 18	0200	*3,300 93.5	21.24 6.474
Oct. 31	1930	1,530 43.3	18.19 5.544				

Minimum daily discharge, 0.50 ft<sup>3</sup>/s (0.014 m<sup>3</sup>/s) Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.61	546	2.9	.99	2.4	13	1.4	1.4	3.0	5.6	6.0	1.0
2	.62	114	2.0	.80	1.6	6.6	1.3	1.3	2.8	4.1	3.3	1.0
3	.65	45	1.5	.89	1.5	3.5	1.2	1.1	2.5	5.0	2.1	.80
4	.67	20	1.1	1.0	1.3	2.3	1.3	1.0	2.6	5.1	1.9	.79
5	259	11	.79	1.4	1.2	1.5	2.6	.91	2.6	3.5	1.5	.73
6	612	6.2	.90	1.2	1.2	1.6	2.8	1.5	2.5	2.1	1.1	1.1
7	955	3.2	1.5	1.1	1.2	6.9	1.8	4.7	3.1	2.2	1.1	.65
8	1120	9.4	4.4	.95	1.2	3.3	2.4	3.0	3.4	2.9	1.2	1.0
9	100	17	1.9	1.1	1.2	1.8	1.7	2.3	3.0	2.8	1.1	.72
10	34	5.0	.98	1.1	1.1	1.2	1.2	1.6	2.6	2.9	1.2	.70
11	14	3.0	.84	.93	1.1	1.1	3.0	2.1	2.4	3.7	9.7	.74
12	7.4	2.0	.76	4.0	1.1	.82	5.1	2.7	2.5	3.8	27	.73
13	4.7	1.8	.70	5.0	1.1	.78	4.8	1160	2.8	3.7	9.2	.78
14	3.9	1.5	1.7	2.5	1.2	.70	7.0	1990	4.5	5.8	2.3	.89
15	2.7	1.3	1.1	1.7	1.5	.69	6.0	249	5.0	7.4	.91	.76
16	1.9	1.2	.80	1.7	1.7	.69	3.8	94	3.6	8.5	.61	.73
17	1.7	1.2	.71	1.7	1.7	.70	2.1	580	3.1	8.1	.56	.69
18	3.6	1.1	.83	1.4	1.6	.69	1.0	1890	3.5	9.8	.56	.61
19	3.5	1.1	.77	1.3	1.7	.81	.64	255	4.3	8.7	.55	.51
20	2.9	1.4	1.8	1.3	48	.75	.64	81	4.6	7.0	.89	.67
21	2.3	.99	9.4	1.3	36	.82	26	35	4.4	5.5	.64	.50
22	1.9	.80	2.6	1.2	9.0	.75	183	37	4.4	8.3	.64	.54
23	1.6	.85	1.2	1.2	4.9	.97	26	144	4.9	4.2	.58	.59
24	1.2	1.0	.87	1.2	2.6	1.4	177	208	3.7	3.5	.68	.64
25	1.2	.95	.97	1.2	52	.98	139	104	4.2	4.9	.70	.54
26	1.3	.76	.82	1.1	389	.80	42	39	6.6	40	.72	.56
27	1.2	.79	.82	1.1	98	2.0	16	19	104	115	.86	.57
28	1.0	.73	.86	1.2	32	2.2	5.9	12	15	17	.81	.60
29	1.0	16	1.0	1.2	---	1.5	2.9	8.7	11	15	.89	.57
30	1.3	7.7	1.5	5.8	---	1.2	1.8	6.0	7.9	12	.85	.55
31	498	---	1.3	8.0	---	1.1	---	4.3	---	9.2	.88	---
TOTAL	3640.85	822.97	49.32	56.56	698.1	63.15	671.38	6939.61	230.5	337.3	81.03	21.26
MEAN	117	27.4	1.59	1.82	24.9	2.04	22.4	224	7.68	10.9	2.61	.71
MAX	1120	546	9.4	8.0	389	13	183	1990	104	115	27	1.1
MIN	.61	.73	.70	.80	1.1	.69	.64	.91	2.4	2.1	.55	.50
AC-FT	7220	1630	98	112	1380	125	1330	13760	457	669	161	42
CAL YR 1981	TOTAL	20023.31	MEAN	54.9	MAX	3310	MIN	.25	AC-FT	39720		
WTR YR 1982	TOTAL	13612.03	MEAN	37.3	MAX	1990	MIN	.50	AC-FT	27000		

## SAN BERNARD RIVER BASIN

08117500 SAN BERNARD RIVER NEAR BOLING, TX

LOCATION.--Lat 29°18'47", long 95°53'36", Wharton-Fort Bend County line, Hydrologic Unit 12090401, near left bank at downstream side of pile bent of bridge on Farm Road 442, 2.5 mi (4.0 km) downstream from Snake Creek, and 4.5 mi (7.2 km) northeast of Boling.

DRAINAGE AREA.--727 mi<sup>2</sup> (1,883 km<sup>2</sup>).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1954 to current year.

REVISED RECORDS.--WSP 1712: 1958. WSP 1922: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 30.81 ft (9.391 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good. Part of low flow is drainage from areas irrigated with diversions from Colorado River. Diversions above station for irrigation and other uses.

AVERAGE DISCHARGE.--28 years, 494 ft<sup>3</sup>/s (13.99 m<sup>3</sup>/s), 357,900 acre-ft/yr (441 hm<sup>3</sup>/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft<sup>3</sup>/s (600 m<sup>3</sup>/s) June 28, 1960, gage height, 42.41 ft (12.927 m); minimum daily, 2.4 ft<sup>3</sup>/s (0.068 m<sup>3</sup>/s) Nov. 27-30, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1900, 43.5 ft (13.26 m) in 1913 (probably December). Flood in September 1938 reached a stage of 43.3 ft (13.20 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft<sup>3</sup>/s (85.0 m<sup>3</sup>/s) and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)	Date	Time	Discharge (ft <sup>3</sup> /s) (m <sup>3</sup> /s)	Gage height (ft) (m)
Nov. 1	1400	3,390 96.0	19.23 5.861	May 7	1700	3,330 94.3	19.07 5.813
Nov. 5	0700	3,060 86.7	18.27 5.569	May 14	2000	*5,840 165	25.71 7.836

Minimum daily discharge, 19 ft<sup>3</sup>/s (0.54 m<sup>3</sup>/s) Oct. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982  
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	307	3200	376	25	77	1050	70	94	232	237	81	66
2	311	2760	647	25	53	634	70	62	183	226	77	73
3	311	2090	552	25	41	525	100	63	163	205	74	87
4	348	2700	534	24	34	406	128	179	148	169	72	93
5	350	3020	481	23	30	277	128	140	136	139	79	88
6	1190	2510	364	23	29	179	102	516	130	121	77	99
7	1650	1620	254	23	27	118	75	2990	124	121	79	113
8	2700	1200	172	22	26	85	56	2590	120	134	77	142
9	2180	1480	119	21	26	71	41	1490	118	148	75	184
10	1130	1240	93	20	25	60	33	804	116	215	97	179
11	689	784	79	20	24	49	31	466	115	301	136	139
12	468	518	69	22	23	39	28	365	114	328	208	102
13	336	418	60	28	22	37	28	1130	115	324	280	85
14	260	359	52	27	22	35	28	5240	125	332	253	81
15	226	285	47	26	22	32	30	5240	131	333	191	77
16	182	212	45	27	22	31	35	5180	137	336	149	77
17	144	156	43	32	22	29	30	5530	128	401	121	76
18	217	113	43	34	21	27	26	5290	131	400	96	76
19	230	89	41	34	20	26	23	4680	128	370	76	77
20	173	84	41	33	768	26	25	3980	118	336	75	80
21	120	82	55	30	1990	25	47	3060	103	258	78	84
22	95	80	46	31	802	24	216	1680	115	207	71	108
23	83	79	39	36	414	24	243	970	132	187	94	157
24	70	79	34	32	196	23	266	840	123	191	111	154
25	59	78	31	30	170	23	564	820	127	161	101	140
26	44	77	30	28	1640	26	510	1040	140	138	93	168
27	32	77	27	26	1880	70	389	1040	161	125	89	170
28	26	77	26	25	1490	130	244	694	296	120	87	153
29	22	86	25	48	---	96	193	489	318	101	77	152
30	19	106	24	54	---	72	145	359	269	83	67	200
31	741	---	26	95	---	67	---	298	---	85	65	---
TOTAL	14713	25659	4475	949	9916	4316	3904	57319	4496	6832	3306	3480
MEAN	475	855	144	30.6	354	139	130	1849	150	220	107	116
MAX	2700	3200	647	95	1990	1050	564	5530	318	401	280	200
MIN	19	77	24	20	20	23	23	62	103	83	65	66
AC-FT	29180	50890	8880	1880	19670	8560	7740	113700	8920	13550	6560	6900
CAL YR 1981	TOTAL	190726.1	MEAN	523	MAX	3940	MIN	9.4	AC-FT	378300		
WTR YR 1982	TOTAL	139365.0	MEAN	382	MAX	5530	MIN	19	AC-FT	276400		

## SAN BERNARD RIVER BASIN

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08117500 SAN BERNARD RIVER NEAR BOLING, TX--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical and biochemical analyses: February 1978 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: February 1978 to September 1981.

WATER TEMPERATURES: February 1978 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,130 micromhos Mar. 3, Apr. 15, 1981; minimum daily, 64 micromhos May 25, 1979.

WATER TEMPERATURES: Maximum daily, 32.0°C June 26-28, 1980; minimum daily, 3.5°C Jan. 5, 1979.

## WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (FTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS (MG/L AS CACO3)
NOV 18...	1630	106	225	7.5	19.5	40	7.8	85	1.4	96	520	75
DEC 28...	1550	26	625	7.8	14.5	9.7	10.5	101	.8	K58	150	200
MAR 23...	1430	24	700	7.5	21.0	18	7.4	83	1.3	80	390	220
MAY 05...	1245	135	250	7.5	22.5	130	8.2	95	2.2	370	180	85
JUL 28...	1530	116	540	8.2	29.5	35	6.0	78	1.2	130	2000	190
SEP 09...	1015	185	556	8.0	26.0	21	6.9	85	1.4	130	700	200

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	22	4.9	12	.6	4.7	60	6.2	28	.2	14
DEC 28...	17	59	12	51	1.7	4.3	180	6.0	100	.2	15
MAR 23...	28	64	14	58	1.8	5.5	190	23	100	.3	14
MAY 05...	26	25	5.4	15	.8	4.5	59	9.0	23	.4	10
JUL 28...	21	50	16	40	1.4	3.6	170	18	65	.4	23
SEP 09...	25	50	17	38	1.3	6.4	170	17	65	.4	43

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- PENDEd (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEd (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 18...	146	128	<.09	.110	1.10	.150	.160	.200	42	12	98
DEC 28...	366	356	.17	.090	1.10	.120	.100	.100	26	1.8	98
MAR 23...	394	393	.33	.100	2.10	.130	.160	.140	21	1.4	93
MAY 05...	169	128	1.6	.300	1.50	.260	.130	.120	85	31	99
JUL 28...	339	318	.30	.110	1.00	.160	.120	.080	54	17	100
SEP 09...	501	329	.18	.060	1.80	.200	.180	.170	28	14	99



## SAN BERNARD RIVER BASIN

08117500 SAN BERNARD RIVER NEAR BOLING, TX--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982

DATE	TIME	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUS- PENDE TOTAL (UG/L AS AS)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BARIUM, SUS- PENDE RECOV- ERABLE (UG/L AS BA)	BARIUM, DIS- SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM SUS- PENDE RECOV- ERABLE (UG/L AS CD)	CADMIUM DIS- SOLVED (UG/L AS CD)
NOV 18...	1630	3	1	2	100	20	83	4	0	4
MAR 23...	1430	4	1	3	200	20	180	<1	--	<1
JUL 28...	1530	4	1	3	200	40	160	<1	--	<1
SEP 09...	1015	6	1	5	<100	--	150	<1	--	<1

DATE	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO)	COBALT, SUS- PENDE RECOV- ERABLE (UG/L AS CO)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, SUS- PENDE RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, SUS- PENDE RECOV- ERABLE (UG/L AS FE)
NOV 18...	<10	<10	1	0	4	4	2	2	1700	1500
MAR 23...	10	<10	<1	--	<1	6	4	2	770	750
JUL 28...	<10	<10	<1	--	<1	2	1	1	1100	1100
SEP 09...	<10	<10	<1	--	<1	3	2	1	770	720

DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, SUS- PENDE RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, SUS- PENDE RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY SUS- PENDE RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
NOV 18...	250	46	44	2	60	50	12	.1	--	<.1
MAR 23...	19	2	0	4	80	30	48	.1	--	<.1
JUL 28...	37	3	1	2	70	60	8	.1	.0	.1
SEP 09...	53	1	--	<1	40	30	10	.1	.0	.1

DATE	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, SUS- PENDE RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, SUS- PENDE RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 18...	2	1	1	<1	<1	<1	<1	10	0	14
MAR 23...	3	0	<1	<1	<1	<1	<1	50	40	8
JUL 28...	<1	--	<1	<1	<1	<1	<1	20	0	27
SEP 09...	6	4	2	<1	<1	<1	<1	20	0	23



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Because the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than continuous stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage of those events. The data collected for special reasons are called measurements at miscellaneous sites.

Streamflow data collected at partial-record stations where water-quality data other than observations of water temperature are not obtained are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations; the second is a table of annual maximum stage and (or) discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low and high flows are given in a third table. Discharge measurements and water-quality data collected at partial-record stations are presented in downstream order in the section of this report entitled "Gaging-station records."

## Low-flow partial-record stations

Measurements of streamflow at low-flow partial-record stations that are not published in the gaging-station section are given in the following table. Most of the measurements of low flow were made during periods when streamflow was sustained primarily by ground-water discharge. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will indicate the low-flow potential of the stream. The years listed in the column headed "Period of record" identifies the water years in which measurements were made at the same or at practically the same site.

Discharge measurements made at low-flow partial-record stations during water year 1982

Discharge measurements made at low-flow partial-record stations during water year 1962						
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
Brazos River basin						
08080900	White River below falls near Crosbyton, Tex.	Lat 33°39'57", long 101°09'35", Crosby County, at bridge on U.S. Highway 82 and 4.5 mi east of Crosbyton.	(a)	1951-82	1- 6-82 6-29-82 9-21-82	1.37 18.9 1.95
08111600	Piney Creek near Bellville, Tex.	Lat 29°57'06", long 96°10'20", Austin County, at bridge on county road and about 5.1 mi east of Bellville.	30.7	1948, 1955, 1958, 1964-82	10-28-81 5-26-82 8- 4-82	2.9 13.0 .99
08111650	West Fork Mill Creek near Industry, Tex.	Lat 29°58'55", long 96°30'00", Austin County, at bridge on Farm Road 109 and about 0.6 mi north of Industry.	75.3	1964-82	10-28-81 8- 5-82	.23 0

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 1982							
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (ft <sup>3</sup> /s)
San Jacinto River basin							
08068400	Panther Branch near Conroe, Tex.	Lat 30°11'28", long 95°28'44", Montgomery County, 2,400 ft downstream from former gage site, 5.1 mi upstream from station 08068450, and 8 mi southwest of Conroe.	26.1	1974-76, 1980-82	5-19-80 9-1-81 5-13-82	d7.53 9.93 10.90	(e) (e) (e)
08068438	Swale No. 8 at The Woodlands, Tex.	Lat 30°08'38", long 95°28'09", Montgomery County, at bridge on Groqans' Mill Road at The Woodlands.	.55	1975-76, 1980-82	5-19-80 8-31-81 5-13-82	d33.64 33.80 33.87	130 257 434
08068450	Panther Branch near Spring, Tex.	Lat 30°08'02", long 95°28'38", Montgomery County, at bridge on Sawdust Road, 3.0 mi upstream from Spring Creek, and 5.1 mi northwest of Spring.	34.5	1972-76, 1980-82	5-19-80 8-31-81 5-14-82	d11.22 13.19 13.99	923 2,240 3,040
08068700	Cypress Creek at Sharp Road near Hockley, Tex.	Lat 29°55'15", long 95°50'24", Harris County, at bridge on Sharp Road and 7.4 mi south of Hockley.	80.7	1976-78, 1979-82	5-15-82	66.95	-
08072400	Buffalo Bayou near Clodine, Tex.	Lat 29°43'06", long 95°43'53", Fort Bend County, on private road to Cinco Ranch, 2.8 mi west of Clodine, and 9.0 mi upstream from Barker Reservoir discharge structure.	84.2	1974-82	5-13-82	*97.09	2,710
08072700	South Mayde Creek near Addicks, Tex.	Lat 29°48'03", long 95°41'33", Harris County, at bridge on Groeschke Road, 3.2 mi west of Addicks, and 4.6 mi upstream from Langham Creek.	32.3	1974-82	5-13-82	*106.14	1,200
08072800	Langham Creek near Addicks, Tex.	Lat 29°50'08", long 95°37'32", Harris County, at bridge on Clay Road, 3.6 mi north of Addicks, and 4.4 mi upstream from mouth.	48.9	1974-82	5-13-82	100.10	2,090
08074200	Brickhouse Gully at Clarlak Street, Houston, Tex.	Lat 29°49'53", long 95°31'42", Harris County, at bridge on Clarlak Street in northwest Houston.	2.56	1965-82	10- 6-81	*87.81	288
08074760	Brays Bayou at Alief Road, Alief, Tex.	Lat 29°42'39", long 95°35'13", Harris County, at bridge on High Star Street in Alief.	14.1	1977-82	5-13-82	14.78	2,150
08074780	Keegans Bayou at Keegan Road near Houston, Tex.	Lat 29°39'55", long 95°35'42", Harris County, at bridge on Keegan Road and about 16 mi southwest of Houston.	7.47	1965-71, 1975-82	5-13-82	*77.56	808
08074810	Brays Bayou at Gessner Drive, Houston, Tex.	Lat 29°40'21", long 95°31'41", Harris County, at bridge on Gessner Drive in southwest Houston and 0.10 mi below mouth of Keegans Bayou.	53.2	1977-82	5-13-82	*59.18	11,300
08074850	Bintliff Ditch at Bissonnet Street, Houston, Tex.	Lat 29°41'16", long 95°30'20", Harris County, at bridge on Bissonnet Street in southwest Houston (discontinued).	4.38	1968-82	5-13-82	*62.68	1,200
08074910	Hummingbird Street Ditch at Mullins Street, Houston, Tex.	Lat 29°39'44", long 95°29'11", Harris County, at intersection of Hummingbird Street ditch and Mullins Street in southwest Houston.	.32	1979-82	5-13-82	*58.76	157
08075470	Sims Bayou at Martin Luther King Boulevard, Houston, Tex.	Lat 29°38'42", long 95°20'13", Harris County, at bridge on Martin Luther King Boulevard in south Houston.	48.4	1978-82	10- 5-81	*35.88	-
08075550	Berry Bayou at Gilpin Street, Houston, Tex.	Lat 29°38'32", long 95°13'22", Harris County, at bridge on Gilpin Street in southeast Houston.	2.56	1965-82	5-13-82	*34.80	476
08075650	Berry Bayou at Forest Oaks Street, Houston, Tex.	Lat 29°40'35", long 95°14'37", Harris County, at bridge on Forest Oaks Street in southeast Houston.	10.7	1967-82	5-13-82	f16.26	1,850

\* Elevation.

d Partial year; maximum during period April to September 1980.

e Not determined; rating definition pending.

f Peak stage occurred on different date.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Annual maximum stage and (or) discharge during water year 1982--Continued							
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Elevation (feet)	Discharge (ft <sup>3</sup> /s)
Brazos River basin							
08075780	Greens Bayou at Cutten Road near Houston, Tex.	Lat 29°56'56", long 95°31'10", Harris County, at bridge on Cutten Road and about 16.5 mi northwest of Houston.	8.06	1965-82	11-29-81	d*111.64	418
08076200	Halls Bayou at Deertrail Street near Houston, Tex.	Lat 29°54'07", long 95°25'21", Harris County, at bridge on Deertrail Street, 0.6 mi west of U.S. Highway 75, and about 11 mi northwest of Houston.	8.99	1965-82	5-13-82	*84.46	810
Clear Creek basin							
08077600	Clear Creek near Friendswood, Tex.	Lat 29°31'02", long 95°10'42", Galveston County, at bridge on Farm Road 528 and 1.5 mi south-east of Friendswood.	-	1966-82	5-14-82	*10.23	-
Highland Bayou basin							
08077780	Highland Bayou near Texas City, Tex.	Lat 29°19'54", long 94°56'42", Galveston County, at bridge on State Highway 6, 0.4 mi southwest of U.S. Highway 75, 1.5 mi from mouth, and about 3 mi southwest of Texas City.	-	1974-82	5-13-82	*3.06	-
08079300	Blackwater Draw tributary near Floyd, N. Mex.	Lat 34°14'52", long 103°44'51", Roosevelt County, 0.5 mi below section road and 10 mi west of Floyd.	a10	b1963-82	1- -63 1- -64 5-12-65 7-27-66 3-19-67 1- -68 9- 1-69 9-15-70 1- -71 9- 2-73 7-26-73 1- -74 10-23-74 8- 5-76 8-11-77 5- 2-78 5-20-79 1- -80 8-11-81 7-11-82	- - 0.73 1.05 1.45 - 5.96 .43 - 5.05 .60 - .63 2.50 1.11 .41 1.08 - 3.10 .78	b0 b0 b16 b38 b84 b0 b3,400 b5.2 b0 b2,620 b10 b0 b12 b356 b44 b4.7 b41 b8.0 b430 19
08080600	Running Water Draw near Clovis, N. Mex.	Lat 34°31'55", long 103°12'05", Curry County, 0.25 mi upstream from Highway 18 and 8 mi west of Clovis.	109	1953-56, 1957-64†, 1979, 1981-82	7-11-82	4.87	2,240
08093530	Aquilla Creek at abandoned Missouri-Kansas-Texas Railroad bridge near Aquilla, Tex.	Lat 31°48'59", long 97°11'35", Hill County, on right bank at downstream side of abandoned Missouri-Kansas-Texas Railroad bridge, 0.8 mi downstream from Alligator Creek, 2.5 mi downstream from gaging station Aquilla Creek near Aquilla at Farm Road 1304 (08093500), 2.5 mi upstream from Farm Road 2114, and 2.8 mi southeast of Aquilla.	-	1976-82	3-21-82	459.12	-
08093540	Aquilla Creek at Farm Road 2114 near Aquilla, Tex.	Lat 31°47'23", long 97°11'13", McLennan County, on right bank at downstream side of bridge on Farm Road 2114, 2.1 mi upstream from Snake Creek, 3.3 mi downstream from Alligator Creek, and 4.6 mi southeast of Aquilla.	-	1976-82	3-21-82	443.50	-
08093560	Aquilla Creek at Farm Road 1858 near Ross, Tex.	Lat 31°43'33", long 97°12'39", McLennan County, on right bank at downstream side of bridge on Farm Road 1858, 0.9 mi downstream from Patten Branch, 1.6 mi upstream from Dry Creek, 3.4 mi west of Ross, and 4.4 mi upstream from Farm Road 933.	-	1976-82	3-21-82	414.41	-
08093580	Aquilla Creek at Farm Road 933 near Ross, Tex.	Lat 31°41'06", long 97°11'02", McLennan County, on left bank at downstream side of bridge on Farm Road 933, 1.5 mi downstream from Elm Creek, 2.5 mi southwest of Ross, 2.6 mi upstream from mouth (Brazos River), and 2.8 mi downstream from Dry Creek.	-	1976-82	3-21-82	g390.5	-

\* Elevation.

† Operated as a continuous-record station.

a Approximately.

b Revised.

c Not previously published.

g Estimated from plotted profile; was known to be less than 390.61 ft.



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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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